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WESTERN Farm Life

Vol. XXI Denver, Colorado, January 1, 1919 Semi-Monthly

One of the Shorthorn Bulls from the herd of C. A. Saunders & Sons, Manila, Ia., which will be shown at the National Western Stock Show in Denver, January 18th to 25th

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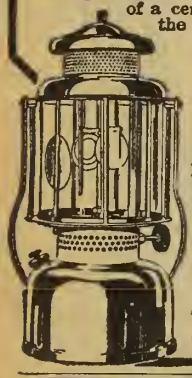

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From a Sweet Clover Booster

There are very few men who so thoroughly understand the principles and facts of raising crops with the minimum amount of moisture which the arid and semi-arid portions of this country are blessed with than our friend and advisor, Mr. E. R. Parsons. Yet I for one cannot understand how he says "so little" and yet "so much" about white sweet clover in his article published in your valued magazine under date of November 15.

Of course, 'tis possible his reticence about this plant is due to lack of experience with it. If one reads in his article just what he says of white sweet clover and knows nothing about doing what he has so often emphasized, namely, FIRST, get all the moisture you can in your land and then plant your seed, why what he says would undoubtedly be true. But I take exception to what he says on these grounds: a dry farmer to be successful must and should have a certain percentage of moisture in his soil. If he stores up the coming season's moisture and will keep his ground free from weeds, and the following season get good white sweet clover seed, sow same properly, the first year he will, or rather, should have a good stand, which will give him much pasture superior to alfalfa (white sweet clover does not bloat); which will keep more stock per acre than anything else that I know of. Second year, pasture, and if season is favorable, take stock off and let go to seed. Then one gets seed to sell and the ground is re-seeded and an immense amount of roots are left in the soil to decay, improving the soil for future crops.

When men are prejudiced (this is not meant for Mr. Parsons), they make failures. They fail before they start. So many knock white sweet clover because it has been a perfect nuisance to them along their irrigating ditches; others knock because of the failures of those who tried to raise a crop with the distinct conviction within themselves that the crop was no good for hay, no good for pasture. In fact, they did not want it to be successful, because they knew it was no good, etc., but would try it anyway—that is their way—just to show that they were right in their poor opinion of the crop.

To those who want a pasture on their dry farms, my suggestion is to try this much abused plant, but for their own sakes recollect that the better preparation of the soil, the more moisture stored therein, the greater are their chances of getting a good stand of a plant which will, in my opinion, be known as the salvation of the dry land farmer. Eliminate the word failure. If you fail to get a good stand the first time, keep at it and you must win.—Dr. Vernon T. Cooke.

Tractor Use Is Increasing

Interesting figures regarding the tractor resources of the country have just been announced by the United States Department of Agriculture. In 1916 the number of tractors manufactured was 29,670; the number sold that year to American users was 27,819.

In 1917 the number of tractors manufactured was 62,742; the number sold in 1917 to American tractor users was 49,504.

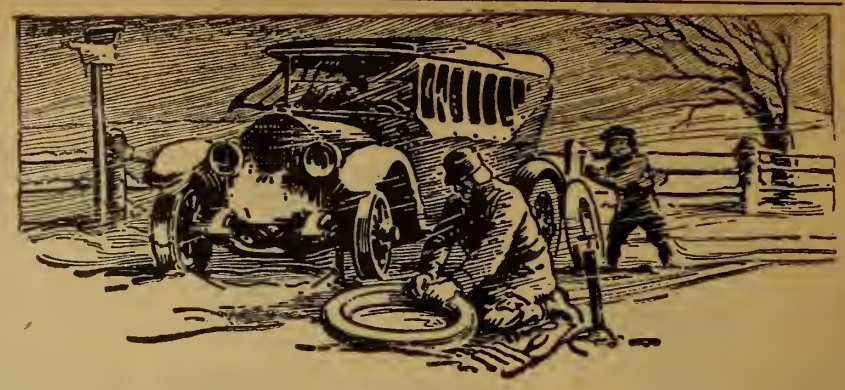
From January 1 to June 30, 1918, the number of tractors manufactured was 58,543.

The number exported in 1917 was 14,854 and the number exported in the first six months of 1918 was 15,610.

On August 1, 1918, the tractor resources of the country, being number on hand, in transit or in hands of dealers at time of report, was 11,388.

These figures indicate that there has been a great increase in the number of tractors manufactured and put into actual use on American farms and abroad.

The Food Administration is turning the full power of its enforcement machinery against dealers who are attempting to reap large profits from the rising butter market. Under Food Administration rulings, butter, both storage and fresh, must be sold at prices not to exceed a stipulated margin over cost. Dealers are not allowed to profit by abnormal advances in market quotations.



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Relieve other pains and aches, too, such as *Lumbago, neuralgia, sciatica, strains, sprains, neuralgic headache*, with this most effective, prompt-acting remedy. Lay it on the affected spot and let it *penetrate* soothingly—*no rubbing* is required.

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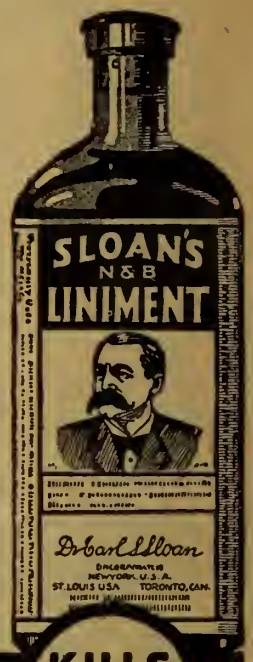

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Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, JANUARY 1, 1919 | Number 1

Says It Was a Great Year for Montrose County

SAGEBRUSH SCRIBE'S SUMMARY OF SEASON ON UNCOMPAHGRE

WARREN FERDE WILCOX

IT was a great year for Montrose county with a million and a half dollar wheat crop, a million dollar spud crop, a million dollar alfalfa hay crop and everything else in proportion.

Everything combined to make a great year. While many fields of spuds did not germinate last spring, these were replanted, some as late as the middle of July, and owing to the late fall did well. Other fields were planted to beans very late and these matured nicely. Late oats and wheat ripened and binders were seen running the first week of November.

The labor situation, which approached the acute early in the harvest, was so well managed and with the boys and girls and women cooperating, the crops were harvested without the loss of any from freezing. Between 250 and 300 cars of apples were harvested without one being frosted. The apples matured early and were nicely colored and ready for the pickers two weeks earlier than usual.

The transportation problem was handled nicely, every spud and apple being shipped as fast as the producers willed, there being no car shortage.

The spuds have been shipped out so that not more than 200 cars remain in storage. Spuds never ripened earlier, Olathe beginning shipping early in August, and her shipments for August and September surpassed all former records.

Corn is a big crop now, and one looking upon the fields that produce 60 bushels to the acre thinks himself back in Iowa instead of in the Rockies a mile high.

The dairy industry is picking up, the dairy products of the county this year being worth over $100,000. The Montrose creamery is turning out 115,000 pounds of butter this season.

Montrose county farmers are progressive. Double the number of tractors used last year were in use this year. Fall plowing is becoming more and more popular. Deep plowing is also found profitable. Everywhere the better methods are obtaining, and more attention is paid to seed selection.

Potato inspection at the loading stations is resulting in good in more ways than one. One is that of locating diseased stock and informing the growers of such, so that they will not plant this seed again. This will result in much good. A year ago great loss was experienced in storage from fusarium rot. This disease is getting a considerable hold in the valley and farmers must co-operate to stamp it out before it materially injures the spud industry.

Last fall I saw an Olathe farmer plowing under a most luxuriant stand of oats. Investigation found that as soon as he took off his spuds in August he seeded to oats, marked out and watered. Results: the most magnificent growth I ever saw, two feet high and so rank they had fallen down. He was plowing this under with a two-way plow, covering it nicely—and say! how many tons of fertilizer did it represent? Anywhere from 10 to 20.

Seventeen threshers are busy in the county separating the golden wheat from the straw, and they will be busy way into January. The farmers are waiting, Job-like, opportunity to dispose of the wheat, mills and elevators being overwhelmed so that granaries and straw piles are bulging with the breadstuffs waiting for market. And yet the fall planting of wheat in the valley surpasses all records and the talk about spring planting shows that next year's acreage will be as big as this if nothing happens.

The range stock came down from a hundred hills in great abandon of fat and sleekness. The range must have been in good shape and the increase was 100 per cent or better, for every cow had a calf and some two.

Auto trucks and trailers were used to haul the most of the apple crop from the orchards to the freight cars, doing the work much more quickly, efficiently and with fewer men than the old-time method of wagons and horses.

Montrose county commissioners have just made a mill and a half levy providing a sinking fund of $25,000 a year for a new courthouse which will have memorial features for the remembrance of the 700 soldiers the county furnished.

Paving of Main street will go forward this year.

Darling's saw mill in the Horsefly region, 23 miles from Montrose, sawed two and a half million feet of lumber this season, all used in the county.

The Montrose-Olathe highway, which was graveled a year ago, has proven a boon and a joy to travelers this season. Both farm vehicles and autos have appreciated this thoroughfare, and the only wish is that all the roads could be thus improved.

Preparations are already under way for the big roundup and banquet of the Uncompahgre Valley Stockgrowers association early in January. This is always a big affair.

County Agent H. C. Nevius and Prof. H. A. Lindgren, livestock specialist on the Uncompahgre project, have rendered valiant service to the farmers this season.

The great Gunnison tunnel and canal furnished abundance of irrigation water this season. As no snow fell on the watersheds until January 5th last year, great fear was felt over the water situation and supply. The Uncompahgre river, which was formerly the source of water supply, was indeed very low this season, and had the farmers been obliged to depend upon it alone, there would have been little else produced than a first crop of hay and a little grain. With the tunnel tapping the great resources of the magnificent Gunnison, water aplenty was had, although the tunnel and canal carried the greatest head of water in their history.

Through some mistake in the growing or handling of the beet seed furnished the Montrose county sugar beet growers by the sugar company last spring, there appeared a considerable admixture of mangel wurtzels and stock beets in the fields. In some fields these non-saccharine beets were few, while in others the percentage was larger, one field of four acres being practically all of the non-sugar variety. Since the sugar company furnished the seed it had to take the beets, and here is where the growers profited by the mistake, since the mangels and stock beets grow so much larger and produce a heavier tonnage. The company paid the $10 a ton for them per contract, and then, to get rid of them, sold to stockmen at $7 a ton. There was a great demand for them by dairymen and sheep men. One grower with four acres which were practically all stock beets was in great luck, for his tonnage was between two and three times what it would have been with sugar beets.

The Uncompahgre project is practically complete, or to be exact, Manager F. D. Pyle reports 96.6 complete. Little construction work will be done this winter. In past winters large forces of men have worked in the tunnel, concreting portions which needed it, but this has been finished.

A considerable acreage of seed beans was grown in the valley this year and Franklin Bros. had more than their usual onionseed acreage on their farms at Coal Creek.

John Howell, at the Wichita and Kansas City expositions, pulled down some 40 ribbons, four silver cups and a hundred dollars for the bushel of Marquis wheat. These were prizes on Montrose county stuff and surely shows that we can produce the goods. John has won many prizes at the big shows and knows how it is done. He has retired to a little place on Spring Creek mesa and will do nothing but grow prize stuff. The attention of the whole world will be attracted to this little 20-acre patch next year, for we anticipate he is going to out-Burbank Burbank next season. Just a short distance from Howell's experiment farm is Al Neale's ranch, where the famous steers were produced which took the big prizes at the International in Chicago two or three seasons running. Verily, Montrose county produces the men, the crops, the stock and everything else worth while.

Twenty Stacks of Oats and Barley on the K. K. Ranch, Eastonville, Colo.

Grain on the K. K. Ranch

Last summer the El Paso County Farm Bureau devoted a day to an automobile tour of the highland farms in the vicinity of Peyton and Eastonville. One of the chief objects of the tour, an account of which was given in Western Farm Life August 15th, was to inspect the fields of grain, then in their prime, particularly the winter wheat on the J. M. Bradshaw ranch and the Petkus rye on the K. K. Ranch (Kirk Brothers). The grain has long since been cut and threshed and the promise of big yields, held out during midsummer, has been amply fulfilled.

Two views here presented show harvest results. The stackyard shows twenty stacks of oats and barley, Swedish and Silver Mine oats and Success barley. The oats averaged an even thirty bushels, while the barley yielded 32½ bushels per acre, all under dry farming conditions at an altitude of about 7,000 feet.

Petkus rye is shown in sacks, ready for milling. This hardy and heavy-yielding winter rye has shown itself particularly adapted to the conditions on the Arkansas divide in El Paso county, as well as in other sections of the same county at elevations of 6,000 to 8,000 feet. On the K. K. ranch, where it was first introduced and where it has been grown now for four seasons, the average has been right around 30 bushels per acre.

Petkus Rye Sacked and Ready for the Mill on the K. K. Ranch

Keeping Farm Accounts

Farmers who are not keeping farm records should seek the advice of the county agent or write to Western Farm Life for information as to a suitable form of record and the method of keeping it, and be ready at the beginning of the farm year to make prompt entries of things done during the year. This may be a record of just one enterprise or of all the operations of the farm. The record will be found very helpful in finding out the strong and weak points of the year's business, and in deciding on any changes that may be desirable in the organization and management for the next year. Farmers who are already keeping records should see that the accounts are summarized and the new inventories promptly entered for the beginning of the next year's business. Farmers who do not keep books will find it difficult to make proper returns under the Federal income-tax law.

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Farm Bureau Adds $255,000 to County's Wealth

REMARKABLE AGRICULTURAL PROGRESS IN THE SAN JUAN BASIN

ALVIN T. STEINEL

THAT it is possible by co-operation of farmers to increase the material wealth of a county by over one-fourth of a million dollars in twelve months is the inspiring word that comes from La Plata county, Colorado, in the heart of the famous San Juan basin. To be exact, the amount shown by the annual report of County Agriculturist E. D. Smith as having been saved and added to the county's wealth during 1918 is $255,813.00. These figures speak volumes for the material prosperity of the county and for the efficiency of the La Plata County Farm Bureau, which is composed of farmers and run by them. But no statistics can convey the great good that has been accomplished in developing the get-together spirit. The object of the farm bureau is set forth by County Agriculturist Smith as follows:

"To advance the educational, vitalize the social and enrich the material life of the rural people of this section, a rural organization project was inaugurated three years ago, which has been continued from year to year with constantly increasing interest and results.

"The existence of twelve Granges in this county has been the nuclei around

Debs Paulek of Breen, Colo., and the Pig Which Was Champion at the Marvel Fair

which has been built local interest in farm bureau activities. Outside these, valuable members have also been interested in the various projects which have comprised the progress of work for the year. The membership of these local organizations, numbering more than 1,600, have without exception, supported all work planned by the county organization. Local committees having charge of project problems particularly applicable to the individual localities have directed the work locally and report progress on same."

Nine projects were undertaken, four of which were considered major projects, these being rural organization, boys' and girls' clubs, pest control, crop improvement and livestock improvement. The minor projects were: poisonous plants, silos and silage, soil improvement, and disease control among livestock. The summary shows twelve agricultural juvenile clubs organized, seven pest districts formed, 300 crop improvement demonstrators working, 110 farms securing registered livestock, 30 poisonous plant areas destroyed, 45 farms growing corn for ensilage, 35 soil improvement demonstrators working, 134 farmers co-operating to reduce mortality among livestock.

Farmers in counties that have not yet established county agent work need read no further to become convinced that agricultural progress of a community rests on organized effort, and that where there is no one to lead, little is accomplished in a community way. La Plata county is about as remote an agricultural section from large markets, as there is in the intermountain states. Durango, its chief town, is 450 miles by rail from Denver and hemmed in by mountain ranges which make rail transportation difficult and slow. The marketing problem is a serious one, but these farmers are not sitting still and bemoaning their remoteness from the centers of population, but devoting themselves to the development of self-supporting lines of farming, to the improvement of crop and livestock production methods, and the enhancement of the community spirit. For a community of this type the marketing problem will eventually be solved, whether it comes through new rail facilities, or an agricultural program that has for its first aim the support of the farm family, and its second the production of surplus crops for local mining markets, with a minimum of production for shipment outside.

The principal activities are touched upon in this review, beginning with pig club organization. This work had three well-defined objects: interesting the boys and girls in rural life by enabling them to earn money through their own efforts; for the purpose of introducing a better and purer strain of hogs into the county, and to indirectly interest the farmers in producing a matured hog in a shorter period of time. Local clubs were formed enrolling sixty boys and girls, each agreeing to take only purebred, registered animals, as the movement was planned for breeding rather than feeding. A fund of $2,500 was subscribed by farmers, stockmen, business and professional men, led by the farm bureau and Mr. John Waters individually. This money was loaned to club members on one year notes without interest, the fund being handled through the Durango Trust company, a charge of $1 per pig being made for administration.

The first importation comprised eleven Duroc bred gilts, at an average cost of $72.15 each, delivered in Durango. From this shipment eighty pigs have been raised and distributed over the county. Subsequently 50 purebred weaner Durocs were purchased through the Blue Ribbon Stock Farm of Pueblo and two Poland Chinas from Charles Broad at Golden.

These were all registered animals. They were delivered in Durango at $24.65 each, C. F. Burke, manager of the Blue Ribbon herd making this price in order to encourage the production of pork under war conditions. Each club member agreed to use only registered boars and to exhibit the pigs at the fall fairs. As a result, 143 registered Durocs are now to be found on more than 100 farms, the total value of this stock being $6,000.

Among others Oliver Pedwell of Griffith made a remarkable showing with his pig, his net profit being $249, not counting $16 won in premiums at the fairs. Joe Snyder of Hesperus reports a net profit of $115.55 and Willie Masters of Durango a net of $156. These pigs formed a noteworthy addition to the exhibits at the Colorado-New Mexico, the Southern Ute and Pine River and the Marvel fairs.

Oliver Pedwell with his sow and her litter of eight purebred Durocs, won the first four premiums at the Colorado-New Mexico fair, against competition of sixty youthful pig breeders. He got his bred gilt on the twentieth of March and on Decoration day she farrowed a litter of nine. When the pigs were shown at 115 days of age they weighed on an average of 115 pounds each. The financial part of his record shows the initial cost of the pig at $72.15; cost of feeds, $27; cost of pasture at 10 cents per head per month, $3.85; caring for pigs at 10 cents per hour, $10.50; total cost, $113.50.

Value of three hogs sold, $95; amount of premiums won, $16; value of hogs on hand at 25 cents per pound, $267.50. Total, $378.50; net profit, $265.

Canning and garden clubs also were conducted, the pig club work, however, getting the major share of attention.

The pest control work included a fight on prairie dogs and grasshoppers, eight pest districts being organized, over an area of 225 square miles. Different methods of financing this work were employed: 1, an assessment of 5 cents per acre; 2, formation of stock companies; 3, individuals each purchasing their own supplies. Because of the scarcity of bran, alfalfa meal was tried in the poison mixtures for grasshoppers, but the results were disappointing. The common complaint was that the hoppers would not eat the mixture. In the spring great quantities of egg masses found in the fields threatened a serious visitation of hoppers. Prompt measures in poisoning cut the prospective losses to a negligible amount, about $1,200 for the county, when in the previous season one district alone suffered a loss of $55,000, as no effective campaign was possible without the farm bureau organization. It is estimated that the work last spring saved the county $100,000, which is a fair figure on the amount of damage to crops that a full sized grasshopper visitation would have caused.

There was also a saving of about $3,000 through prairie dog killing, 21 farmers reporting the destruction of 60 per cent of the dogs on their land.

Seed testing and treatment was another important activity which is summarized as follows: number of acres of wheat sown with treated and tested seed, 3,993; oats, 1,230 acres; barley, 177 acres; corn tested for 166 acres; potatoes planted with treated seed on 76 acres; number of farmers acting as demonstrators for this work, 177. The total gain to crops from this is estimated at $57,770.

The livestock improvement project was productive of excellent results. Development of dairy farming and hog raising were the principal activities, the latter being confined to the pig club work already mentioned. In dairying, improvement of cows was the beginning. One farmer sold sixty head of scrubs which he replaced with forty-five higher grade cows that produced the same quantity of milk the sixty had given. The same methods were followed with small bunches of sheep and with poultry flocks. The results in livestock improvement are summarized as follows:

Number of purebred hogs, 164 on 102 farms; number of purebred cattle, 65 on 32 farms; number of purebred sheep on farms (not ranches), estimated 150; number of farms having purebred poultry, 23; number of cows tested for butterfat, 123; number of breeding stock transferred to farms, 180; number of demonstrations of livestock, 11. Total increase in value of purebred livestock in the county, $19,320.

Poison plant eradication is a highly important project for the county which has some areas of whorled milkweed, the deadly effects of which on sheep is a recent discovery of the Colorado Agricultural college experts. County Agriculturist Smith and the farmers that have worked on this project agree that application of a strong saline solution is the most economical means of extermination. Another point brought out in the report is that this plant is equally deadly at all stages of development, deaths having occurred from eating it in May,

Tractor Plowing Demonstration in La Plata County

September, November and December. Little progress has been made in remedial treatment of poisoned animals. Some stockmen, apparently, have had success in administering lard or oil in large doses in the early poison stage. Stockmen have stationed riders ahead of moving herds to try and avoid poison plant areas. Much has been done in cuting off or digging out the plants, but this must be persistently repeated if the growth is to be killed. Prof. May of the Agricultural college, the U. S. Forestry Service and the county commissioners helped the farm bureau in this work, which resulted in the destruction of thirty poison plant areas and a considerable saving of livestock.

The silo campaign was important and effective, resulting in the erection of twenty silos and the storing of 3,750 tons of ensilage which, at $6 per ton, is valued at $22,500.

Soil improvement was undertaken to demonstrate that deeper plowing, fertilization with manure and crop rotation will improve the physical condition of the soil and result in greater production. The first step was discussion of soil problems at farmers' meetings and the next was application of methods. On 26 farms there were increased crop yields from deeper plowing, the average increased yield on 751 acres where eight and ten-inch plowing was done being 8 bushels per acre.

Nineteen fields where barnyard manure was applied showed on 96 acres increased yields of grain averaging 8½ bushels per acre. Alfalfa on 110 acres treated with a dressing of manure showed an increase of nine-tenths of a ton of hay per acre.

Ten tractors were added to the farm equipment of the county recently. The total cash value to farmers of soil improvement work is figured at $26,820. Of this sum deeper plowing earned the farmers about $7,510.

In discussing the control of livestock

(Turn to Page 7)

A Demonstration Field of Corn at 7,000 Feet in La Plata County

Classes of Weeds and the Methods of Control

FANNING MILL NEEDED ON EVERY FARM TO INSURE CLEAN SEED

ARTICLE III

W. W. ROBBINS

OUR weeds fall into three classes, according to their length of life. It is necessary to know to which class a weed belongs before one can wisely proceed to eradicate it. These weed classes are:

1. Annuals.—Those that live one year, such as Russian thistle, pigweed, wild oats, shepherd's purse, pepper grass, foxtail, witchgrass, ragweed.

2. Biennials.—Those that live two years, producing seed at the end of the second year, such as wild carrot, wild parsnip, mullein and bull thistle.

3. Perennials.—Those that live from year to year by means of underground parts. They are our worst weeds, and when once established are difficult to eradicate. Some common perennial weeds are wild morning glory or bindweed, poverty weed, dock, dandelion, sow thistle and Canada thistle.

Annuals and Biennials

Annual and biennial weeds produce seed but once and then die down entirely, root and all. They propagate themselves by seeds alone. Consequently, all methods of controlling weeds of these two classes have for their object the prevention of seeding. Clearly, if they are kept from seeding and pains are taken to prevent seeds from being introduced to the land in the many ways that are possible, annuals and biennials are practically kept in check on the farm.

Annuals and biennials are easily killed by cultivation. Of course, the seeds of some weeds of these classes retain their vitality in the soil for several years, consequently several years of cultivation may be necessary. The principle of eradication of annuals and biennials is to prevent seeding, and cause those seeds shed to germinate and then destroy the seedlings before they mature. The following annuals have seeds which retain their vitality a long time in the soil: wild oats, tall pigweed, black mustard, shepherd's purse, dock, yellow foxtail, chickweed, and others. The following annuals have seeds of short vitality: lamb's quarters, wild buckwheat, Russian thistle, smartweed and prickly lettuce.

There are two kinds of annuals: summer annuals and winter annuals. Summer annuals germinate their seeds in the spring, produce a crop of seed in the fall and die down. The seedlings are not capable of living through the winter season. Russian thistle, foxtail grass, frenchweed or fanweed, barnyard grass, witchgrass, pigweed, and lamb's quarters are common summer annuals. Winter annuals come up from seed in the fall and live over the winter in the seedling stage, producing flowers and fruit the following spring or early summer. They have the habit of winter grain. Shepherd's purse, pepper grass and prickly lettuce belong to this class. The seeds of winter annuals germinate after fall rains, and the young seedlings are easily killed at this time by cultivation. Winter annuals frequent stubble fields.

Perennials

As has been indicated, perennial weeds live from year to year without renewal from seed. They propagate themselves by means of both seed and vegetative growth (roots and rootstocks). It is not sufficient to prevent seeding alone, although this should be done. All methods of holding in check or eradicating perennial weeds have for their object the starving or smothering of the underground growth. It is well known that if the topgrowth of a perennial weed is cut off, new shoots are sent up from the rootstocks beneath ground. This means, then, that the rootstocks possess reserve food material which is called upon to produce new shoots. Rootstocks are storage organs. As soon as leaves are produced on the new shoots, the manufacture of food is begun by them, and some of this food, made in leaves, finds is way back into the rootstocks, which thereby gain in strength. Rootstocks will increase in size each year, just as does a perennial stem above ground; and the larger it gets the more reserve food it has, and the more difficult it is to starve out. Old, well-established perennial weeds are very difficult to eradicate, for the reason that they have a large store of reserve food to draw upon in the production of one crop of leafy shoots after another.

It is a common experience that one may, by thorough cultivation, kill all the top growth of a perennial weed, and find that the plant soon comes up thicker than before. A second thorough cultivation may be followed by like results. The farmer is, of course, inclined then to become discouraged. He says, "What is the use; cultivation only aggravates the trouble"; and he gives up. He was on the right road, but stopped short of his goal. Each time that top growth was removed, and new shoots sent forth, reserve food in the rootstocks was used up. What is needed in the eradication of a well-established perennial weed is persistence and patience, cultivation frequent enough to keep down all leafy shoots, and no stopping until the goal is attained. This may mean a season or two of bare fallow, followed by a crop which will permit of clean cultivation. Some farmers place in a cultivated crop like corn, potatoes, beets or beans, but do not cultivate often enough and thorough enough to prevent perennial weeds from making headway.

Small patches of perennial weeds can be eradicated by spading up the soil, raking out and burning the underground stems, and hoeing off every sprout as soon as it appears, during at least two seasons.

Large areas require special treatment, depending upon the soil, character of the weed itself, and the degree of infestation. The methods of eradication of perennials when the area of infestation is large, and the weeds are well-established, involve the use of (1) clean cultivation, with or without a crop, and (2) smother crops. They furthermore recognize the necessity for crop rotation. It should be remembered that there is no set "best" method of weed eradication. That one which is adapted to one set of soil and climatic conditions may not be suitable to another combination of conditions. A method which will work on dry land may not do so on irrigated land.

Use of Clean Seed

The first principle in weed control is the use of clean seed.

A lot of "clean seed" is one which contains only the larger and plumper seeds of the crop desired, and is free from sticks, stones, gravel, dirt, chaff, weed seeds, the seeds of other crops, smut balls, and from small, shrunken seeds of the crop desired. It is possible to secure seed free from noxious weed seeds. Dirty seed can be made clean. Moreover, it is possible to do seed cleaning at home. A fanning mill properly operated will do the job. There should be a fanning mill on every farm. It is far easier to remove weed seeds from your crop seeds than it is to take the weeds from the fields. There are many kinds of efficient hand and small power mills suitable for home use. A fanning mill will pay for itself in increased profits in one or two years. Install a fanning mill as an indispensable part of your farm equipment.

The chief dockage in Colorado grain is wild oats. This can be entirely removed by careful milling, such that not a single weed seed is introduced in the soil at planting time. Clean seed is the first necessity in any weed control program.

Colorado is making progress in the solution of the weed problem. The state has a pure seed law, strict adherence to which will prevent, in a measure, the sowing of noxious weeds, and the infection of new areas. The present seed law, however, is especially weak in one particular. There is no provision in it which makes it possible to condemn a lot of seed running high in noxious weed seeds until it has been satisfactorily cleaned, or to condemn a lot of seed showing a percentage of germination below a specified standard. Under the present law, seed of any quality may be sold or purchased, provided the quality is stated on the label. But this is inadequate, in that many purchasers are indifferent of quality and many pay little heed to or understand the label.

Las Animas County Dairy Development Plan

FOUR-YEAR LEASE BETWEEN THE BUSINESS MAN AND FARMER

Reference was made in this department recently to the Big Brother Dairy Cow movement launched in Las Animas county, Colorado. Since that announcement, appearing in the issue of November 1st, the first shipment of dairy cows has been brought in from Wisconsin and distributed among farmers in the dry land sections of the county. So successful was the first importation that a second was immediately decided on. At the time this is being written plans were under way for the financing of the second shipment. Briefly, the plan is a co-operative agreement between Trinidad business men, who subscribe the necessary capital, and the farmers who take the cows and pay for them out of cream income, the arrangement covering a lease of four years, so drawn that the men furnishing the capital get a fair return on their money and the farmers are enabled to build up substantial producing herds of high grade Holsteins.

The first shipment of cows, which arrived in Las Animas county early in December, represented an investment of approximately $10,000, and the plan then was to raise a similar sum to finance the second importation. Details of the leasing plan were worked out by County Agriculturist Charles E. Smith, with the backing of a number of progressive Trinidad business men, the board of directors of the leasing corporation, comprising W. M. Jamieson, E. D. Wight, J. C. Caldwell, John Aiello, E. P. Brandow, Sol H. Jaffa and John F. Sherman.

Mr. O. H. Liebers, agriculturist for the Colorado & Southern railway, and Mr. E. D. Wight went to Wisconsin to select the cows, which were bought in the Fox River valley. Mr. Liebers has reported on the purchase as follows:

"We purchased ninety-four head of young cows and heifers, and six young pure-bred sires. Thirty-five of the shipment were two-year-olds, coming three years, due to freshen within the next two months, at an average age of 2½ years; average price per head was $103. The remainder of the females were young cows coming three and four years, due to freshen within the next two months with their second and third calves. The average price for these splendid young cows was $117.75 per head.

"These cattle were all high-grade, well-marked, straight Holsteins of excellent quality. They were not cattle offered for sale; they were carefully selected out of herds of 29 of the best breeders in that territory. We only visited breeders whose herds have proven to be free from disease, and have been found profitable by cow-testing association work. From one to five head were purchased from each breeder. The selections were made strictly on type. breeding and producing ability.

"The entire lot that we purchased were out of excellent purebred sires and bred to purebred sires. All but eight of these cows are due to freshen in the next three months. The quality of these cattle should do much toward insuring the success of the company."

County Agriculturist Smith attended to the details of distribution. He said it was the best dairy stock ever brought into the county, and he complimented the selection committee highly on its choice. One of the farmers writing to the county agent in regard to the shipment said:

"We got home with the cows all right. Got home Tuesday noon. Hope the trip did not get the best of you. Some of the boys have formed another circle and wanted me to let you know about it. They wanted to get in and take one of the bulls that is already out here." (Then follow the five names of farmers who want cows.) "They would like to get in on the next shipment if they can. It just keeps me busy answering questions about the cows. We could put out one thousand head before spring if we could get them.—W. R. Hough."

The lease is an ironclad guaranty that these cows will be properly cared for. It was drawn up with the primary object of protecting the cows. It involves the building of silos, the planting of crops for roughage and ensilage, the erection of proper shelters and fencing, the keeping of milk records, the intelligent and careful breeding of the animals and care and disposition of the increase. Dairy farming cannot succeed unless the cow gets the best end of the deal, and the lease is certainly a model in that respect, while it does not overlook the thing next in importance, namely, equitable financial arrangements between the man who advances the money and the man who is to make it back out of the herd. Communities interested in taking up a similar plan are urged to write to the Dairy Department of Western Farm Life for advice and suggestions.

Following is a copy of the lease:

LEASE

THIS AGREEMENT AND LEASE made this .....day of....., A. D. 1918, between THE DAIRY COW DEVELOPMENT COMPANY, a Corporation organized and existing under and by virtue of the laws of the State of Colorado, hereinafter called the lessor, of the first part, and....., of ....., in the County of Las Animas and State of Colorado, hereinafter called the lessee, of the other part:

WITNESSETH: That the lessor does hereby lease to the lessee, the following described livestock, namely: .....
.....
.....
.....
BRANDED .....
.....
for the term of four years from the day of the date hereof, upon the terms and conditions hereinafter set forth. And the lessee in consideration of such leasing doth covenant and agree with the lessor:

1. That upon delivery of said livestock, he will keep the same and the increase thereof upon the premises now occupied by him, and

(Turn to Page 18)

The National Western Show

STOCKMEN'S CONVENTION ALSO TO BE HELD

THE Victory Stock Show is the name decided on for the National Western, which opens in Denver January 18th, to continue to and including the 25th. At the time this is being written the indications pointed to a line of exhibits in all classes of livestock as large, if not larger, than any ever assembled west of the Mississippi river. Breeders who exhibited at the Royal in Kansas City and at the International in Chicago, declared that they saw no reason for dissatisfaction with the future of the industry; that, in fact, the ending of the war would mean expansion in beef, pork and mutton production, particularly in the western states, where livestock has been secondary to grain during the period of the war.

Plans are being made for handling big classes in all breeds of beef and dairy cattle, hogs and sheep, and there will be the usual show of feeder cattle for which the Denver market is famous.

The call has been issued for the annual session of the American National Livestock Association, to be held in Denver this year during stock show week. The convention dates are January 21, 22 and 23.

Because of the many problems which stockmen have had to meet in the past year and the feeling of uncertainty as to the future, this convention is being looked forward to with unusual interest. Representatives of the federal government are expected to attend, to discuss with producers matters of production and marketing. The convention call directs attention to some of the problems as follows:

The livestock industry has never been confronted with more important problems. During the great war which has just ended, the stockmen of the United States fully met the demand for increased production, so that today this country is prepared to adequately supply the needs of the depleted nations for meat-food products until conditions abroad become normal; and this can be done without any more meatless days. Post-war readjustments will more vitally affect those engaged in livestock and agriculture than in any other industries; hence, it is important that stockmen should carefully review the entire situation and adopt such policies as may seem advisable for the future. At present there is a seeming spirit of hesitation in all channels of trade. Peace is regarded as bear argument. In the long run peace will probably result in lower prices for all foodstuffs, but not in the immediate future. Grains will be affected before meat products. Europe is short of animal feeds as well as meat-food animals. A pre-war normal production of meat products in the warring nations cannot possibly be attained for two or possibly three years at the earliest.

Our exports of meat-food products for 1919 will certainly be as large as during 1918, and perhaps greater. There will also be some scattering demand from abroad for dairy and breeding stock, but not in any large volume. England and France are reputed to have as many young cattle as before the war; the shortage is in aged beef stock, swine and sheep, and on account of the present lack of animal feeds over there the situation cannot be materially improved until after the next crop. Therefore, with large exports in sight for next year, industrial activity at home, coupled with the high cost of production, and the serious effect of the drouth in certain sections, it is improbable that there will be any burdensome supply of beef animals on the markets during 1919, and no sound reason for any recession in the present level of prices.

Many governmental war agencies and activities will cease by law when the President issues a proclamation declaring that peace has been established. The Food Administration will then terminate; so will agricultural stimulation work, and the War Industries Board, unless in the interim some other legislation continuing them is enacted. Stockmen are much concerned in certain regulatory measures put into effect under authority of the Food Administration act. Pursuant thereto all the meat packers in the United States, doing an annual business of more than one hundred million dollars, were placed under federal license, providing for limitation of their profits and for a comprehensive supervision of their operations.

At a later date, under the same authority, by proclamation of the President, dated June 18, 1918, all stockyards companies, livestock commission men, traders, etc., were required to secure a license on or before July 25, 1918—the regulations thereunder to be administered by the Department of Agriculture. All these licenses and regulations should be extended until Congress can carefully consider the entire meat packing and marketing problem and enact suitable legislation. A bill embodying the recommendations of the Federal Trade Commission on the meat industry has been prepared and is now in the hands of the President. Owing to peace negotiations, consideration of this measure will undoubtedly be somewhat delayed, but in all probability it will receive the attention of Congress early next year. These questions are of supreme importance to all stockmen; they will be fully presented by our market committee and freely discussed at the convention.

The Sheep Killing Dog

One of the greatest drawbacks to sheep farming in many regions is the sheep-killing dog. The dog not only kills sheep but keeps out of the sheep business many farmers who would otherwise go into it. Remarkable progress has been made in several states in enacting good dog laws, and others may take similar action at the meeting of their legislatures this winter. But let it be understood that no law, however well worded it may be, can be effective unless it is enforced and has the moral support of the people who are effected by it.

Wool and mutton are commanding higher prices than ever before and our wool supply is being reduced so rapidly that even though peace should come soon it would take a long time to restock the wool trade of the country. These facts alone should be sufficient to make it clear to any fair-minded citizen that we should provide reasonable protection for the sheep farmer against the ravages of prowling and uncontrolled dogs.

Sheep farmers talk among themselves the troubles they have with dogs, but in order that their stories may accomplish something worth while the facts should be told to their senators and representatives with all possible definiteness and emphasis.

Cattle will not thrive on dry feeds alone; the silo provides succulence.

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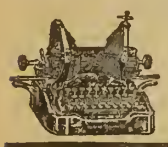

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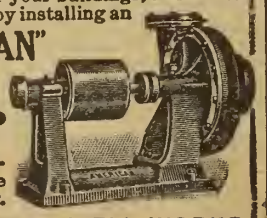

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Every axle is porous and covered with seams. Rub your finger over the surface and you'll discover the reason for friction. Then use

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THE CONTINENTAL OIL COMPANY
(A Colorado Corporation)
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Butte Albuquerque Boise

Farm Bureau Adds $255,000 to County's Wealth

(Continued from Page 4)

diseases, Mr. Smith puts the matter in striking phrases:

"It is appalling to think that, having passed through a year of strict conservation of meats and fats, and being implored to continue such a program for another twelve-month at least, that the starving people of the Orient and Europe may be fed, we are so blind to the facts that our annual losses from preventable causes are more than our efforts from the strictest adherence to conservation rules will save."

A survey made by the farm bureau indicated that the annual stock losses from preventable diseases in La Plata county amounted to approximately 5,000 head. Poor and insufficient feeding and bad water due to using stagnant irrigation ponds are some of the predisposing causes of stock losses which the bureau is seeking to remedy by better feeding methods and by the boring of wells for stock water. Ponds have been drained and cleansed, shelters have been built and other measures taken to reduce the losses.

Bee inspection and improvement of apiaries was carried on, there being a notable increase in interest in this industry. The quantity of honey produced in the county during the year is estimated at 100,000 pounds, and the estimated amount saved producers through inspection and improvement in handling is given at $6,000. Twenty-nine orchards were inspected under the head of horticultural development. Condition of the orchards was reported generally good, although there was some leaf roller in the southeastern part of the county.

These activities, it might be said, were all such as would have been undertaken in normal times. In addition, County Agriculturist E. D. Smith, like all other county agents, spent much time during the year on direct war work. It was here that the utility of the farm bureau was manifested to the fullest extent. The various drives and campaigns in the interest of bonds, Red Cross, conservation and the like were handled through the existing organizations. Forty-eight meetings were addressed by Mr. Smith on war work; 343 farm laborers were supplied through the established labor agencies co-operating with the farm bureau; threshermen were organized and a schedule of rates was agreed on, wheat at 6 cents per bushel; barley, 5½ cents; oats, 5 cents; threshing machines were inspected, etc. More might be said of the work, but these facts and statistics are sufficient to indicate what a live farm bureau can do for a county. The officials of the bureau are: Fred W. Kroeger, president; Paul Ritter, secretary-treasurer; George W. Day, vice-president. Masters of local Granges, all active in the work of rural improvement through the central bureau, are: Fred W. Kroeger, Animas valley; J. M. Nelson, Sunnyside; Edward Pedwell, Falfa; Zern Stuckman, Oxford; Paul Ritter, Morrison; Henry Akers, Bayfield; T. F. Holder, Rim Cone; Ed Briggs, Allison; James Dennison, Big Stick; T. D. Harris, Kline; Ed Duvie, Marvel; Leo Taylor, Redmesa.

The following summary shows the total wealth added to the property valuation of La Plata county by farm bureau activities in 1918:

Boys' and girls' project....	$ 6,000.00
Pest control	103,000.00
Rural organization	6,000.00
Improved crop project.....	57,770.00
Livestock improvement....	17,320.00
Poisonous plant project...	1,600.00
Silos and silage.....	22,500.00
Soil improvement project..	26,820.00
Livestock mortality control	14,803.00
Total	$255,813.00

A Fortunate Error

Western Farm Life, Denver, Colo.

Gentlemen: Enclosed find $1, for which please send me Western Farm Life for two years; also send me "Simplicity Tax Invoice." I received a copy with my mail through mistake of the carrier and after looking through it I think it one of the best farm papers I have ever read. A. L. McEwen, Athena, Ore.

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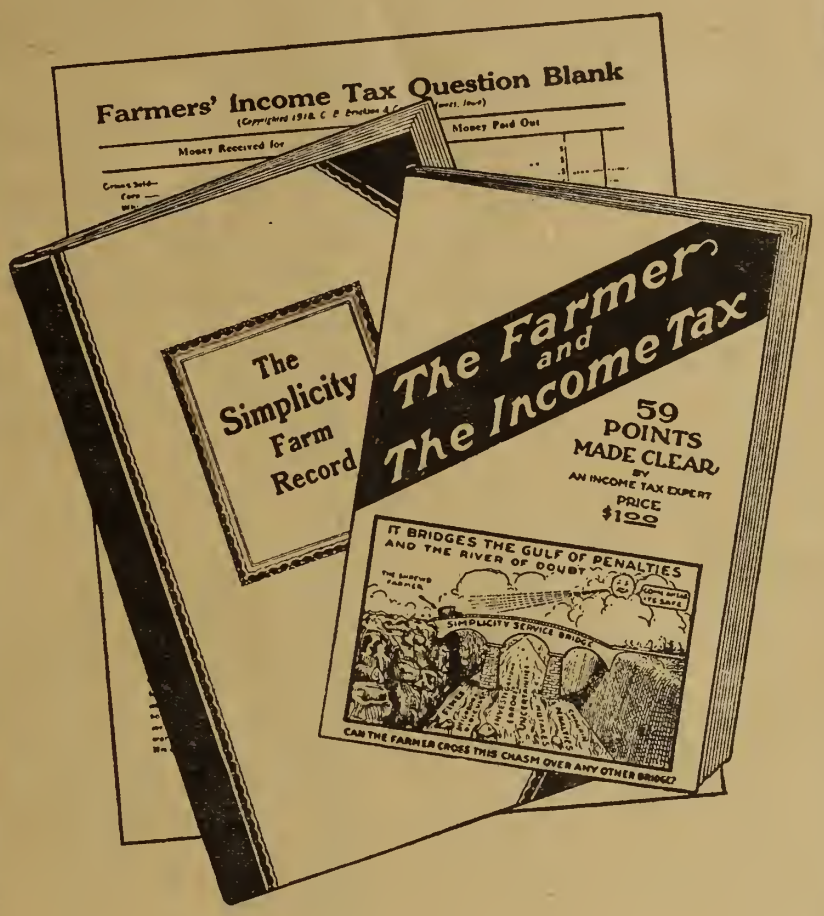

IGNORANCE of law excuses no one. Laws are made to be obeyed, and for those who do not willingly comply, a penalty is imposed.

A majority of farmers and stockmen are subject to this tax this year, and there is no use in trying to dodge it, for each one will be checked up some day.

Government tax is as sure as fate.

Because a farmer did not keep any books or did not make out a return as required by law, does not mean that the Government cannot check him up. If the Revenue Officer decides that he wants to know what you made he will find out regardless of the expense or effort he is put to.

Penalties ranging from 50 per cent to 100 per cent increase in taxes, and also heavy fines may be imposed for neglecting to file your report. If you have no written record of your transactions you will have to make up one from memory. This means uncertainty, and probably financial loss. The only sure way is to have it all down in "black and white."

SIMPLICITY INCOME TAX SERVICE PROTECTS YOU because with these Farm Record Books you are absolutely sure where you stand. There is no guess-work, and therefore no loss. You pay your just share of the Income Tax, and NO MORE. It makes it easy for the farmer or stockman who has not had time to learn the science of bookkeeping, and it surely is a short cut for the one who has.

Simplicity Income Tax Service is made up of "The Simplicity Farm Record," "The Farmer and the Income Tax," and the "Tax Question Blank."

"The Simplicity Farm Record" is a 6x9-inch, 68-page record book. There is a place to put down every kind of transaction you would make on the farm or ranch, together with instructions just how to do it. The book is so simple and the instructions so clear that you can keep the most accurate accounts, even though you know nothing about bookkeeping. It will take only a few minutes to keep the Simplicity Farm Record absolutely correct. Then when Uncle Sam's revenue man comes around you can smile and show him your record book. Your work is all done—no trouble, no work, and no worry trying to remember and figure out just what you have done for the past year. Then, too, you can tell at the end of the year just how much money you have made for that year. By studying your record you can see where it is possible for you to save money, and also where you can increase your production. It is to your interest to get a Simplicity Farm Record Book.

"The Farmer and the Income Tax," or "59 Points Made Clear," is a 16-page booklet that is worth its weight in gold to the farmer or stockman. It was written by Clayton B. Stiver, a recognized Income Tax Expert. Mr. Stiver has had more than fifteen years' experience in the service of the United States Treasury, having served in all departments of the Internal Revenue Bureau from storekeeper to Revenue Agent in charge. He has this year examined th statements and made out the returns for more than 3,500 farmers and stockmen. He gives you the benefit of his experience in this valuable little book. He has taken up the 59 points or questions which vitally affect every farmer and stockman, and explains how each is affected by the Income Tax Law. After reading this little book the workings of the law will be perfectly clear to you. If, however, there is any point about this law that is not quite clear to you, just write the Service Bureau of Western Farm Life, and your question will be answered promptly. There is no charge for this service.

"The Tax Question Blank" is a legal form which contains the questions that you will have to answer before your tax return can be made out correctly. By having all these questions filled out beforehand, you will have no trouble at all in making out your report.

Uncle Sam says that you MUST make out a report and have it ready by MARCH 1, 1919. You don't want to spend a lot of time and go to a lot of trouble and work in doing this. Therefore, we have secured this Simplicity Income Tax Service for Western Farm Life readers. We believe it to be the best and shortest forms that you can get.

A full set (the two books and the tax blank) of Simplicity Income Tax Service (postpaid) and Western Farm Life for two full years for only $1.00. Fill out the coupon below and get ready to mail at the first opportunity.

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Denver, Colo.

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Dual Purpose Cow Controversy

MILKING SHORTHORNS FOR WESTERN FARMS

R. W. CLARK, Livestock Specialist Colorado Agricultural College

THIS is an old story and well understood. It began in 1892 and only of late years has it quieted down. The late Professor Thomas Shaw of Minnesota championed the cause of dualism of the Shorthorn, while Professor T. L. Haecker stood sponsor for the qualities of the dairy breeds. Each combatted the idea of the other in the same class room, from the same platform and in the same press. The farmers were divided, some followed one, some followed the other, but the largest number had no one to follow. The dairy type of Shorthorn was unknown and very little was said or written about the combined beef and milk qualities of the Shorthorn. Professor Shaw had studied Shorthorns in Canada and the States and had seen high beef and milk production in the same animal.

Professor Haecker had studied dairy type for years and in a bulletin published in 1895 he showed that dairy production and profit was proportional to the degree of the dairy type present in the individual. Professor Shaw contended that this was not always true and he cited herds and individuals to sustain his point. This controversy extended over twenty years, at the end of which time both parties had modified their views.

The writer was favored, four years ago, with the opportunity to work in Minnesota and to meet large numbers of farmers who had taken part in the Shaw-Haecker controversy and who had established herds on the advice of both. In nearly every case, after many years of trial, the dual purpose breeder changed to the dairy breeds, but this does not mean that Professor Shaw was wrong. There are a few herds of Shorthorns in Minnesota that are exceptional. They rank with the best dairy herds of the state. In every instance, though, their success depended upon a definite purpose in the mind of their owners. The productive capacity of each cow was definitely learned and the females from only the highest producers were kept for breeding purposes. In almost every case the sires were also selected from high producers.

Anyone conversant with early Shorthorn history knows that the Bates strain was distinguished for its dairy type and deep milking qualities. These qualities account for the Shorthorns being the largest of the beef breeds. Size, in the beef breeds, requires milk in its production. To mate according to performance and type is only to repeat what was done in the establishment of the breed. Where this is done, most gratifying results are bound to be secured in a comparatively few years. The majority of the farmers in Minnesota who followed Professor Shaw's advice did not do this, consequently they failed of achievement. It is much easier to found a herd of a well-established dairy breed than to found a herd of dual purpose Shorthorns. The average farmer is not qualified for such constructive work. In this country Shorthorns have been bred almost entirely for beef and show purposes, and it is not uncommon to find a cow that does not give milk enough for her calf. Nurse cows even are used some, though not as commonly as in the other beef breeds.

Breeders in the United States have given no attention to the dairy qualities of Shorthorns because feed has been cheap, beef was produced mostly on the free public ranges, and dairying was more arduous and difficult. Economic conditions of the country have changed and the relation of the Shorthorns to other breeds is also going to change, but this does not mean that they will supplant the dairy breeds—far from it. Both are needed. A number of Shorthorn breeders in this country have established an advanced registry in milk production, similar to that of the dairy breeds, so that now selection of breeding animals can be made on the basis of production. This is going to result in a change of type and higher milk production with greater certainty in transmission of both qualities to the offspring. When little or no regard is given to dairy qualities, disappointment in the offspring lacking these qualities must be expected. As they are restored and fixed there will be less disappointment and it will be much less difficult to secure Shorthorn sires possessing dairy qualities.

This line of improvement offers special inducement to Shorthorn breeders. Their cattle will travel exactly the same path the Holsteins did not so many years ago, and there will be a corresponding change in type and production.

There are lots of places in Colorado where the milking Shorthorn cow is needed, where the breeder can distinguish himself and where his operations can be made most remunerative. The cow testing association will help him to do this, although if none exist in his neighborhood he can accomplish without it. He must keep dairy type and production always in mind and adhere to them most rigidly and not delude himself into thinking that he is soon going to break records in dairy production.

The Hill importation was purchased some time ago by A. T. Cole of Gretna Farms, Wheaton, Ill., who gives the history of some of the foundation herd in the Shorthorn World of November 25th, from which the following is reproduced:

Development of dual purpose Shorthorn interest in the United States is one of the country's most important needs. The late James J. Hill, frequently referred to as "the empire builder," contributed a great deal toward helping along the great work. Mr. Hill, through the organization of his great railroad system, helped to demonstrate in the northwest the feed-utilizing, soil-conserving and home-building value of Shorthorns that can produce both beef and milk. His remarkable foresight as to the real needs of the American farmer and his ambition to get together the greatest herd of dual purpose Shorthorn cows ever assembled, caused him to go about a realization of his idea in a way to create wide attention to the movement.

He commissioned the late Professor Thomas Shaw to go to England and select a great herd. I think there was probably no greater student or better judge of the breed than the late Professor Shaw. The type of the produce of the cows he selected in England by the two herd bulls, Brandsby's Coming Star and Tamony, which he selected, and the way these heifers are developing, pays high tribute to his knowledge of the breed and his good judgment in the selections he made.

Professor Shaw was not limited as to price in making his selections and was thus able to secure cows from the various herds in England which were really not for sale. For instance, he purchased eight cows from the Adeane show herd at Babraham Hall, Cambridge, England, at a price which I was informed in England was 300 guineas each, viz.: Louis 10th, Babraham Cherry (record 9,000 lbs.), Sunbeam (record 7,042 lbs.), Trixie 20th, Dewdrop, Babraham Mignonette, Veronica (record 6,221 lbs.), and Babraham Mist. Here he also purchased for £400 the great show bull, Brandsby's Coming Star 107990, winner of first prize at the Royal Show, 1910, and first prize at the London Dairy Show, 1911, and many other prizes. He purchased from the great herd of R. W. Hobbs and Sons, Lechdale, England, the cows Kelmscott Pink, second prize at the London Dairy Show, 1911 (record 8,181 lbs.), with second calf; Primula 114th (record 12,463 lbs.); Blossom 23d (record 11,240 lbs.). He purchased from John Graves, Cumberland, England, the great cows Thornby Pride (record 7,527 lbs.), and Thornby Lilac (record 8,008 lbs.). From other breeders the beautiful specimens Heiress, Friday's Butterfly and Charming Maid (record 7,530 lbs.); also Charming Lass (record 10,500 lbs.), Duchess of Bankfield (record 6,210 lbs.), Fenstanton's Lady Anna, grand champion at 1917 International; Eastover Kirklevington 14th (record 6,149½ lbs.) with her first calf.

With the exception of Babraham Mignonette and Trixie 20th, which two, I believe, died, the above animals, with their produce, making thirty-four head, made up the Hill herd as I purchased it, and included every dual purpose Shorthorn eligible to registry at North Oaks Farm. There were a number of grade cows which I did not buy. Mr. Hill also imported a large number of young bulls which I believe were distributed through the northwest.

I lost Brandsby's Coming Star from blood-poisoning following an operation on his feet; but fortunately we had a number of heifers by this great bull and a number of cows in calf to him. He was succeeded by the Hill bull Tamony 117884 as the leading herd bull, and we have now placed our young bull Gretna Prince George at the head of the herd.

In addition to the Hill herd, I had previously imported eight cows which were selected by Mr. Frank Harding and myself in England in 1914.

TRAPPED.

BY BEN AMES WILLIAMS, Author of "Three In a Thousand," "Swords of Wax," The Power of Midas," Etc.

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CONCLUSION

A splintering crash stunned Eben—a blinding detonation. Another!

Instinctively, the lame man wheeled to the northern side of the monument and dove. When his head came to the surface, shells were screaming across the top of the monument. The bug-light was no longer flashing; it was a splintered wreck. Shells tore at it, flung it bodily into the sea. Upon the face of the waters, so quiet and so calm a moment before, pandemonium had burst. The Germans had seen the signaling light; they sensed their peril; they sought to destroy it.

"They're too late, too late," Eben whispered; and he turned and went, diving for long spaces to escape the shell fragments, toward the shore north of the light; toward safety.

Behind him the plungers scoured the water for trace of him, and he could hear the shouts of men upon the monument.

When Eben Scour, swimming, had left the monument about a hundred yards behind him, a motor-boat was loosed from its steel nest on the deck of one of the U-boats, and six men with rifles tumbled into it. The engine started, and they swept around the monument and headed toward the shore to intercept the lame man.

As they passed the monument an electric search-light on their bows sent a darting gleam across the water, and it swept back and forth, seeking the head of the swimming man. Eben grinned confidently, watched the light's bright beam, and he swung in his course so that instead of heading straight for shore he went obliquely.

He guessed that the Germans in the motor-boat would be seeking another boat; he thought they would not look for a swimmer. And he chuckled softly when the boat darted past him, not fifty yards away, its light staring straight ahead. He saw the dim figures of the men, watchfully crouching along the gunwales, rifles ready. But their eyes were all for the shore ahead, where the light was playing.

When the boat had passed Eben resumed his direct course for shore; and he swam swiftly, though watchful still. The searching boat ran to within a hundred yards of the shore, then changed its course and ran parallel with the beach for a quarter of a mile; and then the craft turned once more and retraced its course along the beach.

Eben swam steadily on. He was confident of his ability to dive and elude the light if it should turn in his direction. Nevertheless, his heart leaped with swift relief when he heard the snap of a shot from the direction of the monument, and turned and saw a light that swung in a mechanical fashion like a semaphore. Eben guessed this was a signal to recall the motor-boat, and after a moment this guess was confirmed, for the pursuing craft turned out into the bay, snapped off its light, and so disappeared.

Five minutes later Eben reached shore. He climbed the steep beach, panting a little, and because the damp chill of morning was in the air, he ran at a steady jog for a hundred yards or so until his blood was racing warmly through his body.

Then reaction set in—the relief at knowing his task was done; the relaxing of muscles and mind which had been for so long a time tensed to their task. He came to a little cottage on the shore, and saw that it was not inhabited, and he climbed to the veranda and lay down upon the floor, and the hard boards were grateful and soothing to his tired body. He fell asleep.

The sunawoke him. The sky had clouded over and the morning was dark and ominous. Eben sat up, rubbing his eyes, and he rose to look out across the bay, and his heart hushed for a moment in awe and wonder at the majesty and beauty of the thing he saw.

The sun awoke him. The sky had zenith, was obscured by a slate-blue cloud. It was a long cloud, shaped not unlike an arm, so that Eben thought it was though the sun hid its face from the world. But below this cloud, and to right and left, the rays of the sun were visible and distinct beams of light. Eben had seen such beams before; he had called them "the sun drawing water," as a child. But this spectacle was not like that familiar sight.

The bright beams slanted away to right and left to the very horizon. They were continuous from right to left; there was no break in their regularity and beauty. Eben thought of the flag of Nippon. "This is just such a sun," he whispered. It seemed to him like some great, glowing spider, supported on countless straight and gleaming legs which rested on the earth.

"But no," he told himself. "No, it is like God sweeping the earth. That is His broom. He sweeps the earth clean, and hides His face while He sweeps." And Eben smiled a little, sadly. "There will be deadly sweeping in the bay today when the boats get busy."

A flutter of wing beside him and a redstart lighted upon the veranda railing, and with head cocked on one side peered at him. He spoke softly; and the bird disappeared so quickly Eben's eyes could not follow its flight. Below him, among the seaweed on the beach, two herons stood immovable as statues. A crow stalked and croaked between them, like a tramp bowing and scraping before two stately ladies. Eben looked out across the bay and saw the black back and fins of a porpoise for an instant as the creature rolled, and he caught the quick gasp of its lungs through the still morning air.

Out beyond where the porpoise played the gulls were circling and screaming. At first Eben thought they were feeding on some refuse in the water, but after a moment he saw that they never lighted. They flew round and round; they screamed and cried and dipped. They were vastly concerned. Eben felt a trembling wonder what it was they saw in the depths of the water there that so perturbed them.

He left the deserted cottage at length, and, half running and half walking, he passed up the harbor to the bridge and crossed into the town. He found a telephone there, called the destroyer-base at the mouth of the bay, and asked for the admiral, and when that officer's voice came to him across the wire, Eben said softly:

"This is Scour. Have you closed the passages?"

A moment later his heart leaped. "Every channel was closed within the half-hour after your signal," said the admiral. "Twenty minutes ago a considerable part of the flotilla attempted to force the main channel here."

"Did they get through?" Eben cried.

"Not one. Three mines exploded; so we presume three were destroyed; and one meshed in the nets and lies on the bottom now, helpless.

"Where are the others?"

"We had one plane up; and it reports they all turned back up the bay. The hunt is beginning now."

When Eben left the telephone, he walked up through the town, unconscious of the fact that his drenched and shrunken garments were attracting curious eyes. His work was done; and his one desire now, his unexpressed desire, was to reach the Barbette, to find Anne.

What he would do, what he would say when he faced her, he did not know. But that he must go to her he knew.

There were automobiles for hire in the town, and Eben found one and engaged the man to drive him the two miles to the Barbette. They set out, sped through the shaded streets, with the fine, white houses set in their bowers of trees on either hand, and so emerged into the open country. Beyond the last house the road climbed a steep hill, from the top of which one could see far down the bay.

As they reached the crest of the hill, Eben touched the driver on the shoulder. "Stop," he called. "See yonder. What is that?"

He pointed; and their straining eyes pierced the skies to the southward, and both saw, against a slate-blue cloud, a tiny dot that moved. It moved from east to west across the skies, seemed scarce to crawl, it went so slowly. Yet Eben knew it was speeding faster than the fastest train.

It finished its westward course; and the dot became a bar against the sky as the great plane tilted and wheeled and turned east again.

"It's an airyplane," the driver cried.

Eben nodded. The man gripped his arm. "Say, d'you hear the shooting out in the bay last night? I bet there's one of them subbarines up here."

"There is," said Eben.

"And that airyplane's comin' to find her, ain't it?"

"I believe you're right," Eben agreed. "Drive on, and we'll see."

That sudden fusilade of shots in the night had waked the people of the Barbette, as it had waked all sleepers on the shores about the bay. Bill Marks peered into the night, puzzling, wondering; and when the sun rose, he was out upon his veranda to see what trace might have remained of the battle he believed had occurred.

He saw only the monument, swept bare. The white structure of the bug-light had been blown bodily into the sea. There was no other sign that anything had occurred—save that over a spot out in the bay the white gulls wheeled and shrieked their raucous cries.

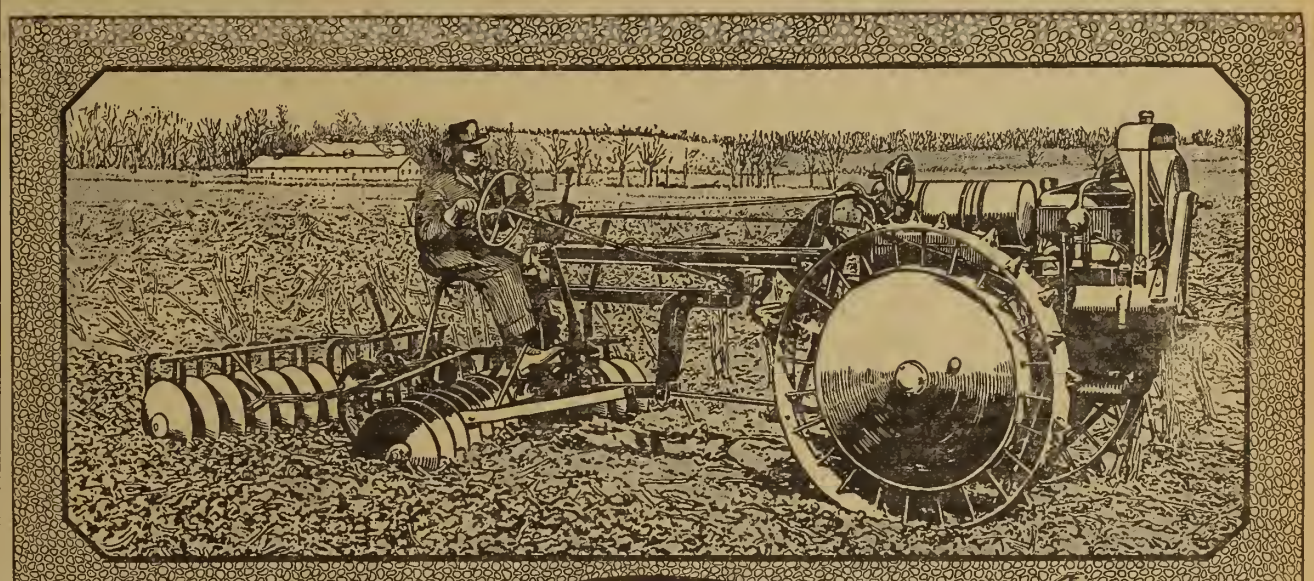
Marks went to find John Benton. "Did you hear the guns, John?" he asked.

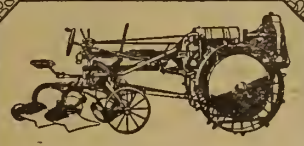
"Yes, Bill. They waked me. What was it?"

Marks shook his head. "The bug-light's gone."

"Gone?"

(Turn to Page 12)





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This expresses in a nutshell the advantages of the Moline-Universal. It does *all farm work* including cultivating; *one man* operates both tractor and implement from the seat of the implement; it has *ample power* for heavy field and belt work, yet can be operated economically on light work.

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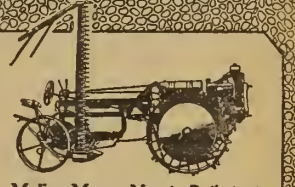

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Demand a Blue Sky Law

The farmers of Colorado are demanding the passage of an ironclad blue sky law by the legislature, which meets in biennial session at Denver this month. Farmers have been fleeced out of everything but their eyeteeth by unscrupulous promoters. The passage by other states of laws that protect the investor has driven the sharks and grafters to Colorado and this has been a happy hunting ground for them, especially during the period of war inflation. They have dealt in oil, in mining stocks, automobile stocks, in anything that offered a sure income from the unwary and ill-advised farmer, small business man, mechanic, and clerk.

Widows and orphans have been the prey of these vultures, whose favorite plan has been to devote as much of their income from stock sales as their personal purse could spare to buying newspaper space to catch other suckers. Their operations have become a public scandal that threatens to undermine the confidence of the public in every class of bond and stock investment. This has gone on unchecked, in spite of very evident uses of the United States mails to defraud. the use of false statements in advertising, and the shameless use, in some instances, of the names of innocent responsible citizens as sponsors for schemes of which they knew nothing.

The city of Denver is headquarters for this western swarm of get-rich-quick swindlers. From here they have gone out into the country districts in automobiles, seeking to get some of the cash that the farmer is receiving for his crops. Recently when the newspapers began to talk about the possibility of legislation to curb illegitimate promotion schemes, the usual howl went up from the grafters that such legislation would alarm capital and keep it out of the state. In the face of the fact that they have been living in ease off capital "invested" by our own people in these fake schemes, this howl gets nowhere. The scandal has been allowed to continue too long. The good name of the state is involved, and the security of its citizens, who are entitled to protection against what amounts, practically to an organized conspiracy to defraud.

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Grange Session Postponed

On account of the influenza epidemic it has been necessary to postpone the annual session of the Colorado State Grange, which was to have been held during January. The same applies to the meeting of the Grange Insurance department. These sessions will be held later in the winter, when conditions are more settled. Thirty days' advance notice will be sent out to all Granges by registered mail when the dates are finally fixed by the executive committee. The postponement is regretted, but unavoidable under present circumstances. Conditions are rapidly changing for the better all over the state and the Grange officers are hopeful that an early announcement of the annual session dates may be made.

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A WORD TO OUR READERS ABOUT PLANS FOR 1919

A Happy and Prosperous New Year is my wish for all of our readers. To help make it a happy and prosperous year will continue to be the endeavor of Western Farm Life. Your patronage has made possible many editorial improvements in the magazine, and I am taking this opportunity to thank you for your support, and to assure you of my continued efforts in making the magazine bigger and better, so that it will be helpful in the largest sense to the farmer and stockman and his family. The editorial department has planned some good things for the new year. Besides the regular departments on dairying, hog raising, poultry, Western Farm Life Service Bureau and home department, there will be a better line of special articles, written by men who stand at the head of the agricultural profession.

One change has been made in the regular editorial force, Miss Erma Douglass assuming charge of the home page, which has been without leadership for several months. Complete announcement of this change appears on the home page of this issue. Others on the editorial contributing staff are Prof. George E. Morton, animal husbandry; Dr. George H. Glover, Veterinary Science; W. E. Vaplon, farm poultry; E. R. Parsons, dry land agriculture. Special editorial contributors will include Prof. T. S. Parsons, extension agronomist, Agricultural Department, University of Wyoming; Dr. W. W. Robbins, botanist, Colorado State Experiment Station; W. J. Morrill, Colorado State Forester; Dr. Vernon T. Cooke, formerly dry farming expert for the Brazilian government, but who spent many years in practical dry land farming in Wyoming and other western states; L. F. Garey, agronomist; Gordon Kent, the Mountain Farmer.

Articles are also in preparation by Prof. C. G. Sargent, head of the Department of Rural Education, Colorado Agricultural College, and Prof. Garland A. Bricker, director of rural extension service, Syracuse University, Syracuse, N. Y., these relating to some phase of rural life improvement.

We are expecting some editorial help from Henry M. Cottrell of Tennessee, who is without an equal among American agricultural writers for clear and incisive expression, and who has promised to write some inspiring and helpful articles that will interest every member of the family. While now active in the development of agriculture in the South, Prof. Cottrell was born and brought up on a western farm, and he was among the pioneer agricultural extension men of the country.

It will be pleasing to know that ex-Governor Elias M. Ammons will continue handling the Branding Iron. It comes natural to him, for he has applied it to thousands of calves on the range, and his happiest times even now are those which he is allowed to spend on his big ranch in Grand county. We always have the Governor at hand to give us advice regarding problems brought to our attention by the stockmen of these Rocky Mountain states.

The managing editor will continue his field journeyings, with especial attention in 1919 to personal interviews with farmers who have made a success in some department of their business. He will also visit experimental farms conducted by the states and federal government and make reports concerning developments of interest to farmers from the work of the agricultural scientists. The gradual acclimatization of corn to the higher elevations and its use both for grain and silage will be given his attention, completing a series of field investigations which he has made covering a period of several years.

Farmer Putnam will accompany the editor on his trips—Josephine permitting—and write his comment in the amusingly philosophic vein for which the Missourian is liked by our large family circle.

What more need be said? Judge us by the past. There has been constant progress—the sort of progress I promised you when I took hold of this magazine. The effort has been to make it of practical use to the farmer and stockman and his family, to look on the bright side of farming, to encourage and help you succeed. This policy has been reflected in my success, and I take this opportunity to express my gratitude to all of you. Again, a Happy and Prosperous New Year!

W. S. Edmiston

General Manager.

"Steamboat Gold"

"Steamboat Gold." What an odd title! And the story is stranger than the title. Gold has lured many a man to his death. Steamboat Gold not only lured men to death, but to a mysterious, ghostly ending. One can scarcely imagine it possible that scenes laid along the sluggish old Missouri, with its peaceful corn fields and tangled, brier-grown forests could yield so much of romance, so much of tragedy, so much of mystery. Yet all that has been woven into the tale, which was written by G. W. Ogden, author of "The Crucible of Courage," "The Bond Boy," and other stories. And your interest in this? Nothing more nor less than that Western Farm Life has purchased the rights for the publication of "Steamboat Gold," and the opening chapters will appear in the issue of January 15th, for "Trapped" has run its course, and the war is over anyway.

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Pays to Keep Good Cows

On another page of this issue will be found a review of the activities of the La Plata County Farm Bureau. There is a very significant paragraph in this review, namely, that referring to the experiences of a dairy farmer who discarded his herd of scrub animals, replacing these with high grade producing cows. The new herd, comprising 45 animals, brought in a revenue of practically the same amount which this farmer had formerly secured from his scrub herd of 60 cows. It cost him very little more to care for 45 high grade animals than it cost to take care of the same number of scrubs. He had been feeding 15 more. The reduction in size of his herd made a big cut in his feed bill, while his total revenue remained the same. It is hardly necessary to add anything to this statement of facts. It pays to keep good cows.

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Delay Due to Strike

Many complaints have been received because of delay in delivery of our issue of December 1. An explanation is due subscribers. A strike occurred among the printing pressmen of Denver during November which affected the output of the Brock-Haffner Press, which plant handles the press work for Western Farm Life. While the strike was of short duration, it nevertheless caused a congestion from which it took fully two weeks to recover. We regret the unavoidable delay and trust that our subscribers have not been too seriously inconvenienced.

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They say that jealousy makes a man madder than anything else, which is well illustrated by the insane antics of some of our political leaders over the President's notes.

The Branding Iron

Applied by Elias M. Ammons

From available reports it appears that less than 20 per cent of the men who were sent to the army were actually engaged in the fighting. All of the balance, however, were taking their part as directed. From General Pershing's and other reports have come no instance where men have failed to do their duty. It is certainly gratifying to know that whether in the fighting line or in the numerous branches of support, our boys all acquitted themselves splendidly, accomplishing results as opportunity offered.

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There are being wintered in Idaho 500,000 less ewes than were carried through last year. Complaint is made that the large flocks have not been making money in that state, in spite of high prices, and a strong movement is on foot to put small flocks on all farms and ranches, as the best solution of the difficulty.

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According to the report of the state auditor, just out, there are 25,911,117 acres of deeded lands in Colorado and nearly 24,000,000 of this amount is farm land. To keep up our needy institutions and build and maintain highways, arrangements should be made to put the other 40,000,000 acres or more of land in the state on the tax rolls.

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Plans for the coming stock show, the third week of January are nearly complete. From present indications the coming exposition will show even more than usual improvement and will doubtless accomplish much in the movement just inaugurated to settle the unused lands of the state.

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Livestock production in Colorado is increased in direct proportion to settlement, growth and farm production. One of the greatest assets of the state is the best use of our grasses which can only be brought about by improved livestock conditions.

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The student training corps, temporarily established at our educational institutions to help the war, have been disbanded. At the Agricultural college military training will be resumed under the old plan, with such modifications as experiences in the war have made advisable.

✦ ✦ ✦

Some years ago a very notorious bandit started out in the West to pick up everything he could find of value. When people resisted he shot them. When he was finally captured there were many sympathizers who pointed out the good qualities which he happened to possess and maintained that he should not be hanged; nevertheless he was executed. Governments are made up of individuals and there should be a law to govern them internationally, as there are laws to restrain crimes among individuals within any particular government. The Kaiser, having armed and prepared himself thoroughly for nearly half a century, started out with the greatest war machine the world has ever seen to rob peaceful peoples of their wealth and territory. When they resisted he committed the most atrocious crimes ever recorded in the history of civilization, causing the death of millions of people, the destruction of tens of thousands of homes and untold misery and suffering. As soon as forces could be organized, the Kaiser and his partners in crime were hunted down. Now they must be dealt with as in the case of the less criminal bandit. There is no possible way to mete out adequate punishment for the crimes committed, but those in charge of disposing of this, the greatest of the world's criminals, should see to it that his disposition will be such as to discourage any such spirit in the future and that the fact of his wearing a crown will, if possible, increase the punishment and disgrace, rather than diminish it.

✦ ✦ ✦

When the boys are home and back into civilian garb we can cease working for them. But not before.

Comment by Farmer Putnam

OUR MISSOURI FRIEND DISCOVERS A HOMESTEADING PARSON IN HIS NEIGHBORHOOD

THIS here flu ban has kept me around the ranch all fall and winter and I'm gittin' purty durned tired of it, because Josephine don't leave me a minit's peace. She's all the time findin' odd jobs that's got to be done and I hain't got no good excuse fur sluffin' the jobs, so I been tolerably busy, fixin' fence, puttin' a new curb on the well and boxin' up the spring ag'in, puttin' a coupla new hinges on the corral gate and fillin' in dirt on the roof of the cave where it was washed out by the big rain in August. I got the place in good shape before Christmas and kin spend a little time now talkin' over things with you-all.

I cain't travel like I'd oughter, on account of there bein' no meetin's. It's hard to keep in good humor when we got to be dodgin' mikrobes. It's funny, but our worst dangers we has to meet in this here vale of tears is the kind we cain't see. Now take mikrobes; nobody ever sees 'em with the nekked eye, but fur downright cussedness they got the submarines beat. I never git to thinkin' about any subjec' but what I want to know more about it then they is to be knowed in books. I'm funny that way; never satisfied with no explanation of a thing that I cain't see and grasp. So it is about them mikrobes. I told Josephine one day that I didn't believe they was any such things and she sez: "Tom, you're crazy; the world is full of germs and mikrobes. You're one yourself; you're the mikrobe of laziness; the original and father of the hull tribe!"

It ain't no use argyin' with that woman about anything, leastwise to try to start philosophizin', because wimmin just nachually don't know how to philosophize; it ain't in 'em. They're too practical. With them a thing is either so, or it 'taint so; they don't understand us men when we takes middle ground and begins to argy ourselves in or out of a proposition. But I got a good friend in the Parson. He's new hereabouts. Just come into the country last spring from back east somewhere and took up a homestead near us. It ain't much of a place—about thirty acres in bottom medder that kin be cultivated and the rest is hill paster. He's runnin' a few head of stock on it and was expectin' to raise milk goats, but I talked him out of it, and while we was talkin' farmin' I found out he used to preach the gospel, but he got churched because he wasn't orthodox enough fur them folks back east.

When I seen that Josephine wouldn't argy about flu germs I struck out fur the Parson's and I was lucky to find him settin' in his kitchen lookin' over some bulletins on bee culture.

"Thinkin' of raisin' bees up here?" sez I.

"Yes, why not use up the nectar in them wild flowers? This used to be good country fur wild honey, so I guess tame bees would like it."

Well, I reckon he is right. More of our mountain folks could be producin' honey, but that ain't what I come to see him about, so I brought up the subject of mikrobes, sayin': "Parson, you're a God-fearin' man and you're eddicated, what do you think about a world that's full of deadly germs and things? Was we put here just to be punished, or should we ought to enjoy the world? Who's responsible fur them turrible conditions brought on by the war and the flu?"

"The Kaiser," he sez, pronto.

"Mebbe fur the war, but how about the flu?"

"Both," he sez, positively. "You see, Brother Putnam, this is a queer and peculeer world that we live in, because it's exactly what we make it. If we fill it full of germs, ghosts and hobgoblins, why we got them kind of beasts to fight all our borned days. If we shake off them superstitions, hold up our heads and dominate our surroundin's with a cool and calculatin' mentality that the good Lord endowed us with, why we pull through sound in wind and limb and round out our years of usefulness in peace and harmony."

"That sounds all right when you speak it, Parson, but would you have me understand that I hain't got no right to git scairt of the flu, or the hog cholera, or smallpox, or war?"

"Well, now, Brother Putnam, that's about what I'm tryin' to tell you. I ain't advisin' you to run into danger; use your common sense, do what's right and just by your neighbor and yourself—don't forget to treat yourself fair—and if somethin' shows up that looks like danger buck up to it and fight. Don't throw up your hands and say it's the Lord's will, 'the Lord giveth, the Lord taketh away, blessed be the name of the Lord.' The way I got it figgered out, the Lord don't give us anything that ain't good and nobody has got a right to palm off anything bad on us."

"You was talkin' about the Kaiser bein' responsible fur all the trouble in the world, includin' the flu? I don't foller you."

"Well, I meant just what I said. The Kaiser represents a system and I call it the system of frightfulness. That's what autocracy lives on—fear; that's its weapon. As long as people are a-feared of it they obey, whether it's marchin' ag'in a human enemy or facin' disaster and disease. This hull world has been afraid of things from the beginning of time. Look at the German army. Did you see how it broke down in less'en a week? Did you see how the German navy steamed right up to England and give itself up? Did you notice how the Kaiser hisself took his tail between his legs and skipped the country? Did you hear of any German army corps, or any German battalion, or any single German company, or any German general, or any captain, or any German private in the rear ranks, refusin' to surrender? Was there a man among 'em all? Not a one! What was the matter? The panic of fear.

"Why, that's the most fatal disease they is, Brother Putnam. You might say the Germans knowed they was licked by U. S. & Co., but we was just beginnin' to give 'em their dues on the southwest behind. They still had millions of men when the panic hit 'em. Them soldiers in the ranks didn't know the conditions; they didn't know how many Yanks was ag'in 'em. They just caved in and run because somebody up above give up the fight.

"It's a funny feelin', Brother Putnam. I confess to havin' it onct and right then and thar I overcome it and it hain't never bothered me sence. I was callin' on a brother to see him about contributin' to foreign missions. He was ridin' the cultivator in his corn, and after I got thru talkin' to him I started to go to his next neighbor's and he showed me a short cut thru a medder. I clumb the fence, like he told me, walked through a little grove, crossed a crick and on the other side, right out in a bluegrass paster, I found myself facin' a Jersey bull. You know what a Jersey bull is when met in the open. I got panick struck; my knees come together and

(Turn to Page 17)

$13,000,000 of Insurance Business

The Farmers' Life Insurance Company of Denver has adjusted the difficulties of a year ago growing out of the former purchase of business in Texas and Kansas. It will enter upon the new year free from anything but current obligations and with a stronger organization than ever before. Its affairs are in good shape for an active campaign for the coming year. The settlement of controversies over assets in Kansas and Texas insures that Denver will be the headquarters of a successful buiness enterprise which will reach out into many neighboring states. The Farmers' Life has about $13,000,000 of splendid business on its books, has a directorate of leading business men and farmers in Colorado, Nebraska, Wyoming, Kansas and New Mexico, and though a young institution has already become one of our substantial business concerns.

The Company begins the new year with more than $2,000,000 admitted assets and as it makes a specialty of farm loans it will be a vital factor in the present campaign to settle up our lands.—Advertisement.

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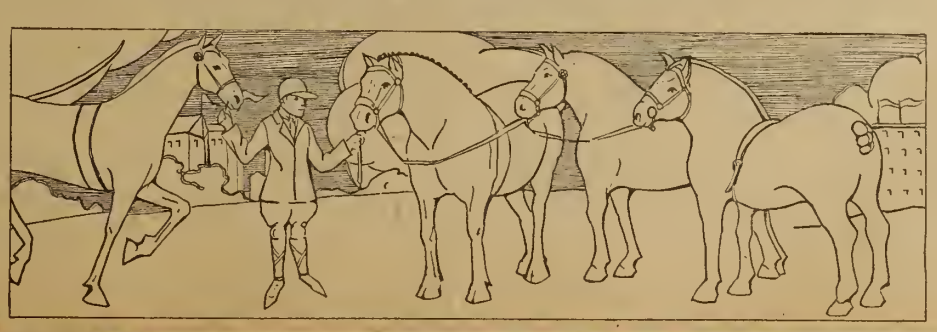

Trapped

(Continued from Page 9)

"Shot clean off the monument. I can see some pieces of it still there through my glasses."

Benton brought his own glasses, and the two from Benton's Veranda studied the wrecked light. Others joined them. The Barbette hummed with the discussion. And then, while they were at breakfast the Benton phone rang.

"Orders from the naval base are for all people on the shore to leave their homes and find shelter," the operator told him. "There are submarines in the bay; and the entrance has been closed, and the destroyers are going to hunt them down. There is danger of shells striking the cottages."

When John Benton went out to bear this word to those who had no telephones, he saw the first aeroplane in the southern sky. Ten minutes later those of the people of the Barbette who chose safety were hurrying up the lane toward the main road. Marks, Lewis, Benton and Nelson Hobart elected to stay. When Benton told Mrs. Marshall, she turned white and still; but she thanked him civilly. He asked for Anne, and she told him Anne had left the cottage early, was no doubt in safety long before this.

At the Morse cottage Mrs. Morse and the baby were preparing to leave. Mrs. Morse said the lieutenant had gone out at the sound of the guns and had not returned. She seemed to feel no concern for him.

When Benton returned to his own cottage, Marks and Lewis joined him on the veranda there. An aeroplane was circling in the air, high above the bay; and four others were coming from the south. Five minutes later a flotilla of twelve destroyers in triple line rounded the point to the southward and swept up toward the monument. A swarm of chasers surrounded them.

These craft scattered across the bay, slowed down, lay at rest. Above circled now a score of planes.

Far out in the bay a silvery spout of water lifted high, and a dull detonation came to the ears of the men on the veranda. "One of the planes dropped a bomb!" John cried. "I saw it fall."

They looked up into the skies, and saw a monoplane there turn its nose toward earth and dive like an arrow, a thousand feet. When they thought it would surely plunge into the sea, it flattened out, circled.

"Look at the destroyers," Marks called softly; and the men saw four of the slim black craft swing into line abreast and steam slowly across the spot where the bomb had fallen. The watchers scarce breathed.

Again the water uplifted itself, sullenly, blackly; and when it subsided again, the monoplane circled over the spot once more, then began to climb into the sky with a triumphant flick of its rudder.

"They dragged a bomb over that one, exploded it!" Hobart exclaimed.

"Believe me, son," Herb Lewis cried, "I wouldn't want to be in one of those things when they do that. What chance has a man got, say?"

"None," said Bill Marks soberly.

It was fifteen minutes past seven when that first bomb exploded. Four submarines had been destroyed at the entrance to the bay in their first attempt to escape. This increased the tally to five. Fifteen minutes later two more were added to the toll.

The bomb-drag which had destroyed the fifth submarine had caused such a concussion that two sister craft, lying on the bottom nearby, were shaken and jarred. Their rivets started; they began to take water.

The first one came to the surface not a mile off the Barbette. John Benton was the first of the men to sight its periscope. A moment later the gray steel of its back burst the bonds of the water, and the long, narrow deck emerged into view.

A destroyer's gun snapped. The shell struck fifty yards from the submarine. The conning-tower hatch opened and men tumbled out. They brought a gun swinging from its hidden bed, tried to bring it to bear on the destroyers.

Three shells hit at once; and the submarine opened up like an egg, and the two ends sank and were gone.

The watchers were trembling, their faces were white. "There are men swimming in the water," Benton whispered; and a moment later they saw a submarine-chaser race to the spot and rescue these swimmers.

"Say, they got off lucky," Lewis commented.

"There's another!" Hobart cried.

The second U-boat, forced to the surface by the damage it had sustained, managed to put up a fight. Its gun was barking before the destroyers could get the range; but a one-pounder on the bow of the chaser that was doing rescue work riddled the plunger from end to end, and the U-boat tilted its stern into the air and took its last dive, while men scrambled from the conning-tower hatch until the shrouding waters closed that avenue of escape.

Seven of the submarines were gone. At ten minutes past eight the eighth was accounted for. It was caught on the flats in a small bay south of the Barbette by the ebbing tide, and its crew surrendered to the three chasers that raced toward it. Of all the flotilla, that was the only craft which was to surrender. Against overwhelming odds, against certain destruction, the others fought their fight and died.

But for the moment, after the capture of this stranded craft, quiet fell upon the bay. The planes circled high above, unable to locate the other plungers; and the destroyers waited, cruising slowly back and forth, and the chasers poked their gray noses into every corner without finding new prey.

The men at the Barbette did not see the next act in the drama. It was staged twenty miles to the southward at the mouth of the western channel.

That channel had been closed by two lines of nets. On the first line, bombs were hung at every intersection of the cables. The second net was designed to catch any plungers which might break the first barrier; and between the two obstructions mines had been laid so close together that the U-boats, blindly groping, had no chance to pick an open way between them.

This barrier was guarded by six destroyers and thrice as many chasers; and on the shore of the island which marked the east side of the channel three batteries of field-guns were stationed to assist in checking any attempt to break through.

The attempt came at twenty minutes past ten o'clock in the morning. There was no warning. The planes which might have sighted the undersea boats were all searching the bay to the northward, when four periscopes broke water almost simultaneously, a hundred yards north of the bomb-net.

Two destroyers were cruising across the mouth of the channel at the moment, on the north side of the nets. One periscope emerged not fifty yards from a destroyer. The guns on the surface craft snarled; the periscope disappeared. But at the same instant a muffled but tremendous detonation sounded, and the destroyer lurched heavily, listed, broke in two, and was gone.

The submarine which had torpedoed her was struck in the conning-tower. It had submerged; but it came to the surface again, wheeling helplessly, and pure luck pointed it toward the second destroyer. Men were climbing from its hatch in the face of the rain of fire from the destroyer's decks. One shouted something; and a second torpedo struck this destroyer twenty feet aft of her bow. The two craft sank together, the submarine riddled by the destroyer's guns, and the destroyer blown half in two by the U-boat's last torpedo.

Four periscopes had appeared. Four submarines were in the front line of the attempt to force the channel. One had accounted for two destroyers. A second fell prey to a chaser which shot across her bows, dragged a bomb across her decks, and exploded it at the moment when the bomb touched the plunger's curving sides. The other two U-boats came to the surface, and gun-crews attempted to work the deck-guns against the rain of fire that overwhelmed them.

One shell struck a destroyer harmlessly; a chaser was sunk. Then the two submarines, almost at the same instant, lurched and disappeared beneath the water. A shell from a field-gun ashore had struck one fairly. A destroyer torpedoed the other.

The attack was not yet finished. Four more submarines were sweeping down into the melee, and behind them four more, and four more periscopes appeared. Of the first line, two submarines reached the bomb-net; but they were meshed there and destroyed by the bombs. Instantly, as though at a signal, the remaining submarines submerged. For a moment the destroyers and chasers zigzagged madly back and forth across the water. Then they slowed, gathered to compare notes. The report went winging to the wireless base:

"Sixteen submarines attacked the west channel barrier. Six were destroyed. Two destroyers and a chaser were sunk. The barrier was undamaged."

Admiral Bunt, in his many-windowed room at the base, checked off six submarines upon his list. Fourteen were gone. Eben Scour had counted twenty-four at that strange roll-call in the night. Ten remained.

At word of the fight at the barrier the fleets which were searching the upper bay headed south to meet the submarines. But the U-boats, submerged, doubled north and passed under the searchers. About two hours after the attack upon the channel nets, two periscopes broke the water northeast of the Barbette.

There was not a destroyer in sight. Three chasers were cruising near the monument. The periscopes disappeared.

At one-forty-five two submarines came to the surface in the harbor off the town, and thirty seconds later their deck-guns were sending a rain of shells into the helpless place. They used shrapnel. The first shell scattered its rain of bullets across a group of eleven men and boys who were watching the bay from the top of the First National; and of the eleven seven were killed and only one escaped unhurt. Forty-two shells were fired by the submarines in the four minutes before the chasers got in range of them. The forty-two shells killed sixteen and wounded fifty-six people.

Then the submarines turned to face the three chasers. Their guns outranged those of the little craft, but the smaller boats were fast and they were driven bravely.

One found a submarine with its forward gun, and the U-boat sank across the channel of a harbor-mouth. The other three came on; and the remaining submarine met them with a fire of deadly accuracy. A shell swept the deck of one, and a second shell struck the little craft squarely in the bow, pierced the whole length of the boat, and exploded in the stern. The chaser up-ended and sank.

Of the remaining two, one was set afire and beached, a blazing wreck. The other was blown to little bits by a shell which found her magazine.

The submarine fired five more shots into the town, then turned southward into the bay and submerged.

The bombardment of the town had been reported to the naval base by telephone; and wireless orders were sent the destroyers racing northward. The Germans had expected this. Of the remaining ten plungers two had been involved in the bombardment of the town, and one was sunk there. The other submerged and lay quiet. The remaining eight had taken stations along the channel which led up the bay; and they rested there until the first flotilla of destroyers, four of them, in line-ahead formation,

(Turn to Page 14)

POWER-SIMPLICITY-ECONOMY

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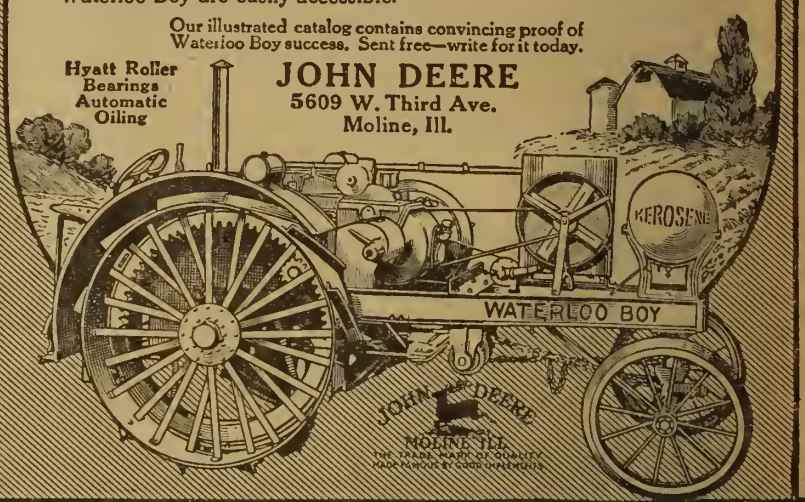

THE THIRTEENTH ANNUAL

NATIONAL WESTERN STOCK SHOW

Denver, January 18-25, 1919

WILL BE A

Victory Stock Show

The world war is over, with a glorious victory for the forces of right and justice. The livestock industry has many problems to meet with the coming of peace, among which is the problem of increased production to meet world needs for food. The Stock Show is an important agency in helping to solve these problems.

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Shorthorn Cattle—Nine o'clock Friday, Jan. 24
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These sales are under the direction and auspices of the National Breeders' Associations and provide an opportunity to secure the choicest blood at fair prices.

Choice Registered Bulls and Breeding Heifers in Carloads
Thousands of Feeder Cattle in Carloads at Public Sale

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ENTRIES CLOSE JANUARY 2, 1919

Send for Premium List

Western Stock Show Association

Stock Yard Station — DENVER, COLORADO

Colorado Good Roads Plan

One of the most serious and at the same time one of the most neglected factors of costs entering into farm operations is that of ransportation. With good roads, freightage costs with their consequent effects upon conservation of labor and stimulation of food production, are cut to a minimum. Without them it not infrequently happens that the price of transportation rises to a point where it is cheaper to allow the produce to rot upon the ground than to attempt to market it.

To date the neglect of this item of expense with its consequent neglect of the road has cost the farmers of Colorado thousands of dollars, has restricted their marketing area, and has entered very seriously into the final cost of every kind of supplies to the ultimate consumer.

Today with the officials of the United States government urging every possible effort toward the production of more food with the prospect that there will be sale for all, if the goods can be transported to market, the question of good roads has become so urgent as to attract widespread attention to the need of the further development of our highways.

In order to meet the requirements of the situation, bills are now being drafted which will be placed before the next session of the Colorado legislature, which will, if passed, add about $400,000 yearly to the road fund of the state in addition to placing before the voters of the state two years hence a highway bond issue from which a system of permanent roads may come in the future.

As the question is one which will shortly confront every farmer in the state. Western Farm Life submits herewith the plan of action of the good roads advocates together with the arguments prepared by them in favor of this legislation.

To begin with the requests which will be made of the legislature include:

Licensing of passenger automobiles upon an A. L. A. M. basis instead of advertised horsepower as at present, which will serve to iron out inequalities in the present law and which will place the higher tax upon the more expensive cars.

A graduated motor truck license based on tonnage capacity which will be reasonable but which has the same effect as the change in the passenger statute.

A transference of the inheritance tax from the general to the road fund, thus making this fund serve some specific purpose.

Passage of an enabling act which will permit the people of the state to vote upon a bond issue for highways two years from now.

At the same time it is proposed to change automobile collections so that the man who buys a car three months before the end of the year will pay only a quarter tax instead of a full year's tax. And it is further proposed to release automobiles from assessment as property, thus eliminating the double tax feature of today.

In the matter of the highway bond issue, it is proposed to ask for $10,000,000 fifty year bonds at 4½ per cent. Both interest and sinking fund should be paid by the motor car registrations, which can be easily done, thus eliminating any charge to the general taxpayer, a plan which has been adopted in Illinois, New York, Pennsylvania, and numerous other states.

In other words, the user of the road is asked to pay for it as he can without hardship and, in fact, in all of the proposed legislation, not one penny of increased direct general taxation is asked for.

The benefits to be obtained from this movement as they relate to the farmer may be briefly recapitulated:

1. Reduced cost of upkeep, operation and labor used in transportation through the reduction of time spent upon the road, the lessening of power necessary to haul the load, increase in the load, and through the very material saving in costs of parts, feed, power, and other factors in operating costs of motor or wagon.

2. Increased marketing opportunities through widening of the marketing sphere.

3. Increased food production through release of labor for work on the farm, assurance that it will be possible to get crops to markets, and release of acreage now devoted to the needs of stock which would be superfluous with better roads.

4. Increased value of real estate resulting from closer communications.

5. Increased opportunities for travel, education of children, and other social benefits.

These are all immediate benefits, but good roads mean more. They mean a development of thousands of acres of arable land now left undeveloped in Colorado because of lack of transportation.

They mean development of natural resources in the hills now left untouched for the same reason.

They mean an influx of thousands of travelers all of whom, on the California basis, spend about $1,000 each on any extended trip.

In turn this tide of travel and settlers will enlarge the markets of the farmer as more food is required, will increase his opportunity for sale of land at a higher figure and in many other ways will serve to add materially to his prosperity and consequently to that of the state.

The plan for the emergency legislation which would add about $400,000 to the state fund immediately is to pave the way for plans and specifications for the permanent road work, made possible by the bond issue, and further to provide a more adequate maintenance fund for every "feeder" highway in the state in the interim.

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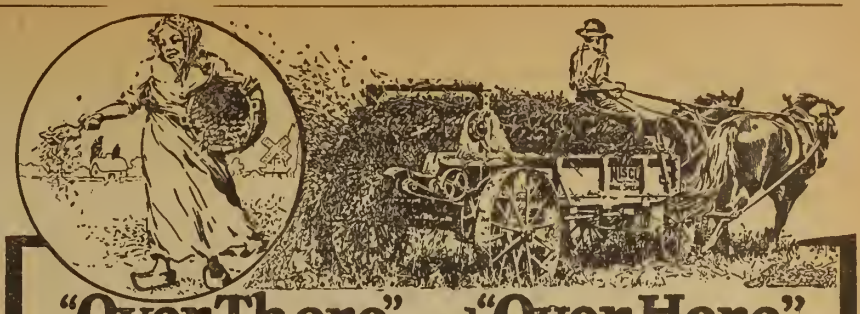

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"I have used one of your Spreaders for four years and it has given the best satisfaction. We spread manure every day during winter and even when weather conditions are very unfavorable. I would not give your machine for any other make of spreader that I have ever seen. I consider it the best paying investment a farmer can make."
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"Over Here" we have not been forced to raise as many "bushels per acre," but modern machinery enables us to produce more "bushels per man."

Progressive farmers who realize the value of manure and leading authorities agree that one of the best paying machines for the farm is the

NISCO Reg. U.S. Pat. Off. The "New Idea"

Saves time, spreads even and wide, pulverizes thoroughly and distributes the manure just right to get its full value. One man with the "Nisco" can do more and better work than several with pitchforks.

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New Idea Spreader Co.

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(9)

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One Crop Often Pays for the Land

Western Canada offers the greatest advantages to home seekers. Large profits are assured. You can buy on easy payment terms,

Fertile Land at $15 to $30 per Acre—

land similar to that which through many years has averaged from 20 to 45 bushels of wheat to the acre. Hundreds of cases are on record where in Western Canada a single crop has paid the cost of land and production. The Governments of the Dominion and Provinces of Manitoba, Saskatchewan and Alberta want the farmer to prosper, and extend every possible encouragement and help to

Grain Growing and Stock Raising.

Though Western Canada offers land at such low figures, the high prices of grain, cattle, sheep and hogs will remain.

Loans for the purchase of stock may be had at low interest; there are good shipping facilities; best of markets; free schools; churches; splendid climate; low taxation (none on improvements).

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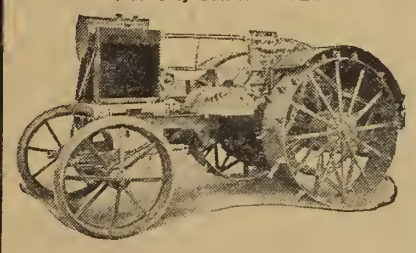
WESTERN CANADA Farm Lands at Low Prices The Wheat Belt of America

You Get Out of a Tractor What the Maker Put In

Flour City Junior—14-24



FLOUR CITY

KEROSENE TRACTORS

Four Sizes: 14-24, 20-35, 30-50, 40-70

One Standard Design

There is something more that you want in a Tractor besides power and the ability of the motor to burn kerosene. There is no question but what those are features of vital importance; but you want and are entitled to more. Something the manufacturer must build into the Tractor.

It is that feature of LASTING SERVICE. The ability of the Tractor to go into the field day in and day out and stand up under the hard grind of continuous service.

That is the kind of service FLOUR CITY TRACTORS give. They don't fail when called on for extraordinary hard usage. Designed right and built of selected material, the product of an organization with 19 years experience in Tractor building.

That means satisfactory Tractor service. Quality construction combined with Power and Kerosene Efficiency.

Whether you need a small, medium size or large Tractor, we can supply your wants, furnish you a Tractor that fits your requirements.

Write us for Catalog of Flour City Tractors

KINNARD & SONS MANUFACTURING CO.,

897 44th Avenue No. Minneapolis, Minnesota

Trapped

(Continued from Page 12)

were squarely abreast of where they lay.

The plungers rose to the surface then; their torpedoes sped. Two destroyers were hit and sunk forthwith; a third was crippled and beached. The fourth met the attack alone; and two submarines circled and fired torpedoes into her from opposite sides. She was crushed like an egg.

One shell from the destroyers had found a mark. Of the eight submarines which had lain in ambush, only seven remained. From the cottage on the Barbette, Benton and others had watched the terrible success of the U-boats' stroke; and they saw now these seven come to the surface and cruise, on the surface, out into the bay. The one which had attacked the town joined them there; and for five minutes the eight lay quietly upon the waters, two miles off shore.

Then Marks sighted the smoke of more destroyers coming up the bay; and ahead of them four planes circled high overhead. One of the submarines turned a deck-gun to bear upon these planes, and the white puffs of the shells dotted the air about the wheeling craft. The planes dodged and looped and rolled, but they held their places—to their cost. A shell hit one squarely, and it dissolved into little, fluttering bits of things which fell lightly till they splashed into the bay.

The submarines could not face the coming destroyers. They dived; and forthwith the planes swooped down to mark their hiding-place. Then the waters boiled as the destroyers raced back and forth above the submerged flotilla, with drag-bombs trailing along the bottom of the bay. Slowly the turmoil drifted eastward. Now and then a dull explosion drifted to the listeners on shore. The submarines were fleeing, the destroyers hanging on their heels relentlessly. The racing craft became mere dots to the watchers at the Barbette, and the black smoke from their funnels obscured their movements.

In the end, it was this smoke which gave the plungers respite; for it so cloaked the waters that the aeroplanes lost sight of the U-boats. Three had been destroyed by the drag-bombs. Their graves were marked by buoys which the chasers had set above them on signal from the planes. But the remaining five had escaped.

The search spread abroad again; but now the task was more difficult. A wind had arisen; the sea was torn into a choppy froth. It was harder for the planes to detect the plungers in their beds upon the bottom; and from about half-past three in the afternoon until almost five o'clock the hounds were baffled.

For the watchers at the Barbette that period went swiftly. The whole day had sped by as on wings. No one had eaten, no one had thought of food. They had scarce drawn breath, so intent were they upon the tragic and terrible drama that was outspread before them. They only waited and watched.

Of the German plungers, five now remained. What passed in the minds of the commanders, what motive led them to their final stroke, can only be guessed. It may have been that they attributed their catastrophe to Eben Scour, that they associated him with the Barbette; or it may have been mere blind rage and malignant determination to blast and destroy to the last.

Whatever the motive, at five minutes before five o'clock in the afternoon, the remaining U-boats suddenly appeared upon the surface less than a quarter of a mile off the Barbette; and they opened fire upon the cottages.

The destroyer fleet at the moment was far across the bay, ten miles away, still pursuing their fruitless hunt for the plungers. They could not come within range for ten minutes or more. That much time the plungers had; and they used it to advantage.

It was apparent that their plan was concerted; for every gun was turned first upon the southern cottage, the Scales cottage. Four shells struck it, and it came apart like a house of cards. The guns shifted to the next.

Herb Lewis owned the cottage next that of Scales; and it was the pride of his heart. He had toiled unceasingly through the summer, building concrete posts beneath it, a sea-wall and a breakwater in front, dragging out the alders. And when he saw the guns turn that way, he screamed with rage that was madness, and ran toward his home as though to save it with his hands.

He reached it as the last shell struck in what had been the living room; and the chimney tottered and came pelting down through the wreckage. The catastrophe stunned Lewis. He stood motionless, broken.

The shells swept on. The Willis cottage went; then the Sentry Box, a bungalow on the hill above the beach. Then the Hurley bungalow; after that the little cottage Eben Scour ha d occupied.

Through all this rain and fury of destruction, Benton and Marks remained upon Benton's veranda. Hobart asked tremblingly: "Hadn't we better get out of this?"

Benton shook his head. "If they want me, I'm here," he said quietly. Marks settled down in the Gloucester hammock that hung near Benton's chair.

"Me, too," he decided. 'My place is safe. I built it myself, and a boss carpenter told me it wouldn't fall down, nor it wouldn't blow over. If they can do it any hurt, they're welcome."

Hobart swore. "You're crazy. Me for the woods." He slipped off the veranda and started to run up the hill. As he uassed the Harkness cottage a shell struck the ground beside him, and he vanished.

The submarines were firing methodically, but swiftly. Far across the bay the destroyers were racing toward the Barbette. But it was Marks who saw the monoplanes coming. He pointed them out to Benton. "Our friends had best not forget those gentlemen," he commented.

Benton nodded. The two men watched.

The monoplanes were almost overhead. For a moment it seemed they would pass over the submarines. There were seven of them; and of a sudden the noses of the seven dipped as though with one accord. They fell with silent engines; they swooped down upon the submarines.

The U-boats saw them too late. There was a wild scramble to tilt the guns to meet the attack; but it was useless.

The foremost monoplane flattened out. Something black dropped from its fuselage; it struck the left-hand submarine.

The whole earth roared with a succession of terrible blasts, so that Benton and Marks were blinded and deafened by them; and then, as suddenly as the attack had come it was over.

Bombs had split four submarines. One alone had escaped, submerged. The planes circled wide to mark it down.

At dusk that night a searchlight's beam picked out a racing destroyer a mile off the Barbette. The men who faced that searchlight flung their hands to their eyes, shrieked with the agony of it. But other men in the shadow of another destroyer marked whence the light's beam came, and flung a single shell; and a red flame flared in the night.

When it passed, the searchlight had disappeared, and the last submarine was gone.

CHAPTER XVIII
ANNE AGAIN

Eben Scour never reached the Barbette that day. When his car approached the lane that led down to shore, he saw a man standing at the lane-head waiting. As he came nearer, he recognized Lieutenant Morse, and the lieutenant lifted his hand. Eben spoke to the driver, and when the car stopped he paid the man and dismissed him. The car started back toward town, and Eben turned to the lieutenant.

"What is it, Morse?" he asked quickly.

"The game is on," said the lieutenant.

Eben nodded. "We saw the first plane coming."

"Yes. I talked with the base a few moments ago. They've trapped the subs in the bay here." He looked at Eben with a faint smile. "I've—news for you," he said.

"News?"

"Yes. A surprise."

Eben waited; and the lieutenant studied the lame man for a moment, and then asked: "Are you sure Anne Marshall and—her mother—are spies?"

"Absolutely." Eben's voice was hard. "I heard them talking with the German commander."

Lieutenant Morse grinned. "The girl fooled you—and them."

Something leaped in Eben's breast. He controlled his voice with an effort. "What are you trying to tell me, Morse?"

"The girl came to me last night," said Morse simply. "She told me the Germans were mobilized in the bay; told me what they planned to do; begged me to warn the transports."

"She—told you?" Eben stammered.

"Yes."

"But—why? Surely she was working with them all along?"

"She was. But she could not go through with it."

Eben lifted his head impatiently. "Tell the story, man," he cried. "I don't understand. What was it she did? Why?"

Lieutenant Morse stepped to the stone wall beside the lane, sat down, lighted a cigarette. "The woman is not her mother," he said. "Her name is Anne Marshall, but the woman's name is Hoffman. She took the girl's name as her own."

"But—Anne consented?"

"Yes. For a time. Mrs. Marshall advertised for a companion, and Anne answered the advertisement. The woman told her they would spend the summer here. Anne comes from a little town in Indiana; she had never seen much of the sea. She was delighted. They came here—and then the woman trapped her into writing a letter which she dictated; and when the letter was written—it had sounded innocent enough—Mrs. Marshall sent it off.

"Two or three weeks later Anne began to understand what they were doing; and she rebelled. But by that time the woman had established some sort of ascendancy over the girl. She frightened Anne; and she told her the letter Anne had written would be produced to prove the girl a spy if she betrayed them.

"Anne pretended to fall in with the woman's plans; she gave up the fight; she did her share to help. And then at last she saw she could not go through with it—and she began to plan to expose the—German scheme."

Eben clenched his fist. "I heard her at the bell-buoy," he cried. "She led the German to tell all that he planned to do."

"Exactly." Morse nodded. "And—when the time came, she reported the matter to me—begged me to save the transports—warn them."

Eben looked quickly at the other. "Did you tell her—about that?"

Lieutenant Morse smiled. "No. It—amused me to know that I had fooled even her."

"You ought to be on the stage," Eben told him. "You acted the part of a—fool—perfectly."

(Turn to Page 18)

The Tractor to Buy

ARE you one of the many farmers who need more power to handle the farm work properly? Do you have to work with less help than you need?

If so, you need an International kerosene tractor. The size that gives you power for your heaviest load will handle all the work. Internationals use only as much fuel as the load requires. They are made to work with farm machines—the kind you are now using—and special hitches are provided for all kinds of field and road work. Their belt pulleys are large enough to prevent slippage, run at correct speed, and are set high enough to keep the belt off the ground. They all use kerosene or other low-grade fuels which means a big saving in operating expense.

The Company to Buy From

You know that we have supplied farmers with high-grade machines for nearly 88 years. You know that our tractors have furnished satisfactory farm power for more than 12 years. We have far too much at stake to market machines of any but the highest standards of quality. We expect to come back some day and sell you some other machines in the long list you see in this advertisement. In every sale we try to build for the future.

Tractor Service Whenever Needed

In line with this policy, we have developed a service organization which now consists of 89 branch houses and many thousands of loyal local dealers, wide awake and attentive to the needs of their customers. Service is a very essential part of any tractor sale. When you buy an International kerosene tractor you buy with it the assistance of an organization that brings a well stocked branch house or a live, local dealer within telephone call, fully equipped to keep your tractor working steadily.

International Tractor Sizes

International tractors, all using kerosene for fuel, are made in 8-16, 10-20, and 15-30 H. P. sizes. A line to the address below will bring you full information about all our tractors and about any other machines you mention in the list shown in this advertisement.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders, Push Binders, Headers, Rice Binders, Harvester-Threshers, Reapers, Shockers, Threshers

Tillage Implements
Disk Harrows, Cultivators, Tractor Harrows, Spring-Tooth Harrows, Peg-Tooth Harrows, Orchard Harrows

Planting & Seeding Machines
Corn Planters, Corn Drills, Grain Drills, Broadcast Seeders, Alfalfa & Grass Seed Drills, Fertilizer & Lime Sowers

Haying Machines
Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Sweep Rakes, Stackers, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

Belt Machines
Ensilage Cutters, Huskers and Shredders, Corn Shellers, Threshers, Hay Presses, Stone Burr Mills

Belt Machines—Cont.
Cream Separators, Feed Grinders

Power Machines
Kerosene Engines, Gasoline Engines, Kerosene Tractors, Motor Trucks, Motor Cultivators

Corn Machines
Planters, Drills, Cultivators, Motor Cultivators, Binders, Pickers, Ensilage Cutters, Shellers, Huskers and Shredders

Dairy Equipment
Cream Separators (Hand), Cream Separators (Belted), Kerosene Engines, Gasoline Engines, Motor Trucks

Other Farm Equipment
Manure Spreaders, Straw Spreading Attach., Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

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Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU WESTERN FARM LIFE, Denver, Colorado.

On Taking Up Cattle

Answer to H. G., Cheyenne county, Colo.:

Question No. 1: Has a man the right to turn a bunch of cows out on the open range without a bull with them?

Answer: The state law provides that any person running cattle on the range shall provide at least one bull not less than eighteen months of age for each 25 head of cows or fraction thereof over 10 head. This does not apply to bunches of 20 head or less. Bulls so furnished must be high-grade animals. No inferior bull of beef grade is allowed and no Jersey bull of any class or grade is allowed to run at large under any pretense whatever.

Question No. 2: If stock breaks into a man's feed corral that is bounded by a legal fence, has he the right to hold said stock until owner pays for damage done?

Answer: The state fence law provides that any person maintaining in good repair a lawful fence may recover for trespassing from the owner of animals which break through such fence in full for all damages sustained together with costs of such recovery, whether same be by suit or by arbitration. The trespassing animals may be taken up by the party damaged and held as security for the payment of damages and costs.

Question No. 3: What proceedings are usually taken in a case like that?

Answer: The party damaged can either file suit in the court of a justice of the peace for damages or the matter can be submitted to a board of three arbitrators. If the latter plan is followed, the party damaged selects one of the arbitrators, the owner of the animals selects the second, and the two arbitrators thus chosen, select a third. The party damaged has the right to choose whether he wishes to bring suit or settle the matter by arbitration.

The person taking up animals caught trespassing must notify the owner or person in charge of such animals within five days of taking them up. If the owner or caretaker cannot be located notice of such taking up shall be published within one week, together with full description of the animal or animals. In case the owner desires return of the animals before the matter of damages has been settled he is required to give a bond in double the amount of the damage claimed; said bond to be satisfactory to damaged party or approved by a justice of the peace or county judge of the county.

If the matter of damages is left to a board of arbitration the findings of such board are binding, and if the owner of the cattle refuses to pay damages within thirty days, then the claim may be filed in a justice of the peace court if the amount is not in excess of $300, or in a court of record of the county if the amount be in excess of $300. The finding of the board of arbitration has the same effect as a court judgment and execution may issue thereon as is provided by law in court judgments.

Cow Has "Lost Her Cud"

One of my cows has lost her cud; that is, she does not chew her cud for some reason or other and appears to be drooping. Can you tell me what is the matter with her?—H. S. F., Idaho.

Rumination or chewing the cud is a natural process in connection with the digestion of cattle and other ruminant animals. In ruminants the food when first taken into the stomach is imperfectly chewed, and is returned to the mouth for remastication. This returned ball of food is termed "the cud."

So-called loss of cud is simply a suspension of chewing, frequently one of the first indications of sickness in any kind of ruminant animal, since ruminants generally stop chewing the cud when feeling out of condition. Any condition affecting the general health of cattle may result in suspension of chewing, and there is almost certain to be an interruption of this process when there is any pronounced disturbance of digestion.

Placing wads of hay in the mouth, the use of salt pork, and similar methods for restoring the cud are the outcome of local superstitions and a lack of knowledge concerning the digestive process of the cow. Instead of such treatment an effort should be made to determine the exact nature of the illness affecting the cow with a view to applying proper treatment.

It may be confidently expected with an approaching return of the animal to a state of normal health, there will be a restoration of the process of digestion, including the function of rumination or cud-chewing.—U. S. Department of Agriculture.

Legal Questions Answered

Answers to W. S., Moffat county, Colo.:

No. 1. Give the correct form for the first part of a will.

There are many ways to commence a will. This is one of them: "I, John Smith, of the City and County of Denver and State of Colorado, being in full possession of all my faculties, and of sound and disposing mind and memory, do hereby make, publish, acknowledge and declare this as and for my last will and testament, hereby revoking any and all former wills by me at any time heretofore made."

No. 2. Can a wife in Colorado will a dowry only to her husband?

Answer: There is no dower in Colorado. Wife or husband cannot will away more than half his property from the surviving spouse, excepting by consent expressed in writing in court after the death.

No. 3. Would a daughter's husband be heir to the mother's (her mother's) estate in case the daughter is dead?

No. The daughter's husband as the statutory heir of the daughter might be entitled to his portion of the daughter's estate which the daughter acquired as the heir of the mother.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

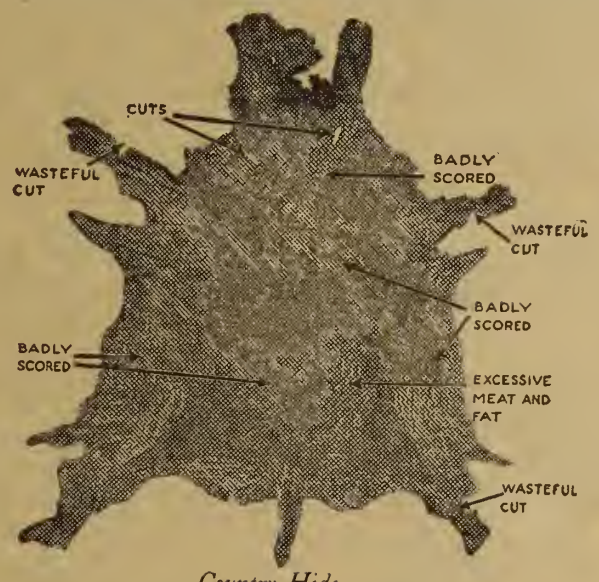
VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

1 have a seven-months-old ram. He seemed as thrifty as could be while feeding him and a ewe lamb on the bottle. Was always very careful to sterilize their bottles and nipples. The ram since two months old has had a cough and it seems to be phlegm in the throat. It bothers him most after drinking milk. However, he has been weaned for two months but 1 have been giving him Dr. Hess' stock tonic in milk as directed for cough in sheep, also a diarrhoea checker of equal parts of ginger, powdered chalk and baking soda. He has fallen away till it feels like there is very little flesh on his bones. He seemed all right except cough till he started in to be constipated, then diarrhoea followed. As long as 1 gave him a fourth of teaspoon of the tonic twice a day and the checker twice a day (each in milk) he seemed to feel pretty good and grazed with the ewe, but I have kept that treatment for four weeks, and unless 1 am regular with him yet, he starts right in witb diarrhoea again. As long as 1 give the tonic be has a good appetite, but seems to crave salt, so have moved all of it out of his way. They bave been on splendid pasture all along, but he may have eaten too many oak leaves. At times he breathes short and quick and his discharge is green and very slimy. His tongue is bluish in color but do not believe he is feverisb.—H. B., Mesa county, Colo.

The ram is apparently suffering from gastro-intestinal catarrh, and this might have been caused from eating oak leaves or from indigestion induced by artificial feeding. The disease appears, however, to have a lung complication and the cough, bronchitis, diarrhea, and the chronic nature of the disease, all indicate a parasitic infestation of the lungs. The lungworm disease is caused by the lung palisade worms, and I should be greatly surprised to find for sure that the disease is in that part of the country. Strong animals occasionally recover. The disease is quite sure to spread through the flock. Watch the ram carefully and see if mucous coughed up does not contain long, thin, smooth worms, or their eggs. Treatment of these cases is very difficult, for the reason that inhalations of vapors that might kill the parasites does not reach those that are deeply imbedded in the lungs. Intra-tracheal injections fail for the same reason. If you have reason to suspect that this last hypothesis is correct the ram should be kept from the other sheep. The ram will in all probability die in spite of anything that we can do now, and when he dies it will be well to make a careful examination of the lung especially, and if parasites are found a few should be sent to the college for identification. In this way it is possible to prevent the spread of the disease among your sheep.—G. H. G.

Plan to build that silo in 1919.



Country Hide

Packer Hide

Good hides make your cattle worth more money

Leather tanners are very careful about the hides they buy.

They want hides that are as nearly perfect as possible — hides that are without cuts and scores, and that are properly cured.

There are two classes of hides on the market—"country hides" and "packer hides."

Country hides are those taken off by small butchers and farmers. Packer hides are those taken off by the packers.

* * *

To take a hide off correctly is not easy. Unless great skill is used the hide will be marred by cuts and scores.

The packers have made a careful study of hides. They have trained experts who do nothing else but take them off. Hence, packer hides have few cuts and scores, and are uniformly and properly cured.

Swift & Company sorts its cured hides into grades or classes, according to quality and to the purposes for which they are best adapted.

Some country hides are good; others are very poor.

They usually have cuts and scores and are not cured so well. Some have also begun to deteriorate because of being held too long. Besides, they cannot be graded so uniformly. In the same batch there are both good and poor hides.

Because of this superiority of packer hides, tanners pay from two to five cents a pound more for them. If country hides were as good, tanners would gladly pay an equal price.

This increased value of packer hides means that you get for your cattle from $1 to $3 or more per head, additional.

Swift & Company does not deal in country hides at all, and has no interest in their purchase or sale. It is the hide dealers and tanners who notice the difference in quality, and pay accordingly.

Swift & Company uses skill in taking off hides, not because it wants to see country hides bring lower prices—but because it is part of its policy to produce articles of the highest quality.

* * *

This is only one way the packer has increased the value of your cattle. Many other by-products have been improved in a similar way.

Swift & Company is constantly on the lookout for new ways to improve the value of its products, and hence to make your cattle worth more money to you.

When Swift & Company says that its profit on beef averages ¼ of a cent a pound, this includes the profit from the sale of hides.

Swift & Company, U.S.A.

A nation-wide organization owned by more than 23,000 stockholders

Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

Future Demand for Dairy Cows

There has been much speculation as to what Europe will do in the way of taking American cattle after the war. Up to a short time ago everyone seemed hopeful that a large number of dairy cows would be shipped over to the different countries of Europe, but now it is beginning to be recognized that Europe has her own type and breeds of cattle, and a natural prejudice for them. Belgium, Holland, and North Germany may take Holsteins, as they are used to the "Blacks and Whites." It is not likely that many Guernseys and Jerseys will be taken unless the governments of the various countries start directly into the business of shipping and supplying cattle to those communities needing them. The most likely returns for dairymen, particularly for this western section, will be in the demand for dairy products maintained through the length of time needed for the rebuilding of herds in Europe from the stock they may have on hand. Some cattle will undoubtedly be shipped over also, adding to the inequality of supply and demand of dairy products. —G. E. M.

Creamery Men Organize

Some time ago a committee of Colorado creamery men was appointed to outline a plan of organization for the creameries of Colorado. The scheme of organization was to include an equitable method of assessment which would provide funds sufficient to maintain a paid secretary the year around. The committee has secured the co-operation of enough creameries to assure the success of the organization. A meeting was held in Denver December 17th. It took up the question of a secretary, and made plans for the year's work. This organization will be a big factor in unifying the creamery men of the state, and will aid them in solving some very knotty problems with regard to cream buying and handling.

The association voted to become a member of the Allied States Creamery Associations, which represents Colorado, Kansas, Nebraska, Illinois, Indiana, Michigan, Iowa, Missouri and Ohio. This central association handles the larger questions of the creamery business for the territory covered by the association.

Directors were elected as follows: A. T. McClintock, Beatrice Creamery, Denver; J. Gingrich, Midwest Creamery, Denver; G. A. Allebrand, Hollywood Creamery, Colorado Springs; D. B. Brier, Greeley Creamery; Mr. Vaughn, Cheyenne Creamery. These directors selected Mr. McClintock as president, Mr. Gingrich vice-president, and Mr. Brier treasurer.

State Dairymen's Association

The directors of the Colorado Dairymen's Association met on December 17th to map out legislative plans for the coming session of the general assembly. There will be a number of bills up of interest to dairymen, and the State Dairymen's Association, as the central body of all Colorado dairy interests, is planning in advance what can be done and what should be done to further dairy interests. It is believed that a bill will be introduced calling for tuberculin testing of dairy cattle spread over a series of years, so as not to call for too great an expense on the part of the state in any one year. The federal government offers one-third of the appraised value of the re-actor that is slaughtered, provided the state will pay another one-third. This leaves one-third of the loss to be stood by the owner of the cows, which seems only fair, inasmuch as it is in his herd that the disease is found.

The association and the dairy commissioner in co-operation have helped the dairy industry in the state in a number of ways during the past year. Some of the things on which it moved were with regard to excess tariffs on cream shipments; unjust rulings on manufacture and sales of butter; opposing the Underwood amendment taking the tax off of oleo; helping prevent localization of cream shipments.

Rye for Dairy Cattle

Inquiry: I would like to know if rye grain ground would be all right to feed to dairy cows; and also ground millet. Would there be any danger of rye grain making a cow lose her calf?—W. T.

Answer: Rye is a fairly good grain for cows, although not as palatable to them as some of the other grains. Western rye particularly is a hard grain and flinty, but should be ground and mixed with ground oats, corn or barley. Ground rye will not cause a cow to lose her calf, but rye with ergot in it will produce this result. Ergot is a hard smut which replaces some of the kernels in the head of grain. It looks like a small, very black kernel of rye. Rye with ergot in it should not be fed to pregnant animals. Ground millet is good feed. It will dry a cow up very rapidly if fed in quantities, because the small seeds with their hard shells are very irritating to the mucous membrane. If you have just the two grains you should mix the two together, and it will be better if you could buy a little linseed oil meal to go with them. —G. E. M.

Cow Testing Associations

The annual report of the Cow Testing Associations in the United States, which has just been received, shows Colorado well up in the list of western states having associations. There are five testing associations in Colorado, and there are only eleven states in the Union having that number. Following are the associations in Colorado: Johnstown, Boulder, Douglas County, Arkansas Valley and Tri-County, adjoining Denver.

Silage for Beef Cattle

Before starting to feed silage to beef cattle a careful estimate of the total amount on hand should be made, as it is not a good practice to feed silage n such a way as to exhaust the supply and be compelled to feed dry roughage following the silage before turning to pasture in the spring. If a shortage is anticipated there are two ways to meet the situation—either feed dry roughage altogether for a

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"The Laboratory That Knows How"

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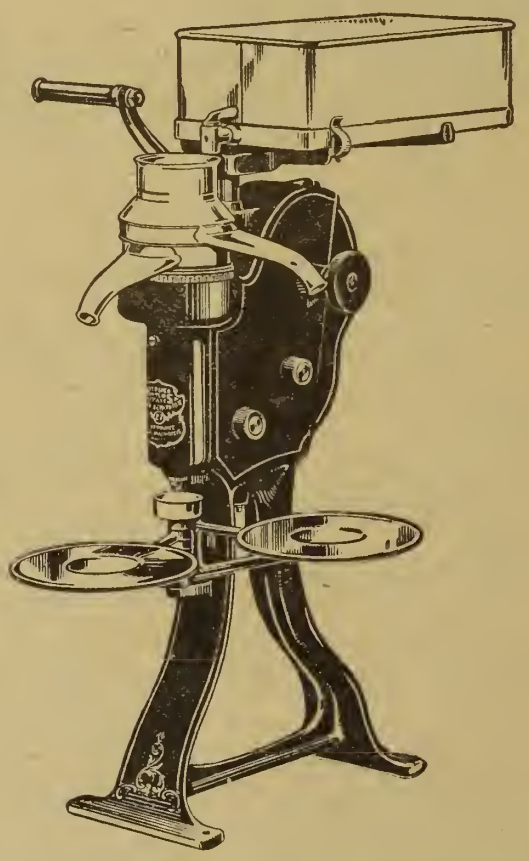

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The United States Disc Separator is first of all a GOOD separator.

To retain dominating quality has always been the first thought of the makers of the "United States." Quantity considerations are secondary.

The Disc-type "United States," before a great jury of dairy farmers, has been honored by receiving their unqualified stamp of approval.

The new United States Disc Separator is a *good* separator, highly refined. Within eighteen months patents have been issued on seven exclusive efficiency features.

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Discs interchangeable and easily cleaned.

So perfect mechanically that weight of crank starts it.

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time at the beginning and keep the silage until the latter part of the feeding period, or feed a small amount of silage with other roughage throughout the winter.

Sufficient silage and other roughage should be provided so as to begin feeding the cattle by the first of January at least, and to last until the 15th of April or 1st of May. Best results from feeding silage are obtained when some dry roughage is fed along with it. Unless legume hays are used a small amount of cottonseed meal, one-half to one pound, should be used.

Sale of Registered Holsteins

One of the big features of the National Western Stock Show will be the usual sale of registered Holstein cattle. This sale is scheduled for Thursday, January 23, and a complete announcement will be found in the advertising columns of this issue. The sale is part of the stock show attractions. The management have secured a good line of all classes and ages of registered Holsteins, thus providing an opportunity for dairy farmers who wish to build up their herds to get the pick of western stuff at home. Only high class individuals having the papers to show for their breeding are to be offered.

The indications are that the dairy division of the show will find all classes well filled and all breeds represented. The best herds of Holsteins, Jerseys, Guernseys and milking Shorthorns of the Rocky Mountain region will be on hand. Dairy farmers must not miss this opportunity to acquire first-hand knowledge of the various breeds during the judging, as the educational features are always emphasized by the management of the National Western Stock Show.

Two Heifers Earn $4,000 a Year

It is a little unusual to speak of milk in terms of miles, but this concerns two unusual heifers—pure-bred Holsteins owned at Arden Farms in Minnesota. These two heifers, by name, Jewel Pontiac Segis and Beauty Beets Walker Segis, have established records of production for milk and butter, which, according to the Holstein Friesian World, have never been approached by other heifers of their ages since Adam fed on milk and honey in the Garden. Jewel, who is a three-year-old, produced 27,068.5 lbs. of milk, and 1,171.15 lbs. of butter in a year, while Beauty Beets, only a two-year-old, made 25,343.3 lbs. of milk and 1,040.64 lbs. of butter in the same period.

Considering first their milk production, we find that these two heifers together produced over 26,000 quarts of the most nearly indispensable food in the human dietary. This product, placed in quart bottles stood side by side would make a row extending approximately a mile and a half. Similarly, if their year's production of butter, over 2,200 pounds, were made into the ordinary pound prints and piled end on end would extend half again as high as the Woolworth Tower in New York city. As a matter of fact the product was certified and sold for hospital use in the city of St. Paul at sixteen cents a quart, so that these young heifers actually earned their owner, Senator J. M. Hackney, over $4,000 for the year.

Of course, in order to make such wonderful records for production they had to have the best of care and liberal, intelligent feeding, but consider that each one of these heifers produced as much milk as eight average scrub cows; and think what it would mean to feed and care for two cows instead of sixteen. In these days of high feed prices and labor costs the improved dairy cow shows the only way out for the dairyman.

Comment by Farmer Putnam

(Continued from Page 11)

I shook like a leaf. I caved in right then and thar. I couldn't move one way or the other and that bull's instinct told him, here was a scairt parson, waitin' to be executed without benefit of clergy.

"The bull put his head down closr to the ground; one horn shook up a bush. One foot got busy dustin' around. He was snortin' mad in a minit. Well, Brother Putnam, I was in a pickle. My first thought was to pray to the Lord fur deliverance from this ravening beast, but I knowed that if I kneeled—and bein' a Methodist and at that time quite orthodox, I felt I couldn't pray without kneelin'—the bull would knock me endways before the Lord could git to me. Just then, thanks to Providence, I glanced down and there was a dead hickory limb right at my feet. Grabbin' the club, I furgot my religion and went right up and at that bull and I sez, 'You ornery old devil; git in my way, will ye!' And with that I whaled him over the head and he turned tail and run. I walked outen that paster slow and proud, cured of the habit of fear, and Putnam, believe me, they ain't no man, beast or inseck that I'm afraid of, least of all the kinds of insecks I cain't see. You see, I've figgered out the theory of this thing. I'm a believer in the Bible and the good book sez man was give dominion over the fish of the sea, the fowl of the air and over the beasts of the field and over every creepin' thing that creepeth upon the earth, and I reckon that includes the cooties and the mikrobes."

That sounds reasonable. Anyhow, I kin allus git some new idees when I visit the Parson, and I reckon you folks'll be glad to have me see him onct in a while, whether you agree with him or not.

THOMAS JEFFERSON PUTNAM.

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we have just the individual you want. At any rate, we have some mighty good ones with fine advanced registry backing and from a clean herd. We offer only calves bred and raised by us. Let us tell you of them before you buy your next herd sire.

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Write Today Send your name and address for pamphlet "How to Raise the Finest Calves on Little or no Milk". No obligation, it's free—write today.

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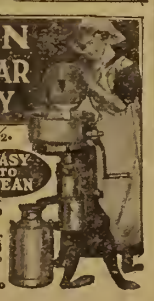
Only $2 DOWN ONE YEAR TO PAY



$38 Buys the New Butterfly Jr. No. 2½. Light running, easy cleaning, close skimming, durable.

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Separators are guaranteed a life-time against defects in material and workmanship. Made also in four larger sizes all sold on

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and on a plan whereby they earn their own cost and more by what they save. Postal brings Free Catalog Folder. Buy from the manufacturer and save money. [9]

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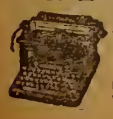

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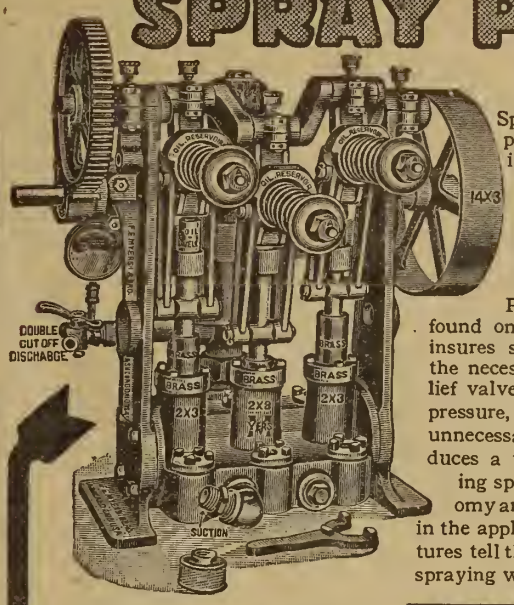
MYERS Automatic Power SPRAY PUMP



Spraying with this pump is different—it has an individual standard of spraying service not obtainable from other power spray pumps. The patented Automatic Pressure Controller found on this pump only, insures safety, eliminates the necessity of using a relief valve, secures uniform pressure, does away with unnecessary wear and produces a uniform penetrating spray—Speed, Economy and High Efficiency in the application of all mixtures tell the story when the spraying work is finished.

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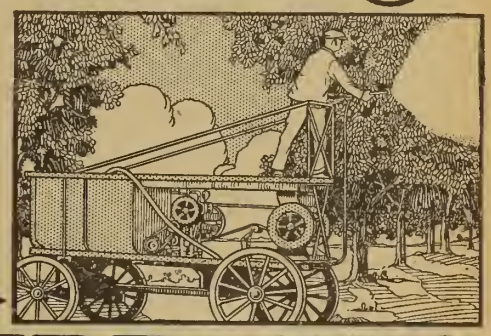

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Due to the volume of our business and the co-operation of our customers, we have been able to reduce the cost of production of the Original Kansas Germ Free Fluid Vaccine made by Dr. O. M. Franklin, and are therefore giving the consumer the benefit of that reduction.

Hereafter the regular price of this vaccine will be 40 cents per dose.

To those who are not familiar with our product, and to show that we have every confidence in our vaccine, we will give a written guarantee that it will save every calf from blackleg. The price with this written guarantee is 50 cents per dose.

WE MAKE ONE QUALITY OF VACCINE ONLY

THE KANSAS BLACKLEG SERUM COMPANY
409 Live Stock Exchange Building, Denver, Colorado

Trapped

(Continued from Page 14)

Morse flushed. "I must be a bum sort, if they could believe I would give away everything I knew like that."

"They wanted to believe," Eben reminded him; and he turned away a little. "Where is—Anne?" he asked. His eyes were shining.

"I took her to the home of some friends uptown—the Hartwell's."

"Where is the woman?"

"I'm going down to arrest her."

"D'you need help?"

"No—go along." The lieutenant grinned. "I know you're more interested in the girl."

Eben faced him squarely. "I am," he said.

Lieutenant Morse slid from the wall and gripped Eben's hand. "She—asked me to tell you the truth," he said. "So I imagine she'll be glad to see you."

When they parted Eben turning toward town, Lieutenant Morse went to find the woman who had called herself Mrs. Marshall. He saw the other people of the Barbette hastening away, and was prepared to find that the woman, too, had fled; but when he knocked at the door of the Outpost,, she called to him to come in. He entered. She was sitting by the table, and she did not rise. "Good morning," she said.

"You are under arrest as a spy, Mrs. Hoffman," the lieutenant told her simply.

She nodded. "Naturally," she agreed; and then, in a thoughtful tone: "Tell me—is it true that—you have trapped our U-boats in the bay here?"

"Yes."

"They cannot escape?"

"No."

The woman's eyes turned out across the water. Four destroyers were cruising slowly back and forth out there; and while she watched there came the explosion of the bomb that destroyed a sleeping submarine. She passed her hand, as though absent-mindedly, across her mouth. "Then—this is—my way," she stammered, and coughed a little, and before he could reach her she was dead.

The Hartwell home is a great, old white house upon a hill above the harbor. It is more than a hundred years old, and the heavy timbers that support its floors have sagged in a mellow fashion, so that one can almost hear the footsteps that have fallen on those floors during the century. The rooms are huge; old furniture dwells in them. Beneath are vaulted cellars stored with treasures destined for the table and buffet.

Behind the house there is a narrow garden, and beyond the garden the hill slopes steeply down to the water. There are apple-trees upon this slope; and there are poppies gleaming in the tall grass among the trees.

Mrs. Hartwell, when Eben asked her for Anne, led him to the garden and pointed down among the trees, and Eben saw a white-gowned figure there, and he hurried swiftly down the zigzag path until he reached the ancient seat where Anne was waiting. He went toward her eyes beseeching; and the girl rose, face white, hands behind her. Eben halted before her, his eyes searching hers; and after a moment he said quietly:

"I love you."

She lifted her hands as though the words hurt her. "You know—what I have been?"

"I know what you did—what you are."

The girl's face twisted, tears leaped to her eyes. She tried to speak, but no words came. Eben said softly:

"The submarines are trapped in the bay. They will be destroyed. We both worked for that end—and we have won."

She shook her head swiftly. "No, that is not all," she said. "You have destroyed these. But we betrayed the troops. They will be intercepted on the other side."

Eben smiled suddenly. "Lieutenant Morse was not the—fool he looked," he told her. "He said they would sail on the twentieth from Baltimore. But he was told to say that. The transports sailed almost two weeks ago. They reached Southampton safely—on the seventeenth."

Her eyes widened with bewilderment; they flooded with happiness; and when Eben presently whispered once more the three magic and compelling words, she leaned toward him as though a strong wind were blowing her into his arms; and the red popples in the grass all about them nodded gay and decorous approval.

(The End)

Las Animas County Dairy Development Plan

(Continued from Page 5)

described as follows, to-wit:.....
.....
.....situate, lying and being in the County of Las Animas and State of Colorado, and that he will not remove or cause or permit to be removed from said premises any of said livestock during the term of this lease without the consent in writing of said lessor or its duly authorized agent in that behalf.

2. That he will provide sufficient food, shelter and water for said livestock, and will exercise due care over the same in every respect.

3. That he will vaccinate all calves, the increase of said livestock, for blackleg, under the direction of the lessor and with a vaccine to be approved by it.

4. That he will brand, at his own expense, all increase of said herd with lessor's calf brand.

5. That he will breed all the cows and heifers belonging to said herd of livestock, during the proper season to a registered bull of the same breed, and will see that every precaution is taken to prevent the breeding of any of said cows and heifers to a range or grade bull, or to a bull of a different breed or standard than the cows and heifers aforesaid.

6. That for the purpose of procuring the services of a bull for said herd, he will either purchase at his own expense, a registered bull of the standard and breed required by the lessor, or he shall join in a circle of farmers in his community for the purchase of a registered bull for their joint use, meeting the requirements aforesaid; and if neither of these methods are practicable, then he may use the registered bull of another of the breeding and standard required and to be approved by the lessor before using.

7. That he will castrate all bull calves.

8. That all heifers raised from said herd shall be kept and not sold until the expiration of the lease period.

9. That he will ground all barbed wire fences around yards or pastures in which said livestock are confined, in order to protect same against lightning.

10. That prior to the harvesting of the crop for the year 1919, he will construct one or more suitable silos, subject to approval of the lessor, of sufficient size and dimensions to meet the needs of said livestock.

11. That he will consult the agent of the lessor on all points concerning the breeding and care of said herd.

12. That he will report immediately the birth of each calf by mailing a postcard to the office of the lessor advising it of that fact; also report in like manner the death or loss of any animal in the herd.

13. That the lessor or its agents shall have the right to go upon said premises to inspect said herd of cattle at any time.

14. That the lessee will replace any animal belonging to the original herd lost by death caused by disease, accident, or starvation, or otherwise disappearing from the herd, which is due to his fault or neglect. Such animal to be replaced by one of the oldest heifers in his portion of the increase, to be chosen by the lessor at end of lease period, and in the event that he has no increase, then he shall respond in damages to the lessor for the animal so lost.

If there is a loss in the original herd clearly through no fault of the lessee, the lessor shall have the right to select from the undivided heifer increase to replace any such loss.

15. That he will weigh all milk obtained from each cow at each milking, and keep an accurate record of the same on barn sheets, and he will also keep a record in a book showing the butter fat record of said herd as shown by the cream checks, and shall permit the agent or lessor to inspect the same at any time.

16. The lessee agrees at the expiration of this lease to turn over said herd to the lessor in good condition, together with all increase thereof belonging to it.

It is understood and agreed that each of the parties hereto shall receive one-half of the increase of said herd, same to be divided at the termination of this lease in the following manner: The lessee shall divide the female increase in said herd into two lots as nearly equal in value and number as possible. The lessor then has the right of choice in lots; but all steer calves shall be disposed of at any time between the ages of twelve (12) and eighteen (18) months, upon terms to be approved by the lessor before sale, and the proceeds divided equally.

17. The lessee is to receive all of the milk produced by said herd, keeping a record thereof as hereinbefore provided.

It is expressly understood and agreed that in case the lessee violates any of the provisions of this lease on his part to be performed and observed, then the lessor shall have the right without notice to the lessee, to terminate said lease and declare forfeited all his rights hereunder, and he shall upon demand deliver up to the lessor possession of said herd, and all of the increase, and in the event the lessee refuses to so deliver up said herd, then the lessor, its agent and servants shall have the right to enter upon the premises of the lessee for the purpose of repossessing itself of said herd of cattle and all increase thereof.

It is further expressly understood and agreed by the parties hereto, that this constitutes the entire contract between them, and that the same is not subject to change, variation or alteration, either written or verbal, by any representative or agent, and that this lease is not transferable or assignable, except by consent of lessor.

IN WITNESS WHEREOF, the said parties hereto affixed their hands and seals and the corporate seal of the lessor on the day and year first above written.

THE DAIRY COW DEVELOPMENT CO.

By .....

Attest: President of the Lessor.

.....
Secretary of the Lessor.

.....
Lessee.

How to Ship Furs

After your catch has been skinned and the pelts stretched and dried, the furs are ready for packing and shipment. Each skin, when placed in the bundle, should lie perfectly flat and should be thoroughly cleaned. One skin should not be placed inside another or it may be overlooked. In general, furs should not be folded or rolled, for this destroys much of the good effect of the stretching.

Furs should be shipped either by express or by mail, **never** by freight. If shipped by express the furs should be packed securely in a burlap bag or sack and the sack tightly sewn up. The burlap allows the air to get through and at the same time protects the furs fully. If sent by mail, the furs should be first wrapped in cloth and then in strong paper. The bundle should be fastened well,. but not sewed up so that it is impossible for the postal authorities to inspect it if they wish, for then first class rates will be charged.

Each bundle or package should be carefully marked for shipment. The

TURN YOUR FURS into MONEY Quick by Shipping to

You will get your money back 2 to 10 days sooner and also save 50c to $10 on parcel post or express charges.

DENVER is the logical place for you to sell your Furs—Denver is the closest and best market on earth for Western Fur Shippers—Denver receives and handles more Western Furs than any other Fur Market in the West. Look at the map of North America and you will see that Denver is located closer to your town than any other important fur center. In shipping your Furs to Denver you are shipping to the greatest market in the World for Western Furs, and **E. A. Stephens & Co.**, who are located in Denver, Colorado, are the Largest Direct Buyers of Furs in the entire West.

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Cut out tag, write your name and address on it, paste on cardboard and fasten securely to your bundle of furs—Rush to Stephens by express or parcel post.

Write Today for our Big Book on Trapping, Fur Price List, etc. FREE.

Mr. Chas. Wells, of Roger Mills County, Oklahoma, made $125.00 the first week trapping with Stephens' Animal Bait.

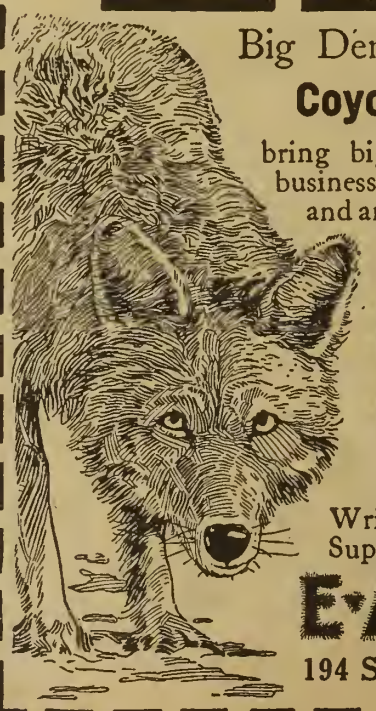
You can do as well. Write for Trappers' Guide and Trap Catalogue **Free**—tells how and when to trap all fur-bearing animals—what bait and what kind of traps to use—the right way to prepare and ship the skins, so that they will bring you the highest prices. Also gives the trapping laws of each state and lists all Trappers' Supplies. Send for your copy quick and begin trapping at once. Shipping Tags and market report free. Write today.

Fur Prices Sky High

Big Demand in Denver for all Western Raw Furs

Coyotes, Skunks, Muskrats and Wildcats

bring big money here. Never before in the history of the Fur business have we experienced such a tremendous demand for Furs, and any one who is lucky enough to be out trapping or handling Furs this season is sure to make bigger profits than ever before. Don't wait—commence trapping today.



John Platz of Mount Morrison, Colorado, made $183.60 in less than three weeks trapping muskrats. F. H. Stonestreet of Fort Lupton, Colo., made $207.10 in eight days, trapping muskrats and skunks.

Write today for Fur Price List, Trappers' Guide, Supply Catalog, Shipping Tags—all **FREE.**

E·A·Stephens & Co.

194 Stephens Building, Denver, Colo., U. S. A.

TRAPPERS' GUIDE AND TRAP CATALOG FREE

large fur firms offer trappers any number of their shipping tags free. The tags consist of outside and inside tags, on which the trapper writes his name and address. One tag should be placed on the outside of the bundle and the other on the inside. In this way, if the outside tag is torn off in transit, the trapper has still his name on the inside and his shipment will not be lost.

A few of the large fur houses not only buy furs but also sell complete lists of trappers' supplies. Arrangements are made so that the trapper may buy whatever supplies he may need with his actual fur shipment and is not then necessitated to send cash with his order.

Trapping Muskrat

At the foot of slides or runs is generally the best place to take muskrat. Traps should be placed in shallow water and the bait hung about five inches above the trap. A weed or piece of brush on which is placed a few drops of the best muskrat bait will do; it should be fastened securely so that it will not float away on the current. A sheltered place is the best for setting the trap; if this cannot be found, a break of wood or stones should be made in order to protect the trap and bait.

Another method which many trappers have found to be very successful is to build a mound of mud and stones in shallow water, set the trap at the bottom of the mound under the water, and then sprinkle a few drops of selected muskrat bait on top of the mound. The mound should always be a little above the water in order that the bait will remain on it. The trap should be staked firmly in deep water so that the muskrat will drown itself in its struggle to get away after being caught.

Muskrat should be cased pelt side out and all superfluous meat and fat scraped off thoroughly before shipping. The tail should be cut off as it is absolutely worthless, and needlessly adds to the shipping weight. Skins should be dried in a cool, shady place, not exposed to the sun. When the skin is dry enough to hold its shape it is ready to ship.

Farming at Cantonments

Farming operations at some of the cantonments inaugurated with the double purpose of giving the men wholesome training and growing food crops are continuing in spite of demobilization plans. Lieut. Frank H. Dyer of Carbondale, Colo., a well-known agricultural expert who, prior to entering the service, was connected with the United States Department of Agriculture, is in charge of the 1,400-acre farm at Camp Zacharay Taylor, Kentucky. The following account of the work being done there is from Trench and Camp, the Louisville Courier Journal's war camp weekly:

A visit to the camp farm west of Preston street by a representative of Trench and Camp the past week disclosed the fact that before cold weather sets in and operations will be stopped for the season more than 600 acres of the 1,400 acres will have been turned by the motor and gang plows which have been putting in full time every day since Lieut. Dyer has been in charge.

Lieut. Frank H. Dyer, commandant of the farm, is an agriculturist with scientific knowledge combined with the faculty of knowing how to handle men. All of the work at the camp farm is done by limited service men and they are not only happy and contented but are also showing great physical improvement in every way.

Present plans contemplate planting 160 acres of potatoes, 300 acres of sweet corn, 50 acres of cabbage, 25 acres of tomatoes, 100 acres of sweet potatoes, 15 acres of carrots, 10 acres of onion sets, 10 acres of lettuce, 50 acres of beans and 10 acres of cucumbers.

These vegetables will be used in supplying the mess tables of Camp Zachary Taylor soldiers and will contribute toward keeping down the cost of living. In addition to supplying fresh vegetables at a time when such are at high tide insofar as price is concerned, the big object of the venture must not be lost sight of—that of the conservation and reclamation of the man-power of the nation.

State Fair Plans for 1919

The Colorado State Fair Commission, desiring to make the boys' and girls' clubs one of the principal features of the 1919 state fair, decided at their last meeting to establish a boys' and girls' school or camp. One boy and one girl will be selected from each county in the state to represent their county at the 1919 state fair, and the fair commission will pay all of the railroad fare, provide tents for sleeping, furnish provisions, chaperons and all the necessaries that will tend to make their stay at the fair a pleasure as well as profitable. The State Agricultural college will be asked to furnish lecturers and instructors. The exact plan for determining how the boys and girls will be selected has not been decided upon, but when it is, all of those interested will be advised through the county superintendents or county agents.

Substantial increases in premiums are announced by the State Fair Commission for 1919 as follows: Pure-bred horses, 75 per cent; beef cattle, 30 per cent; dairy cattle, 20 per cent; swine, 20 per cent; sheep, 10 per cent. In the agricultural department premiums on wheat, corn, oats and potatoes were increased $280 and the educational department gets an increase of $125.

U. S. Beet Sugar Crop, 1918

The production of beet sugar in the United States from the beet harvest of 1918 is estimated at 740,100 short tons. This estimate is based upon reports made before the close of the season and is subject to revision. The production in 1917 was 765,207 short tons. The area harvested in 1918 is estimated at 592,100 acres, or 72,697 acres less than in 1917. The area planted was 689,700 acres in 1918 and 806,600 acres in 1917. In 1918 there was 14 per cent of the planted acreage abandoned and in 1917 25 per cent, which was the highest on record.

The beets worked in factories in 1918 are estimated at 5,822,600 short tons and were purchased at an average price to growers of $10.02 per ton, as compared with $7.39 in 1917.

The principal sugar-producing states with their output for 1918 are: Colorado, 182,700 short tons; Utah, 118,000; Michigan, 117,600; California, 109,300; Ohio, 43,100; Wisconsin, 14,300; and all other states, 111,000 short tons. Details concerning this report will be published in the Monthly Crop Report for December, 1918.

The acreage harvested in these states was: Colorado, 126,500; Michigan, 108,200; California, 102,400; Utah, 83,600; Ohio, 33,300; Idaho, 32,600; Wisconsin, 12,600; and all other states, 92,900 acres.

The beets worked in these states were: Colorado, 1,412,200 short tons; Utah, 1,012,900; Michigan, 873,700; California, 843,700; Idaho, 336,600; Ohio, 328,900; Wisconsin, 110,400; and all other states, 904,200 short tons.—U. S. Bureau of Crop Estimates.

Starch in potatoes is not destroyed by the common decay-producing fungi or by freezing. It has been found in recent studies conducted by the United States Department of Agriculture in laboratory tests that it is possible to recover most of the starch from frozen and rotten potatoes, which leads specialists of the department to suggest that an attempt should be made to salvage the great quantities of spoiled stock

Meeting Sugar Consumption

If the United States increases its consumption of sugar at the same rate during the next 20 years it has during the past 20 years, we shall have to meet at that time an increased annual consumption of 2,600,000 tons of sugar.

To meet this increase would require 1,730,000 acres of land constantly in beets each year, or 6,920,000 acres of well-balanced farming to sustain this annual beet acreage.

The question for the American to determine is whether this indispensable agricultural crop shall be produced in the United States by the free American farmer, or whether the almost incalculable direct and general economic benefits shall go to a few capitalists and the great mass of the lowest form of labor beyond the borders of this great republic.

Shall history repeat itself, or will the lesson which the war has taught impress the American farmer with the importance of assisting to put this nation upon a self-sustaining sugar basis?

The acreage referred to as being necessary to meet our annual increased consumption of sugar at the end of 20 years will at the same time furnish live stock feed for approximately 2,595,000 head of cattle.

The Great Western Sugar Co.
Denver, Colorado

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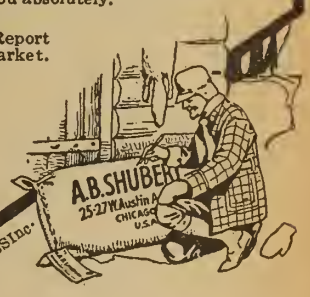

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Farm Home Department

Questions about home problems promptly answered by letter and thru the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Beginning with this number Miss Erma Douglass assumes charge of the Farm Home department. Several contributions from her pen have recently appeared on this page, and she is giving us in this issue an article on the responsibilities and joys of the new year that has an inspiring and helpful tone. This introduction shall be brief, for we feel that the new editor must make her own way to the hearts and minds of the many women readers of the big Western Farm Life family. She is qualified by training, education and natural inclination to inspire women with a desire to bring the best

Miss Erma Douglass

things of rural life into the home experience. Her daily tasks, as County Home Demonstration Agent in Huerfano county, Colorado, put her in intimate touch with the life of women on the farm and she will write from these experiences the helpful things that will be given place on this page. This page belongs to our women readers. They are invited to consult the department on their problems of home making, or the social side of rural life. They are invited to send helpful suggestions and to ask questions.

A few facts about Miss Douglass will serve as her introduction to this work. She is a graduate of the Home Economics department of Colorado Agricultural college. For three years she was engaged as a rural school teacher in mountain schools where the children of ranchmen made up the small classes, and in an irrigated district near Fort Collins, where the attendance came from farms. During one season she traveled over the state giving canning demonstrations. She was among the first of the county home demonstration agents to be appointed in Colorado, and the work assigned to her is, as stated, in Huerfano county, where coal mining flourishes and farming is just beginning its real development on the plan of agricultural support for a large mining population of mixed nationalities. The farm women of Huerfano county have given Miss Douglass hearty support in the effort to stimulate the social and home life of the community. She has gained their confidence, because she came to them with an open mind and a heart filled with the ideal of service to her fellow women. She approaches her new duties in the same spirit. She continues her work in Huerfano county and finds on this page an outlet for a talent for writing that is her fortunate possession. The measure of her success will be the support given her efforts by the women of Colorado, Wyoming, New Mexico, Utah and Idaho who read these pages. No one, however qualified by nature or education for putting ideas into written form, can succeed unless there is occasional response from the audience, hence the invitation to our women readers to make suggestions, or to ask questions about household and social matters on which Miss Douglass may be able to help them. Rural home improvement is her life study, and her knowledge and experience are at the command of our women readers.

Please address all letters to Home Department, Western Farm Life.

The "New" New Year

When you greet your friends with a "Happy New Year" on this first of January you are saying something with a different meaning than it's ever had before. A year is still a year the same as it always has been; there will be three hundred sixty-five days of effort, joys, disappointments and the usual mixture of happenings during 1919 as there have been in the one thousand nine hundred and eighteen years which have marched before it through our calendar. But nevertheless, we are facing a happier "Happy New Year" than for some time and the very newest new year that any of us ever saw.

The old form of the old greeting hasn't changed a bit, for nobody knows how many hundred years. It is based on that business of hope's eternal powers of germination in a human heart. Hope and happiness are partly interchangeable terms; and we have learned much of hope in 1918. But, if you don't believe there should be an extra stress upon the first word, think of the rejoicings in those French towns where German military rule has raised a multitude of new horrors every new year for the last four of them; or read of the old French premier's journey through liberated Alsace and Lorraine, and hear of the joy of those people who are restored to the rule of their own country after fifty years of a hated tyranny. America and England are happy to have their boys back—even the Germans are happy to be able to climb out of the trenches and back to some form of civil life.

The hope and the happiness are growing, but the real marvel is the absolute newness of this year. Most of the world is beginning over this 1919. There are new governments, new shiftings of class distinctions among peoples, a new fellowship between nations and individuals, new problems, new standards and new phases of old ideals. The thing that faces us isn't the upbuilding of your town, or my state, or the nation which belongs to both; nor is it the reconstruction of the Frenchman's France or the Britisher's England, but of OUR world. And the government can't do all of this new work; it's part of a job which belongs to you and me. To stay with that job is a new year's resolve which should be registered in each life. That old line of Browning's—

"Grow old along with me.
The best is yet to be."

was never so true as now. No matter how young or middleaged or elderly you may think you feel, you will see a development in the world's affairs in the next few years that will make you catch your breath. The best of it is that each one of us has a chance to help make the development swing through. It is your new year and mine, with an opportunity wider than ever before for happiness and service.
—ERMA DOUGLASS.

Every Woman Called

"The food supplies of the world have been steadily lessening. It is the impact of this shortage which has knocked at every door in the United States. We hold it in our power, and ours alone, to keep the wolf from the door of the world. This duty is wider than war—it is as wide as our humanity."

This humanitarian appeal, made more than a year and a half ago by Herbert Hoover, holds good for the present and prospective gigantic task of world relief.

American soldiers and American resources in food and materials of war have helped to win the war. Our men and our resources are still mobilized. The women, who are the guardians of our food resources, must remain until they are mustered out. The new program in conservation calls for much more rigid acceptance and discipline, because it does not demand brief, dramatic sacrifices, but a steady, unvarying saving of all foods and the giving up of everything beyond our definite needs. Every woman is called to serve in the work of world relief.

Coloring Farm Butter

The majority of the markets demand butter of a good yellow color, and it is to the buttermaker's advantage to cater to this demand and try to produce butter of uniform color the year around. This simply means that it is necessary to imitate the color that is naturally found in butter in the spring of the year, due to the fact that the cow at that time is getting an abundant supply of green succulent grass. During the fall and winter months the cow receives dry feeds and the color of her butterfat naturally becomes light. To overcome this appearance of butter it is necessary to add an artificial color. The butter colors which are on the market today conform to the requirements of our pure food laws and are perfectly harmless. Neither do they affect the flavor of the butter. Directions are generally given upon the container as to just how much of the color to use. These directions must be followed in keeping with the buttermakers' knowledge of other factors, such as season of the year and market demands, which determine the amount of color to be added.

New Pinto Bean Recipe

Two cups of pinto beans put on in cold water and gradually come to a boil, then add a teaspoon of baking soda. Let boil a few minutes and drain off the water. Repeat pouring on boiling water and draining off three or four times, or until the water is clear. Then add bacon or salt pork and season with salt and pepper. When beans are done add them to the tomato sauce and bake in a slow oven about thirty minutes.

The tomato sauce is made as follows: One pint of tomatoes, one small onion, two tablespoons of butter or bacon grease, one tablespoon of flour, salt and pepper to taste. Fry the onion in hutter or bacon grease until light brown, then add the flour to the grease, stirring until smooth. Then add the tomatoes, which have been rubbed through strainer if preferred, and season to taste with salt and pepper. If one likes the beans sweet, sugar or molasses may he added; also mustard and a sprinkle of cloves or other spices if preferred.—Mrs. L. E. Furr, Tucumcari, N. Mex.

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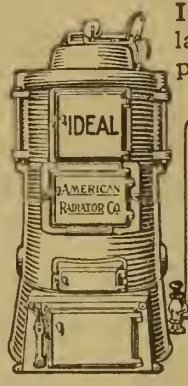

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Selection of Breeding Stock

H. W. SANBORN

Extension Poultry Husbandman, U. S. Department of Agriculture

Before taking up the question of the best practical method of selection of breeders for permanent improvement, which selection requires a year's time, it may be well to consider the selection of breeders for the season of 1919.

If, perchance, one is familiar enough with the hens so that the best layers are known, these should be saved for breeders the coming season. Where the breeder does not have this knowledge, he should keep for breeders the yearling hens that do not start to moult before October. These late moulting hens are persistent layers, and have had a long laying season and a larger egg production than those that moulted earlier. This is the inherent quality important to transmit to the pullets.

With the breeds having yellow legs, those that are faded out in the fall of the year and are whitish, having lost their color pigment, are the best layers. Those with highly colored legs and good plumage are the loafers and should be kept out of the breeding pen. Like begets like in breeding, and as we are working for increased egg production it is vital that only the persistently high layers moulting late and having pale shanks are kept for breeders. Along with the productive quality only those that go through the moult in good shape and show strong constitutional vigor should be selected. Hens that have ever had any troubles, colds, or that are not in perfect health, or that have had their vigor impaired in any way, should never be allowed in the breeding pen.

Laying hens consume richer food than any other farm animal, and their product is a richer food than is produced by any other farm animal. If we would raise pullets capable of consuming, digesting and assimilating a large amount of rich food, and of producing a large number of eggs, we must see to it that these pullets are the offspring of vigorous parents; parents capable of transmitting high powers of digestion and capacity for high egg production to their descendants.

Never breed from pullets if possible to avoid it. Year old hens are much better, hatch a larger chick, transmit more vigor to the chick; also the chick from the mature hen will develop more rapidly and be a better producer.

In selecting breeders for the future, one should start this fall with the pullets hatched this spring, and put only well developed, thrifty pullets in the laying pen.

By trap nest records it has been determined that hens have different laying habits. These have been divided into four classes by Prof. James E. Rice of Cornell, as follows:

Class 1—Early maturing and late moulting.

Class 2—Early maturing and early moulting.

Class 3—Late maturing and late moulting.

Class 4—Late maturing and early moulting.

It will be readily seen that Class 4 layers are the poorest, as they matured late and moulted early, having a very short laying period. They had neither the laying instinct well developed, nor had they persistency. These are unprofitable and should be sold.

In Class 3 we have those that did not start laying as soon as Class 1 and 2, but they moulted late. They did not have the early maturity but had persistency and are profitable producers.

In Class 2 we have early maturing pullets having the laying instinct well developed, but they lacked persistency and moulted early. These, as Class 3, have a fairly long laying period and are profitable producers. Classes 2 and 3 have about an equal value and would be profitable to keep another year.

In Class 1 we have those that matured early, having the laying instinct well developed and also have persistency in laying, having moulted late.

It is readily seen that hens in this class have much the longest laying period and are the highest producers. These pullets may start laying in September or October and continue into the next fall. Sometimes they do not moult until November or December, laying in many cases twelve to fourteen months continuously. These are the very best layers, and should be used as breeders, as it is desired to reproduce this type, and in a very few years breed up so that the flock will have high and very profitable egg production, if fed the proper feed for the manufacture of eggs.

As stated, one should begin this fall to select one's breeders for the future. By careful observation, select those that lay first, and leg band them.

It would be well to leg band the first half of the pullets of the same age as they start laying and apply this to the different ages. Next summer and fall put an additional leg band on one half of those banded this fall that moult first. There will then be left one fourth of the original number started with having only one leg band. These are the early maturing pullets, having the laying instinct. They were also the late moulters having persistency and are the best layers raised and should be used as breeders the following spring. Their records are not known, but they were the one fourth of the flock that were the best layers. If the breeder always breeds from his best without any guess work, he will be breeding upwards instead of downwards and producing pullets each year capable of high and profitable egg production if fed properly and sufficiently to produce the eggs. Pullets bred in this way are capable of producing.

The breeder should also be careful to obtain male birds from high producing hens, as half the blood of the male is in every pullet raised. If he does this his breeding is absolutely sure, and there will be no question as to the ability of pullets so bred to be high egg producers.

Moral—Select breeders for constitutional vigor and high egg production in order to renew the flock with pullets that have inherent high egg production capacity, so that if properly fed they may produce to that capacity. The vital factor in profitable poultry keeping is high egg production. High egg production depends upon right breeding and right feeding. Right breeding for inherent possibilities, and right feeding to make those possibilities an accomplished fact.

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2678. Child's Rompers—Checked gingham, with drill or repp in a plain color for collar and belt could be used for this model. Striped seersucker, galatea, flannelette, poplin, khaki and drill is serviceable also. The bloomers portion is made with a drop back. The sleeve may be in wrist or elbow length. Cut in 4 sizes: 2, 4, 6, and 8 years. Size 4 will require 2¾ yards of 36-inch material.

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2706. Frock for Mother's Girl—You may make this of plaid or check suiting, with facings of serge or satin, or of wash fabrics with pique, drill or linene for trimming. The waist is cut in surplice fashion and is lengthened by a full peplum. The sleeve may be in wrist or elbow length. Cut in 3 sizes: 12, 14 and 16 years. Size 14 will require 4½ yards of 36-inch material.

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BARRED PLYMOUTH ROCKS—A CHOICE LOT of cockerels of both the light and dark lines. Bradley and Latham strains—none better. Price $3 and up. Chester Blunt, Route 1, Greeley, Colo.

FOR SALE—ONE HUNDRED BARRED ROCK cockerels Our barred rock cockerels are raised not only from prize winners but the best of layers; breeding stock at $5 each; prize winners at $10 to $15 each. Write J. R. Anderson & Son, Fort Morgan, Colo.

SHANK'S WINTER LAYING ORPINGTON'S— One pen of pullets averaged 110 eggs per pullet in 150 days. Get your future breeders from a strain with the egg habit and standard qualities bred into them. Cocks, cockerels, hens and pullets at bargain prices "quality considered." Breed the best, it pays. F. M. Shank, Route 2 A, La Junta, Colo.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

POLLED JERSEY CATTLE—BREEDERS' names, sale dates, etc., of. Chas. S. Hatfield, Sec'y, Springfield, Ohio.

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemoor Farm, Littleton, Colo. Caldwell Martin, Owner.

A FEW BIG TYPE POLAND CHINA REAL herd boars left, spring gilts all sold. W. J. Peterson, Seibert, Colo.

CATTLE FOR SALE—WILL SELL REASONable 200 head four-year-old pure-bred Hereford cows, also 150 head good calves. Address owner' Box 35, Hillside, Fremont County, Colo.

VERY GOOD BIG TYPE POLAND-CHINA PIGS, both sexes, September farrow, pedigrees furnished. Gad Barney, successor to Barney Bros., Haswell, Colo.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—FIRST-CLASS ALFALFA IN CARload lots. Jacob Narratil, Santa Fe, N. M.

COW WEANER—CANNOT SUCK HERSELF; can eat and drink. Satisfaction guaranteed. Effective for calf and colt. Price, $1. L. S. Sanders, Atlanta, Kans.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

POSTS — LUMBER — SHINGLES. LOWEST prices, delivered your station. Send lumber list for estimate. Pay after unloading. Kirk Co., Box 1138-S, Tacoma, Washington.

MEN, WOMEN, GIRLS, WANTED BY U. S. Government. Clerks at Washington. Railway mail clerks, city postal clerks and carriers. $1,100 year. List positions free. Write immediately. Franklin Institute, Dept. A-172, Rochester, N. Y.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

DELICIOUS, PURE HONEY, ALFALFA-CLOVER extracted. Two 60-pound cans, $35.00; sample, 15c. Reference: First National Bank, Boulder. Wesley Foster, Producer, Boulder, Colo.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES— Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies; develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

A registered dairy cow placed in a Wisconsin herd 22 years ago cost $45.50. She was sold 13 years later for $100. Out of her 123 descendants owned by her original buyer, 89 were sold for $11,029. Those he retained in the herd brought the total up to at least $25,000.—The County Agent.

THE JAROSA RANCH HOLSTEINS

COMPLETE DISPERSION

Our Entire Herd

Holstein Cattle—Registered and Grades

We are quitting the Dairy Business and will offer without reserve at

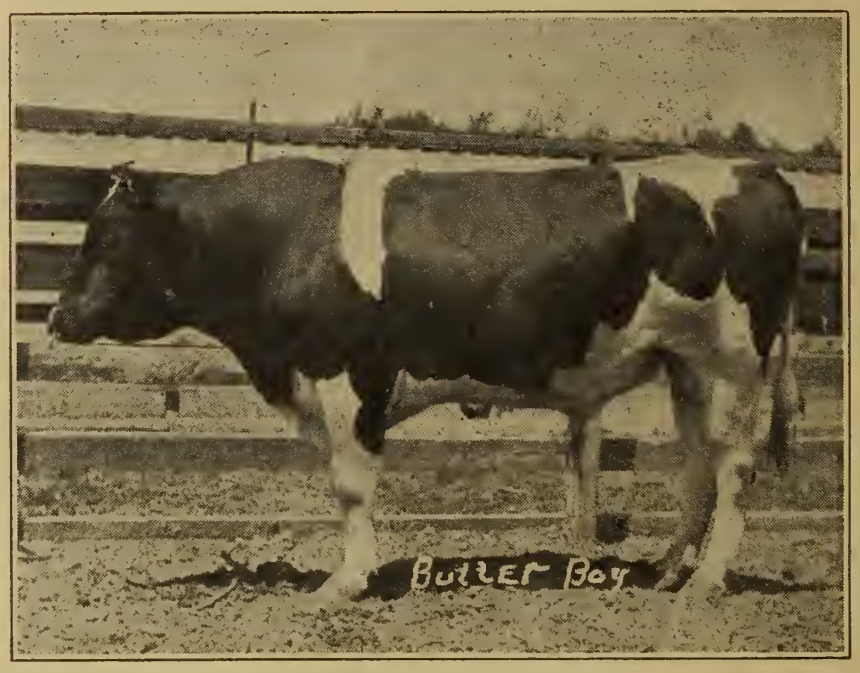
PUBLIC AUCTION

MONDAY, JANUARY 6th

45 Head Cows and Heifers

4 Bulls

20 Calves All Ages



Most of these are Wisconsin cows, or out of Wisconsin cows, and are out of, or bred to, such bulls as a grandson of Pontiac Korn Dyke and Buffalo Lad DeKol.

Selling at 12 o'clock at the ranch, 7½ miles southeast of Longmont.

Write or wire us at once for more particulars. Ask for one of our 1919 Calendars. Plan to attend.

THE JAROSA RANCH, Longmont, Colorado

Percheron and Belgian Horses **Holstein Cattle**

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyoming
406 New Live Stock Exchange Building, Union Stock Yards, Denver, Colorado

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent **JAMES C. ADAMS, Salesman**

MILKING SHORTHORNS

See our exhibit at the Western Stock Show.

We will show ROSEBUD DUCHESS No. 136356.

She has produced this year on official test, over 9,000 pounds milk and 350 pounds butter fat in nine months, and still has three months to go. Should exceed 11,000 pounds.

BIG SHARON No. 150395, Grand Champion of last year's show, now on official test, promises to exceed 10,000 pounds milk for the year.

We have 17 cows on official test.

Herd headed by DUKE GLENROSE No. 410244, grandson of Rose of Glenside, world's record cow—official record, 18,075 pounds milk, 735 pounds butter, in one year. The two nearest dams of Duke Glenrose average 14,030 pounds milk, and his six nearest dams average 11,517 pounds—all official tests.

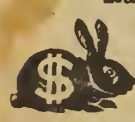
We have a few bull calves sired by Duke Glenrose from record cows at prices from $300 up.

If you want real Dual Purpose type backed by actual records, we have it.

THE BONVUE FARMS COMPANY

C. H. HINMAN, Pres. Union Stockyards, Denver, Colo.

Raise Hares for Us



IMMENSE PROFITS easily and quickly made. We furnish stock and pay you $2.00 each and expressage when three months old. Contracts, booklet and full information 10c. Nothing free. Address

Dept. 24, THORSON RABBIT CO. Aurora, Colo.

Shorthorn and Polled Durham Cattle

Valentine's Last, X12316, 452008 at head of beef herd. Claywood White, 427350 at head of milk type.

STATE INDUSTRIAL SCHOOL
Golden, Colorado

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

Do you notice the Majesty's are "going over the top" in all departments? I have recently added "Majesty's Feather Lad" to my herd. He is out of a daughter of old Royal Majesty, with a test of 712 lbs. butter, and a show cow, and sired by a grandson of Royal Majesty. He is fine individually, too. Where can you beat this breeding? I have one or two splendid bull calves of Majesty breeding, and can spare a few heifers.

In Durocs, am all out of fall boars, but have a few splendid spring boars, by an Albian Chieftain boar, and out of Critic-bred sows. Sold out of spring gilts. Have a yearling bred sow to sell.

A. M. McCLENAHAN, Greeley, Colorado

DUROCS, POLANDS AND HOLSTEINS

We are sold out of spring boars, but have July pigs of both breeds and sexes. Write for December price list. We also have some bred Duroc and Poland gilts.

A good bull calf, nearly all white, sired by our son of Sir Pieterlje Ormsby Mercedes. His dam has records of 430 pounds butter in a year with first calf, and 25 pounds of butter in seven days at six years. The calf is just a year old.

DEPARTMENT OF ANIMAL HUSBANDRY

State Agricultural College, Fort Collins, Colo.

MONTAIR DUROCS

We have two good March boars left. One weighs 275 pounds, is squarely built, heavy boned, even in width and a good feeder. He is good enough to use in most pure bred herds, and is a grandson of old Orion Cherry King. Price, $100. The other is a litter mate, rangier in type, weight 260 pounds. He is a high class, big type boar, not quite so wide a pig as the other. Price, $75. We believe these boars are extra value for the money. We have some July boars at $35 to $60, and one outstanding pig, tall and stretchy, with plenty of growth, $100, for delivery after the Denver Stock Show. Our cull boars go in the pork barrel, and we guarantee you satisfaction. We are sold out of sow pigs except one fancy granddaughter of Orion Cherry King, bred to our son of Great Sensation.

GEO. E. MORTON & SONS, Route 5, Box 84, Fort Collins, Colo

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager, Pueblo, Colo.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

$25—HOLSTEINS—$25

Five weeks old, 15-16 pure, mostly white, $25 crated. Two months old, $35. Registered bulls two months old, best quality, $70. Two-year-old springers, $125. Cows crated, $150. Write us for car lots. Buy the best—it pays in the end. Dr. J. A. Roberts Stock Farms, Oconomowoc, Wis.

Public Auction of Registered Holstein Friesians

IN THE

Amphitheater

OF THE

National Western Stock Show

Thursday, 9 a. m.
January 23rd

55 head Registered Bulls, Cows and Heifers.

This is the best assortment of cows, bulls and heifers ever gotten together in the West, individuality and breeding considered.

For new blood, or for the establishment of a purebred herd, you should attend this sale.

Dairying has increased over 100 per cent in Colorado the past year, and the Holstein Friesian cow is the successful foundation.

Catalogues ready January 12th.

Address C. W. HALL, Manager

Box 2, South Denver Station

COL. G. M. BANKS, Auctioneer

THE JAROSA RANCH

LONGMONT, COLO.

Offers you selection from 45 head of Stallions and Mares. All Colorado acclimated, registered Percherons, Belgians and Shires.

The war is over, and already companies with large capital are being formed to export commercial horses to Europe. A great many inquiries from "Over There" are being received on this side for both registered and grade horses. Geldings and mares are selling in England at $1,000 each at this time.

Are you prepared to meet this demand? The future for the horse breeder is without a doubt most attractive.

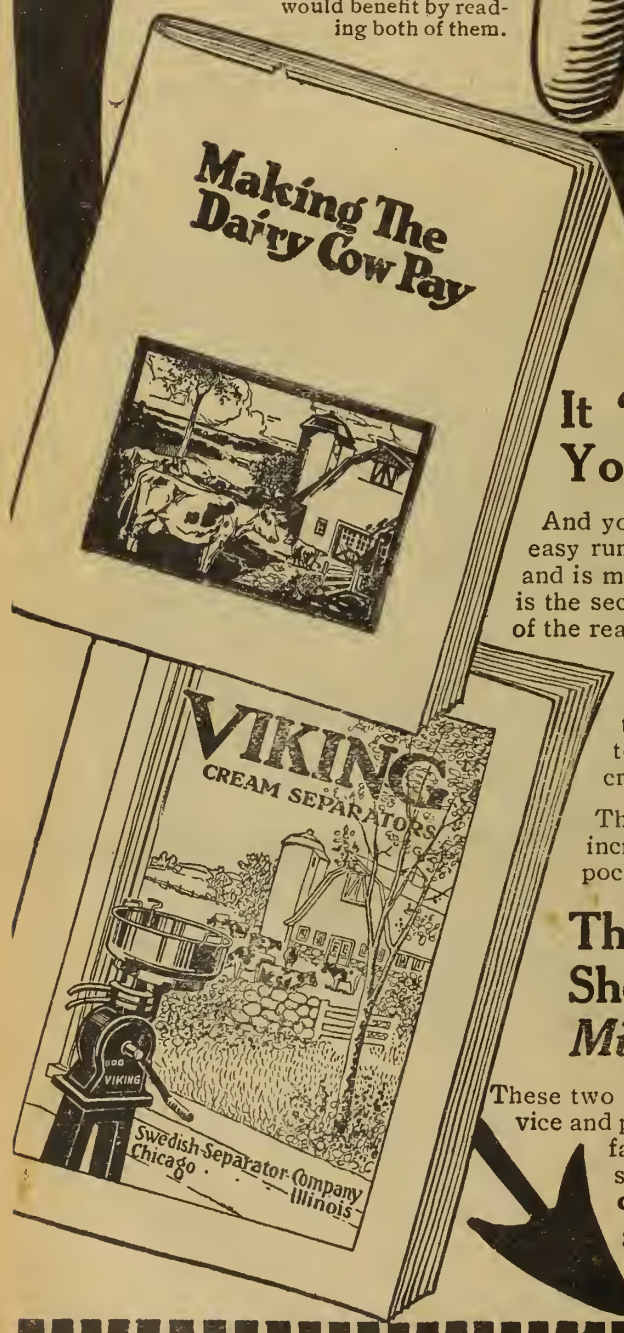
Tell us what you are most interested in and receive one of our 1919 calendars.

THE JAROSA RANCH, LONGMONT, COLO.

Percheron and Belgian Horses **Holstein Cattle**

Watch for dispersion announcement of our entire herd of Holstein cattle. Inquiries solicited.

These two books embrace the greatest amount of practical, **proven** profit-making facts and methods that any dairy farmer can follow, than any other two books I have ever heard of! I believe every farmer would benefit by reading both of them.



Here's the Way to Add Dollars to Your Dairying Profits!

"IT isn't what you make—it's what you **save** that makes you rich," is an old proverb.

Maybe the reason why your dairy cows are not paying you as much hard cash net profits is because you are, without knowing it, wasting the real profits that they **are** giving you. If you are still using the old-fashioned gravity or shallow-pan method of cream separation, you certainly are wasting a big percentage of the high-priced cream your herd yields daily. If you are trying to "get along" with an old separator, or a cheap, inferior machine, you are also robbing yourself of profits that your herd is trying to give you.

Millions of Dollars Are Lost Every Year by American Farmers Through Wasteful Cream Separators

Swedish farmers don't waste any cream. They can't afford to. They have to make every penny of profit possible. That's why the cream separator industry was born in Sweden. And—today—the most popular, the most efficient Swedish separator is the **Viking.** Here is the record-maker in close skimming. It is guaranteed to skim down to three one-hundredths of one per cent. As a rule it skims as close as one one-hundredth of one per cent! Everywhere it is used it proves itself a profit maker for the farmer. It will pay you to investigate it. Drop in on your local **Viking** dealer the next time you go to town.

Stop This Waste *Forever* on *Your* Farm by Using a

VIKING CREAM SEPARATOR

It "Gets" *All* the Cream You Get *All* the Profit

And you do it with **less work.** The **Viking** is marvelously easy running. It has less gears than most other separators, and is more scientifically constructed. Its simple construction is the secret of its easy running. And its easy running is one of the reasons why it "gets" all the cream.

A hard-running separator will always waste cream. The vibration and trembling caused by the jerky, hard-running separator causes the cream to mix with the milk—with the result that good cream goes out the skim-milk spout.

The smooth, easy-running **Viking** lessens work and increases butter-fat profits. It is your duty to your pocketbook to learn more about the **Viking.** Get

These 2 Books—Both *FREE*—Show Exactly How to *Multiply Milk Profits*—Write For Them

These two volumes contain the most practical kind of advice and pointers. Not a word of theory. Just proven facts, plans and methods that other highly successful dairy farmers have tried out and **proved out** to their great profit. Write for both RIGHT NOW!

SWEDISH SEPARATOR COMPANY, Dept BX 507 S. Wells St., Chicago, Ill.

Give Us Your Name and Address—We Will Give You the Books

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JAN 28 1919

Western Farm Life

DENVER, COLO.

JAN·15·1919

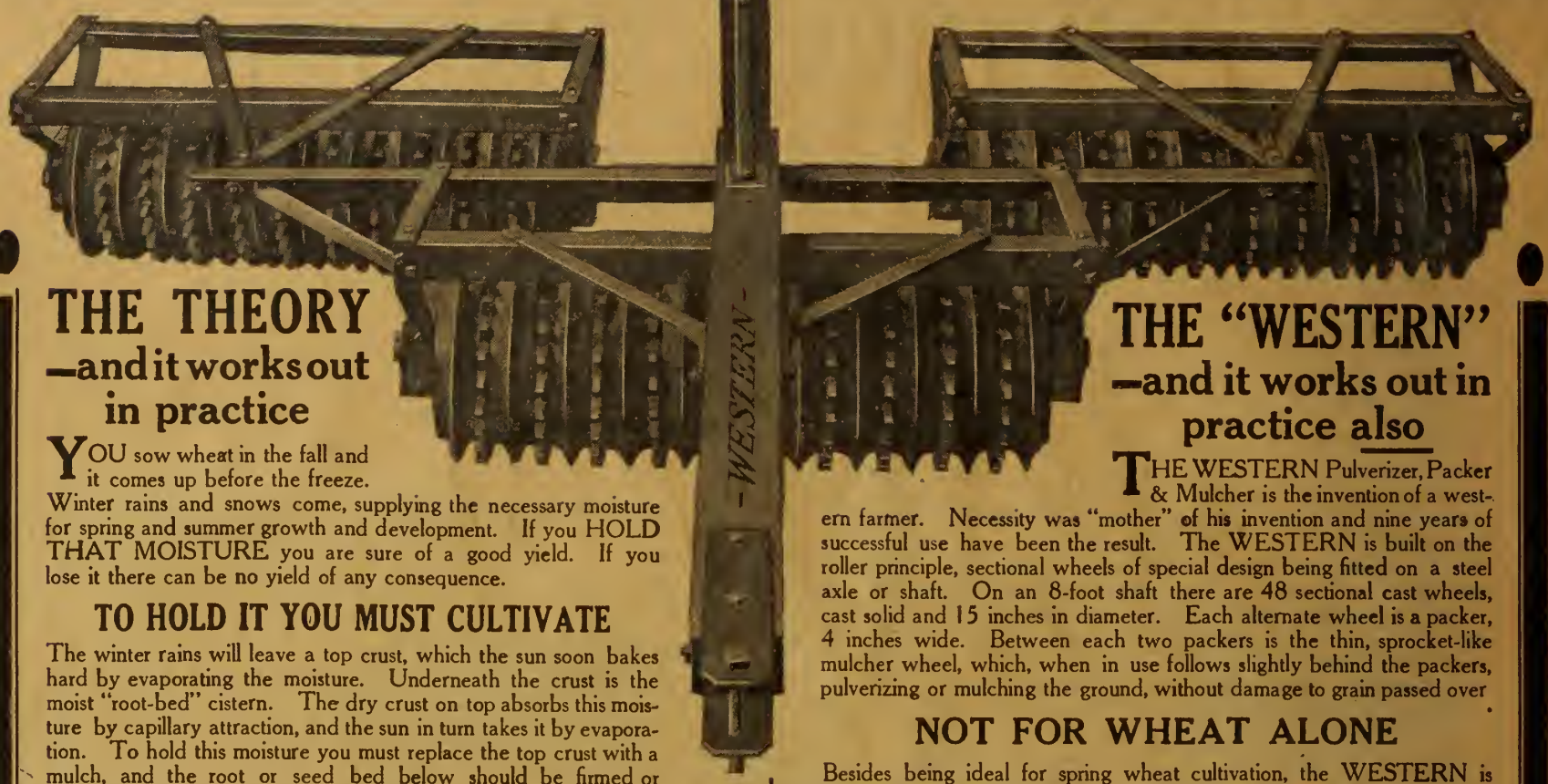
ONE THIRD MORE WHEAT!

If you count on fifteen bushels—THRESH 20

Proper Cultivation, at the proper time—makes the difference

—early spring is the time

THE WESTERN PULVERIZER, PACKER & MULCHER IS THE TOOL



THE THEORY —and it works out in practice

YOU sow wheat in the fall and it comes up before the freeze. Winter rains and snows come, supplying the necessary moisture for spring and summer growth and development. If you HOLD THAT MOISTURE you are sure of a good yield. If you lose it there can be no yield of any consequence.

TO HOLD IT YOU MUST CULTIVATE

The winter rains will leave a top crust, which the sun soon bakes hard by evaporating the moisture. Underneath the crust is the moist "root-bed" cistern. The dry crust on top absorbs this moisture by capillary attraction, and the sun in turn takes it by evaporation. To hold this moisture you must replace the top crust with a mulch, and the root or seed bed below should be firmed or packed beneath the loose top mulch.

A TOP MULCH AND A FIRMED ROOT-BED
WILL SAVE THE MOISTURE AND INSURE A CROP

A HARROW WILL NOT DO. In the first place a harrow is sure to uproot too many of the most virile plants. The mulch it makes is far from satisfactory, and as for firming the seed-bed, it loosens rather than packs. Don't harrow your wheat. You are only fooling yourself when you do. THE ORDINARY ROLLER WILL NOT DO. It only flattens out the crust, packing the top surface just right for another crust to form. What is needed is an implement that will pack the root-bed and mulch the top crust economically and at one operation—without injury to grain passed over.

The remaining space on this page is descriptive of the one implement which does the job, quickly and economically and for thousands of users it has actually made possible the extra 5 bushels per acre, or more.

THE "WESTERN" —and it works out in practice also

THE WESTERN Pulverizer, Packer & Mulcher is the invention of a western farmer. Necessity was "mother" of his invention and nine years of successful use have been the result. The WESTERN is built on the roller principle, sectional wheels of special design being fitted on a steel axle or shaft. On an 8-foot shaft there are 48 sectional cast wheels, cast solid and 15 inches in diameter. Each alternate wheel is a packer, 4 inches wide. Between each two packers is the thin, sprocket-like mulcher wheel, which, when in use follows slightly behind the packers, pulverizing or mulching the ground, without damage to grain passed over.

NOT FOR WHEAT ALONE

Besides being ideal for spring wheat cultivation, the WESTERN is unsurpassed for other crops, such as sugar beets, corn or beans. It is also fine for seed-bed preparation, and makes easy the combined plowing, preparing and seeding at one operation where tractor power is used. It is a dandy clodsmasher, and even on tough alfalfa sod it does away with the necessity of using a harrow when used behind the plow.

NOTHING TO BREAK OR WEAR OUT

Mulcher and packer wheels are of first quality cast grey iron. Frame-work is of angle steel. Shaft is cold-rolled steel, 2 inches in diameter. Bearings are of a kind that dust or grit will not affect. Tongue is of straight grained wood, well finished. Stub tongue for tractor is optional with regular horse tongue.

A BIG INVESTMENT

It is perfectly safe to figure that the use of a WESTERN on 60 acres of wheat will add to the yield per acre in one season more than enough to pay for the machine. The rest is "Velvet" and your WESTERN is good for a lifetime of service.

No. 1

No. 2

These Wheels

one a packer, the other a mulcher, fitted alternately in sets go to make up the business end of the WESTERN. The mulcher wheel in particular is an exclusive WESTERN feature, and is the open secret of a big success.

No. 1 is side view showing method of assembling. No. 2 is front view showing one packer and one mulcher assembled ready to slip on shaft.

A SIZE FOR EVERY REQUIREMENT

The WESTERN is furnished in eleven regular lengths, and special sizes up to 36 feet in length are quickly made up to order. Picture at top of page shows the 11-foot, 3 section size. Table below shows regular sizes made, with weights, etc.

SIZE	No. of Sections	Length of Front Section	Length of Trailers	Weight	No. of Bearings
4-foot	1	4-feet	None	600 lbs.	2
6 "	1	6 "	"	725 "	2
8 "	1	8 "	"	900 "	2
10 "	1	10 "	"	1200 "	3
11 "	3	4 "	4-feet	1400 "	6
12 "	1	12 "	None	1400 "	3
13 "	3	6 "	4-feet	1620 "	6
15 "	3	8 "	4 "	1840 "	6
17 "	3	10 "	4 "	2100 "	7
19 "	3	8 "	6 "	2400 "	6
21 "	3	10 "	6 "	2650 "	7

RIGHT NOW is the time to order a "Western." You should get on your

wheat just as soon as the weather will permit. The earlier you get on the better it will be. REMEMBER this machine has had nine years of unbroken success, and no man who has used one would be without it. As for price, pound for pound, the WESTERN compares most favorably with any implement you can name.

WRITE, TELEGRAPH OR TELEPHONE FOR PRICES. ALL SIZES NOW READY FOR SHIPMENT

Send telegrams or letters to firm covering territory in which you live. (See below.)

WESTERN LAND ROLLER CO.
M. ANDERSON, Pres't MANUFACTURERS
HASTINGS, NEBRASKA

OWENSBORO DITCHER & GRADER CO.
Distributors for Colorado, Wyo. and N. Mex.
1527 WAZEE ST. DENVER, COLO.
"ALSO MARTIN DITCHERS"

UTAH IMPLEMENT VEHICLE CO.
Distributors for Utah and Idaho
SALT LAKE CITY, UTAH
"ALSO MARTIN DITCHERS"

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

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WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, JANUARY 15, 1919 | Number 2

Prevent Hog Cholera; Don't Wait for an Outbreak

HOG HEALTH MEANS MONEY; SANITATION AND SERUM TREATMENT

DR. GEORGE H. GLOVER

MORE than three thousand letters have been written in the last twelve months answering inquiries from farmers of the state respecting the diseases of livestock. Not having in mind a single instance where information was sought respecting the prevention of disease, I instructed the "steno" to look through the files until she found one—she is still looking! Of course, exception was made of those letters that pertained to prevention of disease by the use of vaccines and other biologics.

It does seem strange when you come to think of it, how people just naturally hanker after "cures" and how unwilling we are to pay the price of good health, either for ourselves or our animals. Pay the price, I mean, for those conditions that make for comfort and health in our animals. Between the prevention and the cure of disease the former suffers by comparison, and excites very little of either private or public interest. The recent fiasco in the control of influenza bears testimony to the lack of faith, and the unwillingness of the public to unite in carrying out an effective prophylactic program. The value of drugs in the cure of disease has no doubt been sadly overestimated. Yet the foundation of this estimate is the fact of their appreciation. Cures are all right when they are not wrong. "An ounce of prevention is worth a pound of cure." The only trouble in this matter comes out of the fact that people just naturally will insist on reversing the 16-to-1 ratio.

This brief discussion of the prevention of hog cholera will be presented in a practical way, but in a way that is perhaps rather unusual. The question is: "What must we do to be saved" from a visitation of hog cholera?

All Hogs Are Susceptible

First let it be understood as positively proven that hog cholera is caused by germs and that nothing else in all the world will cause it in the absence of these germs. That all hogs, including the mule-foot breed, are susceptible. Even healthy hogs under the best possible conditions, that have, because of this fact, a considerable resistance, will contract cholera if exposed long enough. Caustic lye, charcoal and such things have no appreciable effect in preventing it and farmers who are abreast of the times in modern agriculture no longer "fall" for these things any more than they do for hog cholera cures.

It simmers down to a proposition of keeping out the specific germs of infection and taking advantage of the resistance that is gained by good health and sanitary surroundings. In avoiding a visitation of cholera, then, it is highly important to remember that it is not caused by parasites, per se, a certain kind of food, or phases of the moon, neither does it just simply happen. There is a cause for everything. In the light of this knowledge it seems reasonable that there should be a united effort to suppress the disease through the well-known channels by which it is spread.

Health an Asset

From every standpoint it pays to keep hogs healthy. This cannot always be done, but every effort is very much worth while. It is a safe investment. Not only is this very much worth while from the standpoint of cholera and other diseases that are encouraged by unthriftiness, but the best possible gains cannot be secured in any other way. The relation of health to gains should be kept constantly in mind. This thought will usually make a stronger appeal than "health to prevent disease."

Colorado Bred Durocs, the Kind Worth Immunizing Against Hog Cholera

How Transmitted

Hog cholera is most certainly transmitted by contact. Occosionally a hog is found with such a high degree of natural immunity that he will resist exposure by cohabitation, but they are few and far between. The thing then of first importance is to exercise eternal vigilance in seeing to it that healthy hogs are not mixed with sick ones, or with those that may possibly have been exposed. Take no chance—you cannot afford it. Breeding hogs, for instance, that have been shipped from a distance should not be placed with healthy hogs for twenty-one days. This is a state law and the only fault with it is that there appears to be no way of enforcing it. The farmer, to save time and inconvenience, is willing to take a chance by ignoring it.

Transportation

When hogs are imported the community has a right to know where they came from and that they were properly immunized before shipment. All stock cars and stockyards must be looked upon as infected and every lot of imported unimmunized hogs is a menace to the community. Unfortunately there is no constituted sanitary police authority to look after the community welfare in this regard. The existing law respecting the transportation and quarantine of hogs at their destination is violated with impunity. Herein lies the greatest danger in the spread of hog cholera to uninfected territory. A sanitary police officer should be appointed in every community to supervise the exporting and importing of livestock. At present the only supervision over these shipments is the state veterinarian, and while he is very active, he is far from being omnipresent. Intrastate shipments cannot be adequately supervised under existing conditions. In the absence of county veterinarians farmers' associations are being organized to employ veterinarians to guard the animal wealth, and indirectly of course, the public health.

Water Supply

Possibly the next most important factor in the spread of hog cholera is through the medium of the water supply. Hogs should never have access to running water if hog cholera exists anywhere upstream. To allow infected hogs access to a river or irrigating ditch, with the chance of infecting hogs below, is criminal and should be considered such, morally and legally. Where water is bad, hogs will not drink as much as they otherwise would, or should, to make the best gains. Of course, if there is pure running water it is very tempting to allow hogs access to it, but a good citizen will be actuated by a wholesome respect for the community welfare and especially for the neighbors on the stream below.

Raw Garbage

There is no doubt some danger in feeding uncooked garbage. Raw garbage sometimes contains the pork rinds of hogs that were slaughtered in the incipient stage of hog cholera. Possibly the entrails of chickens that come from cholera-infested districts may convey the disease. Garbage is not looked upon as a prolific source of infection, but may be considered a probable source.

Fairs

Infection at public fairs and stock shows is not to be looked upon as a mere possibility but rather as a probability. Such animals should always be immunized either before, or on the first day of the fair, and after being returned home should be kept in quarantine for at least twenty-one days.

Indirect Contact

Cholera is transmitted, not by inhaling the infection or by inoculation wounds, but presumably in almost every instance by food or water that is contaminated with the virus. This contamination may take place through the medium of birds, especially pigeons that make the rounds from farm to farm and feed in the hog lots. It may be carried by parasites, on the feet of individuals, by dogs and other animals.

Uncontrollable Conditions

A certain Missouri farmer, though surrounded by hog cholera, escaped it for five years, but at last it reached him through carelessness of a neighbor. His success in escaping it so long was due to the strictest kind of a quarantine, which he maintained, to a liberal use of disinfectants, and watching every possible avenue of ingress of the infection. Of course, he was not praised for his neighborly qualities, yet if all his neighbors had exercised the same vigilance cholera would have been controlled in that neighborhood and the community welfare would not have suffered because of a disaffection that was as senseless as it was disastrous.

Since farmers generally are not seriously impressed with the utopian idea of being "their brother's keeper," it behooves every fellow to look out for himself. If we had an ideal people who would take care of their hogs in an ideal way, with the larger vision of the community welfare, then each farmer would be protecting himself as well as the other fellow and the control, and even extermination of hog cholera would be comparatively easy. Those who are trying so valiantly to inaugurate ideal conditions, here and now, are having a hard time of it. However, we must struggle on with our face toward the coveted goal and in the meantime take things as they are and act accordingly. Viewing the situation, then, from this standpoint, there are three things that are essential if the raising of hogs is under consideration:

1. Anti-hog-cholera serum.
2. Sanitation and all that the word implies.
3. Raise no hogs.

The second proposition will be given no further consideration and the third is not to be considered for a moment because of the menace of hog cholera. There is money in the hog business under existing conditions, with right management.

Anti-Hog-Cholera Serum

Space will not permit of a lengthy discussion of the anti-hog-cholera serum. It represents one of the greatest achievements of medical science. It has saved the hog-growing industry, for without it hog raising would be a precarious business and in a considerable portion of the United States would be well nigh impossible. While the principle involved in the hyper-immune serum was worked out by Dorset and Niles, in the employ of the U. S. government, yet its practical utilization depends upon the multiplicity of exact detail, both in its manufacture and use.

Just what this serum is and how it is made does not interest the farmer so much as knowing when and how to use it to save his hogs. He does not care whether the immune blood is drawn from the pig's tail, or by cutting his throat, so long as it will save his pigs and pay off the farm mortgage. However, he has a right to know in a general way what this "stuff" is that the veterinarian is injecting into his hogs. Virus is the blood of a hog suffering with hog cholera and if injected alone into a pig will produce the disease. Immune serum is the blood (with the clot removed) from a hog that has recovered from cholera. Hyperimmune serum is blood (with the clot removed) taken from a hog whose ability to resist cholera has been built up by injecting an immune hog with virulent blood. This constitutes the commercial anti-hog-cholera serum.

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Schools Are Solving the Rural Problem

YOUTHFUL FARMERS MAKE A REMARKABLE SHOWING

C. G. SARGENT, State Director Vocational Education

Lelia De Haan

FOR years our schools have been criticised for failing to take account of their surroundings, for neglecting to study and help to solve some of the problems of their immediate neighborhoods and for being "bookish" and impractical in general. These and other familiar criticisms cannot be charged against the agricultural courses offered in the Greeley, Fort Morgan, Sterling and Lamar high schools as conducted the past year in co-operation with the State Board for Vocational Education under the Smith-Hughes Act. The federal law requires that the teacher of agriculture be employed for the whole twelve months; that he shall teach the agricultural subjects in the high school courses and supervise the summer work of his pupils on the home farms during the growing season. The pupils are not only required to attend school for the full nine months, and while so doing study vocational agriculture for one-half of the school time each day, but in addition thereto they are required to do six months of supervised agricultural work on the home farm each year under the direction of the teacher of agriculture.

A project may consist of raising an acre or more of corn, beans, potatoes, beets or other farm crop, or it may be an animal or poultry project. But of whatever it shall consist, it shall be a business undertaking of sufficient size and importance to make it worth while both from an educational and financial standpoint. The school gives the student nine months' study in practical agriculture and such other subjects as are necessary to make a well-rounded course of instruction. It further provides a trained and capable teacher and supplies him with an automobile so that he can visit each student on his home farm once a week, if necessary and possible, in order that each may have the proper directions to care for his crop or his animals as the case may be. The parent agrees to make it possible for his child to secure the necessary land or livestock, and to give him the time needed to do the work and to see that it is well and faithfully done, while the student agrees to do the work on his project under the direction of his instructor. Such, in brief, is the scheme. Here is a triangular agreement and co-operation that has been lacking in our educational system heretofore. This arrangement takes into account the school, the child and the parent, and through the parent also the home from which he comes and the occupation by which the home is supported. Here is a chance for real co-operation between the home and the school, and, although last year was our first under this new system, still the degree of success attained in these agricultural classes was far in excess of what we might have expected for the first year.

School credits and financial gain are the chief incentives for the pupil, while the highest possible educational values and the symmetrical development of character are the joint aims of parent and teacher. For centuries boys and girls have grown up in the country and have worked on farms, but such experiences have not always made them successful farmers, happy and contented with life in the country, any more than being the son of a doctor, lawyer or minister makes one a successful member of these or other professions. The trouble is that farm work, as usually done, is not supervised from the educational standpoint by one who is trained for such work and largely for this reason it is lacking in educational value. This is supplied in the agricultural classes in these four schools. Farm work is rich in educational values, and here we are making an effort to harvest these as well as other crops raised. Farm work, alternating with study at school, gives variety and prevents monotony. The child not only studies the thing he is going to do before he does it, but he also studies his project while he is doing it, and the educational work goes on throughout the whole year without a break.

As samples of this work two project reports are given, one a crop project, the other a poultry project. One was the work of a boy, the other of a girl, but in this case the young lady raised the spuds while the young man gathered the eggs.

1. Potato project of Lelia De Haan, 18 years old, a junior in the Fort Morgan high school. Roy J. Hale, teacher of agriculture.
Size of project—5 acres, irrigated land.
Variety—White Pearl.
Yield—1,833 bushels.
Value of crop—$2,200.00 (local price at time crop was harvested).
Cost of production—$143.65.
Rent—One-fourth of crop, $550.00.
Total expenses—$693.65.
Net gain—$1,506.35.
High school credit given—1 unit.
Note: In addition to the above, and other farm work which she did for her father, this high school girl satisfactorily completed and received credit for 52 lessons in typewriting during the summer months.

2. Poultry project of Clarence Boyd, 18 years old and a senior in the Greeley high school. F. A. Ogle, teacher of agriculture.
Breed—Pure-bred White Wyandottes.
Size of flock—50 hens.
Duration of project—10 months, Nov. 1, 1917, to Sept., 1918.

EXPENSES

Feed:	
10 bu. wheat	$ 20.00
20 bu. oats	16.00
1,300 lbs. corn	41.75
172 lbs. barley	3.30
200 lbs. bran	4.10
120 lbs. oyster shells	2.00
3 pks. poultry regulator	1.50
3 pks. chick food	1.50
Other supplies:	
One incubator	5.00
Stationery	.20
Phone	.05
Add	.70
Eggs and freight	5.33
Water jugs	.20
Carbola	1.35
Total expense	$102.98

RECEIPTS

Eggs:	
November, 36	$ 1.40
December, 195	7.96
January, 438	18.16
February, 661	25.79
March, 759	20.25
April, 596	18.70
May, 516	13.67
June, 527	13.15
July, 408	10.20
August, 204	6.80
Eggs used, 1102	30.44
Chickens sold and used, 29 cockerels, roosters and hens	31.56
Chickens raised and still on hand, 60; value	90.00
Total receipts	$288.08
Receipts and increase in stock	$288.08
Expenses	102.98
Profit from fifty hens for 10 months	$185.10
Increase in stock	90.00
Cash received from poultry	$ 95.10
Gross returns per hen	3.70
Cash returns per hen	1.90

It was the writer's privilege to visit both of these projects and to see the potatoes after they were sacked and stored in the cellar. He can bear eloquent testimony to their high quality, for he carried some fine specimens away with him. While he has not yet tasted the chickens, there is still hope. But he saw the flock and has never seen a better showing of fine poultry on any farm. Here are two splendid examples of what young people can do when given a chance and when the work is properly supervised.

Here is a young girl, a fine specimen of young womanhood, who lived at home and helped her mother with the housework, and often assisted her father with farm work in the absence of an older brother, who lost his life in the service of his country, and besides this she earned a unit of high school credit for her agricultural work and did 52 lessons in typewriting, did a most spectacular piece of work in food production and cleared $1,506.35 for her summer's work. This alone would pay all of her expenses for four years in college should she desire to take a college course.

Here is an equally fine specimen of young manhood, who took care of his fowls night and morning, kept an accurate record of receipts and expenditures for ten months, receiving a profit of $185.10 for work which in no way interfered with his school work or his regular duties in helping his father with the farm work. It should be added that he also raised a fine litter of Berkshire pigs. Both these young people, and many others in the agricultural classes in these four high schools, did their regular school work in a creditable manner, did their summer work with the encouragement of their parents and under the regular supervision of the teacher of agriculture, took even a greater interest in the farm operations than before, learned many valuable lessons and helped to make themselves self-supporting all at the same time.

For the present fiscal year, co-operative relations have been continued with these same four schools, while Monte Vista and Montrose high schools have also been approved, and several others are on the waiting list for lack of funds for financial co-operation.

Trench Silos Used by Stockmen for Beet Tops

WET PULP MIXED WITH THE TOPS MAKES A GOOD COMBINATION

T. S. PARSONS, Extension Agronomist, Wyoming University

SINCE the establishment of the beet sugar factories in the Big-horn Basin of Wyoming, the feeding of beet tops has been receiving the attention of farmers and stock-feeders. In the older beet-growing sections such as Colorado and other states the beet tops have long been used in cattle and sheep feeding. The pulp, both in the wet and dry conditions, has also been extensively fed in these sections. The beet industry is comparatively new in the Basin section, however, and neither the pulp nor the tops have been as fully utilized as they should be.

Those who have used the beet tops have found them a valuable feed. The sugar company and some of the more progressive farmers and stockfeeders are using the tops for feeding this year, some feeding in the field and others putting them in the silo. The farmers have been rather slow in utilizing the beet tops, partly perhaps because of difference and partly because feeding on a small scale on the farm is not popular. As the feeding value of beet pulp and tops is being learned, however, these valuable by-products of the sugar beet are being more fully utilized. Much alfalfa is grown in this section. With this forage and beet tops and the addition of a little concentrate, cattle and sheep can be fed very profitably.

The beet tops are practically clear gain to the farmer. He gets pay for his labor and a profit from the beets. The tops which amount to one-half or more of the crop of roots and which contain when fresh about 15 per cent of digestible dry substance, are often not given the place they deserve in the feeding ration. Often the tops are grazed off by sheep and cattle and paid for at the rate of $3 to $5 per acre. A large amount is lost by feeding in this way, as the tops dry out and freeze and bad weather often prevents their full use.

A few farmers are putting the tops in the silo and thus getting much more of their feeding value. The main objection to siloing the tops is that the work must be done at the time of the beet harvest, which is the busiest time of year. It pays, however, to put the tops in the silo while they are fresh. Putting them in piles as the beets are topped will keep them in good shape for a short time. but they will dry out even in the piles. Archie Robertson of Lovell took two afternoons a week to clean up his tops during the beet harvest. Two men and two teams put 20 acres of tops in the pit silo in five days working in this way, and he considers that it pays. Mr. Robertson has a trench silo in which the beet tops are preserved. He intends to feed sheep, using beet top silage, straw and molasses with alfalfa hay, and will finish off with silage, alfalfa, dried beet pulp and cottonseed cake.

The pit silo is being used in the Big-horn Basin this year for the first time for the beet tops. J. M. Grant of Lovell used beet tops in the upright silo with corn silage for dairy cows last year with good results. The tops were put in the silo without cutting. Where there was sufficient moisture they kept well. There is some speculation as to whether the tops will keep well or not in the ordinary trench silo. In Europe it is a common practice to haul the beet tops directly from the field and put them in pits or trench silos either with or without wet pulp. The silage keeps well for a year or more and on dairy farms the cows are fed on it, with the addition of wheat straw and two or three pounds of cottonseed cake. The process has proved so successful in other places that there is no reason why it should not be successful here.

Mr. Robertson, mentioned above, has a trench silo in which he siloed beet tops alone. His silo is about 16 feet wide, 90 feet long and 6 feet deep. Charles Mansfield of Kane has a trench silo in which he put beet tops and wet pulp. His silo is about six feet deep and is filled with alternate layers of tops and pulp. When his place was visited on December 5 he was still filling the silo. The beet tops at that time were quite dry and he was using the wet pulp to make up for the lack of moisture. He was

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STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "The Bondboy," "The Crucible of Courage," "Cowardice," Etc.

A TALE OF LOVE AND LOST TREASURE, AND AN ABSORBINGLY UNCANNY MYSTERY IN THE HUNT FOR A WRECK BURIED IN QUICKSAND

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CHAPTER I
THE STRANGER AT THE WELL

WHEN the June rise came it filled the slough behind Captain Moss Gregg's house; when it subsided it left the captain's corn on the slough bank partly mud-colored and smothered, partly drowned and yellow, like malarial dwellers in the Missouri bottom lands. In spite of this loss of his crop year by year, Captain Gregg persistently planted each succeeding spring close down to the edge of the slough water. It was his belief that the river would miss a June rise some time, and his hope that he would live long enough to see what kind of corn the rich alluvium of the slough bank would produce.

His belief in the ultimate remission of the Missouri had no foundation in his sixty years' experience with that stream. As regularly as birthdays the yellow headwater had come boiling down from the far-distant mountains, its snow-tide increased by the rainfall of that season along the way. Within the recollection of man the Missouri never had missed the June flood; there was no reasonable base for the captain's long-living hope that it ever would.

Now, in the late July weather, the captain's corn stood beside the slough, tall and gallant beyond the line reached by the river at its highest point, sickly and pale where the shallows had been, dead and obliterated on down the slope in the track of the deeper water.

Captain Gregg sat on his porch that still mid-afternoon, looking over his growing corn, which marched down in tall, brave ranks and halted at the brink of the slough like an invading army. His old snuff-colored hat was pulled forward to his brows to take the eye-ache out of the dazzling white sun. As he moved in his rocking-chair with slow, lazy cradling, the boards of the porch complained and sighed, and gave with his weight upon their sun-drawn nails.

Across the other end of the porch, where honeysuckle vines drew a curtain between him and the glare of day, the captain's long-legged son stretched out asleep. Within the house, out of sight, the captain's daughter was singing a slow-footed hymn in soft undertone.

It was all lazy and somnolent there, satisfaction with today, untroubled of tomorrow. Captain Gregg's weathered gray old house was a wasting testimonial that things had been so with it always, and would go on so to the family's end.

Captain Gregg had built the house out of walnut lumber with his own competent hands, and house and man had faced the elements together, and grown gray each according to nature, there on the Missouri shore.

Not much could be made out of Captain Gregg as he sat swaying gently in his rocker, except his long legs and spare body, and aggressive short beard which pointed outward from his chin as if he always had a strong wind at his back; and his thick shoes, slitted to ease his bunions, which the hot weather shot with a thousand pains. But he was old like his building, and time and storm and warping sun had strained his timbers and battered his once fairer exterior, leaving him gaunt and dry.

Certainly a man might sit and let his thoughts go roaming, his low, long-sloping, linted roof above his head; surely his son might snore on his doubled arm with no more care upon him than a horse, without rebuke of conscience for his long-spun dreams. For the corn was laid by, the last furrow of the summer drawn. Behind the house there was corn, as tall as the kitchen roof; beside the house there was corn, its tassels level with the gable windows. Only in front there was no corn, but jimson weed and burdock, and fennel smelling in the sun.

A white road ran by the river bank in front of Captain Gregg's door, and there was beside this road a cool, dark elm tree; beneath the elm a well. The well-bucket stood on the curb to welcome the road-weary, its sinker chain looped across the lint-white boards like jewelry upon a rustic waistcoat.

A little way beyond the great elm—which threw a shade unpierced by as much as a needle point of sun a hundred feet across at noonday—washing the very roadside, the Missouri river passed. Yellow, without a hint of romance in its unlovely stream, it ran heavily that day, in a manner of provincial sulkiness, its current disturbed by whorls and sudden gatherings of dark waters, as if great fish struggled in it, or geysers spouted there unable to spring through its slow, mud-heavy tide.

"So he went on down to the Narris, did he?"

Captain Gregg turned his head to deliver his voice into the window, open at his side. He pushed back his hat, showing his brooding gray brows, and sat up with a movement of being startled, as if he had been awakened by his own voice.

"Yes, he went on down toward the Narris, pap."

The voice that answered him drew nearer the window as it sounded, and finished quite near at hand. If his own voice had jarred him out of his reverie, as it seemed, surely here was one to soothe him back again to his dreams. A voice rich like a singer's, and low, as if softened by a sorrow.

"Said he'd come back, did he, Mystery?"

"Yes; he said he'd be back this evening."

The voice was moving away from the window again. Now there was the comfortably-domestic sound of a smoothing-iron being vigorously driven over cloth, and the light step of the busy worker as she followed it along the board.

"What kind of a lookin' genius was he, Mystery?"

"Not so overly tall," said she, with a deliberation as if she still considered it, "but better put up, somehow, than the run of the men in the Narris."

"City-lookin' feller, was he?"

"No; more like a soldier."

"What was the color of his eyes?"

"I didn't notice him that close, pap."

"Ya-h, any time a woman's in talkin' distance of a man and don't notice the color of his eyes!" Gregg laughed, in good-natured banter. "Bluish, wasn't they, Mystery?"

"I reckon," she returned indifferently.

"Light hair, kind of long, and bleached out around the edges by the sun, and skin as brown as a hired hand's, and corduroy pants, and laced boots with soles half an inch thick?"

"If you know, what do you want to ask me for?" The unseen woman spoke a bit pettishly, as if piqued on account of having been beguiled into a waste of words.

"It's the same feller," nodded Captain Gregg, unmoved out of his even humor by her little flash. "I didn't see him, but they told me over at Richfield he was makin' inquiries about me—and other things down in the Narris. It's been twelve or fifteen years since anybody come nosin' around on that scent."

"You don't mean he's come to hunt for the—"

She paused there, as if she had approached a secret as closely as spoken words might go, and there was a lifting of excitement, a brightening of new interest, in her voice.

"Must be," returned Captain Gregg, "he's pickin' up the strings that leads up to it, and nowheres else. Only he's kind of pussy-footed about it, and close-mouthed as a mussel. Old man Evers over at the hotel said he couldn't even get his name out of him."

"He didn't look like a man that 'd tell any more than he wanted to," said she, as if looking back to the stranger reflectively.

"The last one that come in here on that scent he come in a buggy and went away in a box," mused Captain Gregg. "But this feller come walkin', carryin' his coat on his arm like a tramp, you said, Mystery?"

"But he didn't look like a tramp, nor act like one."

Captain Gregg lapsed into his half-dream again, a state of mind in such complete harmony with the day, his hat tilted forward to the bridge of his nose.

The pulley of the well creaked. The rattle of the sinker chain disturbed the repose like a challenge of labor to the dreamers on the porch. Captain Gregg came to life.

"It's that man," said Mystery, leaning in the window to see.

"I'll go out and water old Susie and see what he wants," said Gregg, coming tenderly to his feet to spare his bunions a too sudden weight.

Mystery drew a chair to the window as her father passed down the path toward the well, and sat watching, her elbow on the low sill, her chin in her hand, a brown-haired woman of five-and-twenty, with a slow, sad prettiness about her; a roundness to her arms; a largeness in her brown eyes. She was sweating from her toil with the hot flat-iron; her dress was open at her throat.

She watched her father greet the stranger, who had refreshed himself at the well, and shake hands with him, all with a dubious questioning which was as plain to her in the old man's attitude as if she had been by his side. The stranger was very hot, for he had come afoot, and was laying his wrists in the trough. When he stooped she could not see him for the weeds in the yard, but when he spoke his voice came to her strong and full, moving a little thrill in her, as an inanimate object is said to quiver when its key-note sounds.

She watched her father carrying water to the hog-pen a little distance from the well, the fair-haired stranger waiting for him beside the curb. Although she strained to hear, nothing of their conversation carried to her, no more than the hum of their voices, the stranger's deep tone above her father's old treble like a new and resonant instrument beside a Narris fiddle.

She had no inclination to return to her ironing now, although her energy was that of the family's ordinarily low unit multiplied by ten. For there was mystery in the coming of that man, and romance in the secret that he had followed there from far places to trace back along the years through her father. Her tongue had faltered in naming it that day, for there was menace and tragedy bound up in it, a danger and a sorrow which she would spare, she could not tell her own heart why, to that clear-eyed stranger beside her father's well.

CAPTAIN GREGG'S WEATHERED GRAY OLD HOUSE
"It was all lazy and somnolent there, satisfaction with today, untroubled of tomorrow."—From "Steamboat Gold," by G. W. Ogden

CHAPTER II
THE WRECK OF THE NARRIS

Captain Gregg made four trips to the well, each time emptying his pail of cold water with slow, consoling, almost caressing dribble along the fat hog's sides. The animal was stretched in muddy contentment, its pink nose between the rails, its eyes closed to shut even the distracting sight of the summer world out from the enjoyment of its tempering bath.

The stranger was looking at the Missouri river, rolling in tawny ebullitions a few yards beyond the white highway over which he had come but a little while ago to Captain Gregg's hospitable tree. He was a lean brown man, with light hair sun-bleached around the edges, as Captain Gregg had described him from hearsay, and light brows over his baffling blue eyes; a man worn down to muscle, sinew and bone, with hard knuckles to his big hands, which looked as if they had come pounding their way from the beginning of his life to that hour under Moss Gregg's elm tree. His hat was on his knee, and sweat dampened his heavy hair down on his forehead, curiously white above the brown of his serious, lean face.

"Yes, it gits middlin' hot down here in the bottoms," Captain Gregg admitted. "If it keeps on this lick for three weeks I'll have to stand a barrel under that 'tarnal sow to save the lard—she'll render down to a cracklin'. Well, a feller ain't got no business to 'low a hog to laze around till it grows that big; I orto 'a' butchered Susie last winter."

"What does she weigh?"

"Nigh to five hundred now, I reckon."

"That's some hog!" said the stranger, his admiration undisguised.

"I hope, for the sake of certain recollections and a few ideals, that I'll never meet a woman as heavy as your Susie there."

"I don't know—" Captain Gregg combed the under side of his beard thoughtfully, and spoke with a certain deliberation and air of detachment from the time and place—"she be a considerable of a sight in a circus suit, don't you reckon?"

The stranger laughed, not a laugh of courtesy, but of genuine merriment. Captain Gregg shot him again with that touch-and-run look, and nodded his head slowly, as if he had settled some disputed point in his divided or doubtful mind. He sat looking at the ground a little while then, his broomweed thrown aside.

"Yes, you favor him," said he, as if speaking to himself, nodding in full conviction. "You never can tell about a man when he comes into a strange place, even if he has got papers to prove who he is, but when he carries the same grin on his face that his daddy before him wore, and a man's stood shoulder to shoulder with that daddy in days gone by and went through things with him that a feller don't let leak out of his memory—I don't see what ground for doubtin's left. It's the same as if he'd come wearin' his daddy's coat, only more so. The minute I saw that grin sneak out of your eye-teeth, Jonathan, I could 'a' picked you for Captain Walt Randolph's boy among nine thousand."

"Yes, credentials are easy to fake," Randolph admitted.

"But no man could counterfeit Walt Randolph's smile," the old man said with reminiscent shake of the head. "When I meet a feller that's usin' it I cal'late he's got a right to it. So you're aimin' to locate the wreck of the old Morning Star, are you, Jonathan, and salvage her cargo, heh?"

"I'm not making any secret of my plans and intentions to you, Captain Gregg."

"No, a man couldn't make much of a secret to any body out of huntin' a steamboat that's been at the bottom of a cornfield for forty-five years and more."

"It was the summer of sixty-four that she went down."

"Who knows it any better 'n me?" Captain Gregg asked it resentfully, even a bit contemptuously, with a frowning sharp look into his visitor's face.

"Nobody in this world, Captain Gregg. That's why I've come several thousand miles to see you, and ask your advice."

Gregg was mollified by the complimentary reply.

"What business have you been folterin', John?"

"I'm a treasure hunter by trade, captain; I've hunted gold from the Klondike to Peru."

"Didn't strike any, I reckon, John?"

"Mostly for other people, captain. I'm a mining engineer, my gold-hunting up to this date has been done on the safe basis of so much a month."

"I reckon it pays better that way in the end, too. Whatever put it in your head to quit your job and come out here on this wild-goose chase?"

"Maybe it will turn out that way, after all, captain, but I've been intending to come to this country and find the Morning Star ever since I was a boy. In all my ups and downs and wanderings over the earth I've held the old wreck in reserve for the one big adventure of my life."

"Like money in the bank, eh?"

"Yes, I've looked forward to it like an inheritance."

"I reckon it is a kind of a legacy, too, you might say. Who's got a better right to explore her than the son of the man that commanded her when she went down?"

"I hope there will be no question about that in other quarters, captain. Father had his own hopes of the Morning Star for many a year after he quit the Missouri, but things never lined up right for him to come back and find her grave."

"So he kind of passed it on to you, Jonathan." The old man spoke kindly, with full understanding, and with a dream in his eyes as he looked off across the river, the romance of the lost wreck settling over him.

"Yes, he passed it on to me."

"Well, I'll tell you, son; I don't know as I'd advise you to go on with that there hunt for the Morning Star. I'd be willin'—I'd be as keen as a houn'-dog on a frosty morning—to go after that old boat with you, but there's things and obstacles in the road, as the feller said when he met the bear."

"What things, captain, and what obstacles, mainly?"

"Well, old man Moore, for one. He's the feller that owns the land where she's buried under thirty to sixty foot of sand and soil. He's been plowin' over the decks of that boat for forty years. But I don't reckon it matters how deep she lays, if you can find her."

"Finding her is the main thing; sink a shaft down to her wouldn't be much of a job."

"No, not if Moore 'll let you go projec-in' around down there—and other things don't come up."

"You remember the location of the wreck, don't you captain?"

"Son, I could walk to the spot where she went down with my eyes shut. And I'm the one livin' man, outside of Caleb Moore, that does know, to gamble on it."

Captain Gregg propped his elbows on his knees, his chin in the cradle of his hands. He looked out over the river, whose current of swirls and insidious undertows his sharp eyes had watched from that shore for so many drowsy years.

"Yes, I brought her up the river," said Captain Gregg, speaking in a small voice, as an old man speaks when he stirs the embers of youth's far-gone days, "it was my first trip at her wheel. Captain Randolph had been transferred to her some time before."

"From the Georgia Belle."

"You're right, it was the Georgia Belle. The Morning Star was a new boat, built sharp and long for the stiff current of the old Missouri, white as a magnolia bloom and slim in the waist like a girl. She was wild in her ways, and headstrong like down-right purty girls most always are, but I was learnin' her like a man learns a new wife, and her tantrums and sulks. Another trip and I'd 'a' tamed her down to my hand like a canary bird in a cage."

There was a little stretch of silence while both of them looked out across the river, as if drawn by its mysteries and dark tragedies of old, hidden beneath its unlovely tide.

"It was early in the morning," Captain Gregg resumed, "and I'd just relieved the other pilot. The river was rippin' through the Narris that morning thirty-five feet above low water, full of sawyers and logs, haystacks and hen-coops she'd swep' up out of fields and farmyards in the night like the danged old easy-footed thief she is. I thought I knew that reach of the river, and I reckon I did know it, as well as any mortal man ever knew the Missouri, and I judged I could draw under the south shore, out of that hell-snortin' current and coax her along in easy water and make time.

"I was holdin' her on a big cottonwood that was the main mark of that crossin', and she was just walkin' into easy water when she struck a snag. But you know how it was—you must 'a' heard your daddy tell it a thousand times."

"I've heard him tell it many a time, captain, but I want you to tell it over.

Turn to Page 14

Try This One-Man Stump Puller 30 Days FREE

SEND NO MONEY!

If you have useless stump land, I want to PROVE to you on your own stumps—*50 days before you pay me a penny*—that ONE MAN with my famous Kirstin Stump Puller can pull big, little, green, rotten, low-cut, tap-rooted stumps, hedges, trees or brush. I want to convince you that this is the easiest, quickest and cheapest way to pull stumps.

Write for Special Agent's Proposition!

Thousands of Kirstins Now in Use!

One Man Alone Handles Biggest Stumps!

I pulled one pine stump 3 ft. across top. My One-Man Kirstin pulls bigger stumps than I ever expected. *Mr. I. Erkkila, Calumet, Mich.*

My Kirstin pulls stumps up to 2 ft. blind maple 3 to 16 inches. Pulled tree 150 ft. high and 22 inches at base, in 15 minutes. *A. H. Jeffery, Goble, Oregon.*

My Kirstin pulled stumps we thought it could not pull. *Mr. E. A. Buckley, Bay Springs, Miss.*

After 30 days trial—if satisfied, keep puller. Single! Double! Triple Power! If not pleased, send it back at my expense. *You don't risk a penny.* Four easy ways to pay.

Kirstin One-Man Stump Puller Single, Double, Triple Power!

Weighs less—costs less—yet has greater *speed, strength, power* and *lasts longer!* Clears one acre from one anchor! Easily moved around field. A few *pounds* pull or push on handle exerts *tons* on stump—due to wonderful leverage principle. 3-year guarantee against breakage!

Get My Big New Book NOW!

Tells how one man pulls stubborn stumps in few minutes at low cost. Explains all about different speeds. Also patented quick "take up" for slack cable. Describes Kirstin one man Clutch Model; Kirstin One Man Drum Model; and Kirstin Horse Power Model. Get the book and Special Agents' Offer. Shipment from nearest distributing point saves time and freight. Write today.

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A. J. KIRSTIN, Gen. Mgr., A. J. KIRSTIN CO. 328 E. Morrison St., Portland, Ore.

General Office and Factory ESCANABA, MICH.

– and old 314 is good for many seasons more

Drawing from photograph of F. Gasperich and his 30-60 OilPull.

OUT on Gasperich's farm at Onida, South Dakota, old OilPull Number 314 is still "delivering the goods." Bought back in 1911, year after year she has given that kind of satisfaction that only an OilPull can give—and she is good for many years more.

As Gasperich, himself, tells the story—"For eight years now, number 314 has done the heavy work on this farm, cropping from 600 to 900 acres a year. We are just finishing breaking for the season, and the machine is working as good as when new, pulling eight breaking plows in dry sod.

"The reasons why we bought an OilPull were—first, because it was a guaranteed oil-burner; second, on account of its strong, rigid construction; third, because of its actual power performance with a throttle-governed and smooth-running motor. And I'll say right here that the machine has far surpassed all our expectations.

"We have pulled eight 14-inch breakers in dry bunch grass, with disk and drill behind. Parties here breaking the same kind of ground have used as high as eight horses on a single breaking plow and got stuck at that. You can figure it out for yourself—the OilPull has been pulling nearly an 80-horse load. No tractor of any kind around here has ever equalled it.

"As for cheap operation, nothing can touch our old OilPull. I've noticed that neighbors, who have "so-called" oil-burners, buy gasoline by the barrel. We buy a small can of gas once in a while just for starting when the engine is cold. Our repairs have been so few I have forgotten them."

This is but one chapter from the written records of OilPull performance that have proved the remarkable long life, dependability and economy that go with every OilPull. It is plain that the best basis upon which to choose a tractor is its performance over a period of years in the hands of owners.

You can get the OilPull in sizes from three to ten plows—there's a size to fit your farm. A postcard will bring you the OilPull Catalog.

RUMELY OilPull TRACTOR

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La Porte, Indiana

Kansas City, Missouri Portland, Oregon

ADVANCE-RUMELY

Tractors and the Stock Show

For the reason that there is not suitable ground at or adjacent to the stock show to exhibit and demonstrate tractors, none will be shown on the grounds adjacent thereto. The Denver Tractor Club, however, have got all Denver tractor distributors and dealers together and the regular lines will be placed for exhibition in the regular places of business of the various houses. The Denver Tractor Club is extending a special invitation to all visitors to the stock show to make it a point to visit the places of the various tractor dealers while in Denver attending the show. The following is a list of tractors that will be on exhibition, and the name and address of the jobbing house or dealer:

Aultman & Taylor—Aultman & Taylor Machinery Company, 1632 Wazee street.
Avery Tractors—Avery Machinery Company, 1539 Sixteenth street.
Wallis Tractors—J. I. Case Plow Works, 1701 Fifteenth St.
Case Tractors—J. I. Case Threshing Machine Company, 1800 Fifteenth street.
La Crosse Tractors—Colorado La Crosse Tractor Company, 1457 Blake street.
Lauson Tractors—The Colorado Lauson Tractor Company, 1820 Fifteenth street.
Moline Tractor—Colorado Moline Plow Company, 1129 Wazee street.
Emerson-Brantingham Tractor—Emerson-Brantingham Implement Company, 1626 Fifteenth street.
Fairbanks-Morse—Fairbanks-Morse & Company, 1733 Wazee street.
Plowman Tractor—Miller-Ray Motor Company, 55 E. Colfax avenue.
Twin City Tractors—The Minneapolis Steel & Machinery Company, 1600 Fifteenth street.
C. H. Best Tractor—H. W. Moore & Company, 1761 Wazee street.
Fordson Tractor—The Mountain States Tractor Company, 1709 Fifteenth street.
Samson Tractors—The Norton-Buick Auto Company, 25 E. Colfax avenue.
Oliver Plows—The Oliver Chilled Plow Works, 1709 Fifteenth street.
Eagle Tractor—The C. H. Parker & Sons Electrical Company, 1520 Wazee street.
Parlin & Orendorf Plows—The Parlin & Orendorf Plow Company, 1501 Wazee street.
Gray Tractor—William Saighman, 1531 Eighteenth street..
Hart-Parr and Rumely Tractor—E. E. Scott, 1817 Fifteenth street.
Four-Drive Tractor—George W. Smith, 1646 Wazee street.
Fordson Tractor—Vollmer Bros. Colorado Springs, Colo.
Waterloo Boy—John Deere Plow Company, 1401 Wynkoop street.
Cleveland Tractor—The Cole Motor Sales Company, 1225 Broadway.
Mogul and Titan—International Harvester Company.
Huber Tractor—C. W. Keith, 1543 Wazee street.
All Work Tractor—J. E. Jones, 1444 Wazee street.
R. & P. Tractor—Swenson Auto Company, 1960 Champa street.
National Tractor—Herbert Twogood, 1731 Wazee street.

J. H. Chase, secretary of the Denver Tractor Club, will be pleased to direct visitors to any of the above jobbers or tractor dealers and also answer any mail communications with reference to the above tractors. He should be addressed as follows: J. H. Chase, Secretary, The Denver Tractor Club, 1701 Fifteenth St., Denver, Colo.

National Tractor Show

International interest is being displayed in the Fourth Annual National Tractor Show to be held in Kansas City, week of February 23-March 1. Guy H. Hall, secretary of the Kansas City Tractor Club, under whose direction the great annual exhibitions are held, said: "Foreign governments have not been far behind the American people to see the possibilities of the tractor. As a result of the success of the American-made tractor in Europe and the near East, I have received many inquiries from abroad concerning the tractor exhibit. The special Russian Mission, representing the conservative governments of Central Russia and Siberia will attend the tractor show, inspecting the different models on behalf of their governments. An Italian delegation of agricultural engineers will be here at the same time. The Minister of Agriculture of Great Britain will be represented by a technical expert, and the French government has signified its intention of sending a representative, for the purpose of studying American power farming methods. Commissions from a number of South American countries are expected also."

Due to the location of the National Tractor Show in the geographical center of the United States and right in the heart of the tractor country, the exhibitions, from the first, have been a success. aLst year over $3,000,000 worth of tractors, tractor accessories and power farming machinery were sold. At the present time, most of the 90,000 square feet of floor space in the mammoth building, now being erected, has been reserved. An enlargement of the new building is being considered by the Tractor Club.

The Fourth Annual National Tractor Show will be the most comprehensive exhibition of its kind ever held in the world. Over two hundred and fifty manufacturers will display approximately 150 different makes and models of tractors—a type for every use or need. There will be over 400 exhibits of tractor accessories and power farming machinery.

Feeding the World

Food! To supply enough for hungry millions stricken by war is one of the most vital of all the problems confronting humanity.

Production must be tremendously increased if the world is to be saved from starvation.

Europe, despoiled and depopulated, has become a continent almost entirely of consumers.

It remains for America to feed the world.

Last year, meeting its obligation, America furnished to other countries almost twelve million tons of foodstuffs.

But the need increases. And in 1919 America alone is pledged to contribute twenty million tons to hungry humanity abroad.

To accomplish the mighty task every acre must be made to produce its maximum capacity.

The shortage in man power and horse power that menaces the undertaking can only be offset by mechanical power.

We must have tractors. And with them we must have tractor tillage implements that fit the ground best—that have the built-in quality to withstand the strains of racking service day by day.

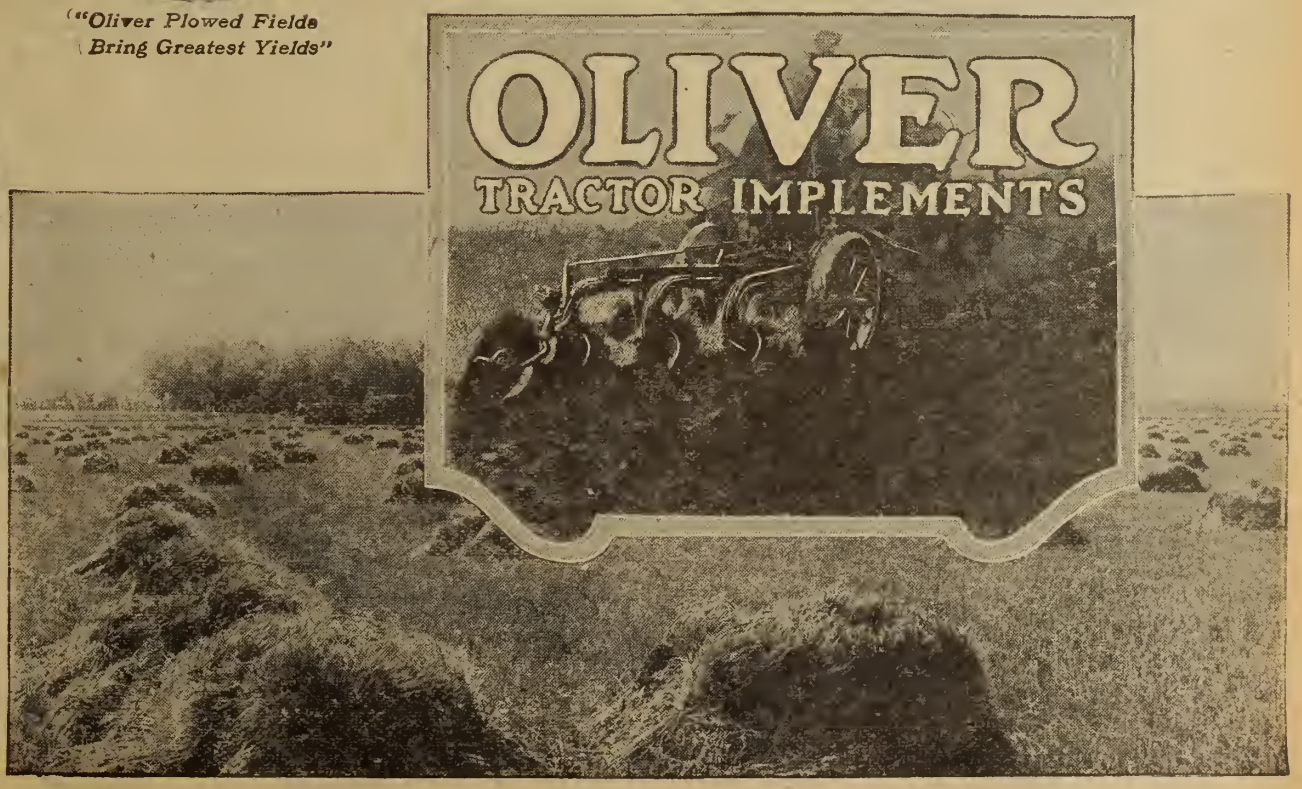
Oliver, as the world's largest manufacturer of plows and other tractor implements, is deeply conscious of its responsibility in the emergency.

And Oliver will rise to that responsibility even if it means producing a plow a minute every working day.

Oliver Chilled Plow Works
South Bend, Indiana

America's food pledge 20 million tons

("Oliver Plowed Fields Bring Greatest Yields"



Some of the Holsteins on C. M. Hill's Ranch, Santa Clara Mesa

Dairy Farming In Huerfano Co.

CHANGING FROM BEEF TO MILK PRODUCTION

HUERFANO COUNTY, Colorado, is just beginning to produce milk and butter fat for the general market. During the last year nearly a dozen dairy herds have been started by farmers in that county. The need for a steady cash income has been felt for a long time and through the activities of the county agent, Mr. Waldo Kidder, farmers have been investing in high grade and purebred dairy stock. There is a splendid local market for all farm products in the coal mining camps, to the number of about 20. These camps are drawing a great part of their supplies from the outside, while farmers in the surrounding country have been producing grain, beans and beef stuff, and neglecting the products for which they have a market near at hand. The mining camps run in population from 300 to perhaps a thousand. Carload after carload of milk, butter, eggs and poultry is brought in from the wholesale distributing centers. The farmers living around the camps have finally decided to supply as much of this demand as possible and they are, therefore, making a start with cows.

Some of the farmers who have recently bought dairy stock formerly conducted beef producing ranches running from 50 to 100 head of cattle on the range and growing some grain, mostly for hay, and some alfalfa. In the last few years, however, considerable of the idle land formerly used for range has been taken up, thus cutting down the area of free pasture. This has been a factor in forcing a change in the character of agriculture from the old-time ranch conditions to the more profitable plan of dairy farming.

The writer recently visited a few of the ranchmen who are making this change and found them well equipped for handling dairy herds and well satisfied with returns, as they were being paid 68 cents a pound for butter fat. Along with dairy cows these farmers are going into the hog business, a number of them having recently purchased purebred foundation stock of the Poland China and other popular breeds.

Mr. C. M. Hill, whose ranch is located on Santa Clara Mesa about 10 miles west of Rouse, has a herd of registered and high grade Holsteins. He bought six head, five cows and one heifer, at the Donley & Simpson sale in October, 1918, among them that exceptionally good producer, Grace Fayne Buttergirl. He also bought in Ohio three registered animals, including his herd sire. He is building two pit silos and his crops for feed are alfalfa, oats, millet and field peas.

He has a nice drove of Poland China hogs which are being economically handled along with the dairy herd. His farm comprises 320 acres of foothill land with considerable cultivable area to provide winter feed, and ample pasture for economical milk production from grass during the summer months. Mr. Hill is an experienced dairyman, having formerly been engaged in supplying the retail market in one of the neighboring mining camps.

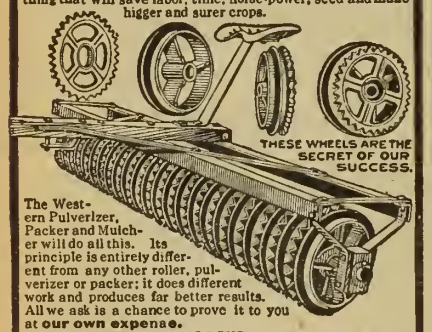
Near his ranch is that of J. L. Morris, who has a fine lot of Wisconsin Holsteins with a herd sire from the Spencer Penrose herd of Colorado Springs. Mr. Morris' operations are similar to those of Mr. Hill and his farming conditions are about the same. Great quantities of feed were stacked up in the lots adjoining his dairy barn during December, indicating that the cows would be well cared for through the winter.

Mr. Morris is trying out corn for silage and believes he can get this crop through the season in good shape, when once acclimated. His test during 1918 was made with Minnesota No. 13, from tested seed grown in Boulder county at an altitude of 5,000 feet. This corn was planted on the Santa Clara Mesa at 7,200 feet and while the seed was put in late, it nevertheless matured grain. As yet he has not been able to build a silo, but that is part of the program for 1919. Mr. Morris said he had only one kick about the Holstein cows, and that was they kept him very busy relieving them of milk. He is pleased with the prospects for dairying, knowing that he will be able to grow all the necessary rough feeds very cheaply, and that he can store sufficient feed for the winter in silos to provide

Turn to Page 19

GOOD FARMING PAYS

Every farmer and land owner should be interested in something that will save labor, time, horse-power, seed and make bigger and surer crops.



The Western Pulverizer, Packer and Mulcher will do all this. Its principle is entirely different from any other roller, pulverizer or packer; it does different work and produces far better results. All we ask is a chance to prove it to you at our own expense.

Our ILLUSTRATED CATALOGUE proves our statement and contains lots of valuable information on up-to-date and better farming and is worth its weight in gold to any farmer or land owner who doesn't think he knows it all. Send for it today.

WESTERN LAND ROLLER CO., Box 403 Hastings, Neb.

Big Money in Running Water

Let us start you in business that will make you from $15 to $50 a day when farm work is slack. Other men have done it for years with an

Improved Powers Combined Well Boring and Drilling Machine

One Man One Team

Same rig bores through any soil at rate of 100 ft. in 10 hours, and drills through rock. One team hauls and operates machine. Engine power if wanted. Easy to operate—no experts needed.

Small investment; easy terms. Make machine pay for itself in a few weeks work.

There is a big demand for wells to water stock and for irrigation.

Write for free illustrated circulars showing different styles.

Lisle Manufacturing Co. Box 943 Clarinda, Iowa

Hand Pull Lateral Gates

These gates prevent cutting the ditch banks in order to divert the water and put the water under complete control of the irrigator. They are durable, low initial cost, preserve ditches. May be attached to "Armco" iron pipe outlet conduit any desired length. No cement work required.

Write for our free 125 page catalog, which illustrates and prices these gates, as well as more than 65 other articles for the irrigator including the "Armco" flumes, ditch lining, pipes, culverts, tanks, troughs and grain bins.

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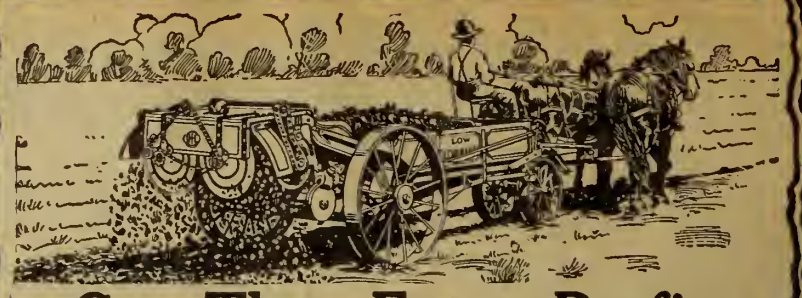
BEES PAY BIG PROFITS

Raise your own honey. We start 50c you right. Send today for 6 months' trial subscription to American Bee Journal (Oldest Bee Paper in America) and get 24 page bee primer with catalogs of supplies free.

AMERICAN BEE JOURNAL, Box G, Hamilton, Ill.



Get That Extra Profit

SAVE stable manure. It's worth a lot of money now. Either spread it when it's fresh and contains all its fertility, or pile it where the losses will be smallest, and spread it as soon as you can. Balance it with phosphate if necessary, spread a little on many acres rather than much on a few, but don't waste a single lump. Stable manure is working capital. With it you can get bigger, better crops off the acres your present help can handle. Waste it, or neglect it, and you are losing an easy, handsome profit, probably more than enough to pay for a new

Low Corn King, Cloverleaf, or 20th Century Manure Spreader.

These machines do the kind of spreading that has been proved most profitable. They are all low, light draft, narrow box, wide spreading machines, made in three handy sizes, small, medium and large. They spread a full load in from three to five minutes, in an even coat that extends well beyond the rear wheel tracks.

Stable manure, properly handled, will increase the crop production from any soil. Buy one of these spreaders and get that extra profit. See the machine at the local dealer's place of business or write us for spreader information you ought to have.

THE FULL LINE OF INTERNATIONAL HARVESTER QUALITY MACHINES

Grain Harvesting Machines
Binders, Push Binders, Headers, Rice Binders, Harvester-Threshers, Reapers, Shockers, Threshers

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Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Stackers, Sweep Rakes, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

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Dairy Equipment
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Manure Spreaders, Straw Spreading Attach., Farm Wagons, Farm Trucks, Stalk Cutters, Knife Grinders, Tractor Hitches, Binder Twine

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A horse with bruised, galled and chafed neck or shoulders can't earn his feed. Whipping only increases his suffering. You can prevent such injuries for less than the price of a good whip. Equip your faithful animal with Tapatco—The pad made with our

NEW PATENTED HOOK ATTACHMENT
(Found Only on Pads Made by Us.)

Consists of wire staple with felt washer. It gives hook a firmer hold and prevents pulling off, even though fabric is weakened by long usage. Life of pad is thus materially lengthened. This is the greatest improvement since we invented the hook.

STUFFED COLLAR PADS
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are better than other kinds. They are soft, springy, absorbent and serve as a guarantee against bruised, galled and chafed shoulders. Ask your dealer for Tapatco Booklet.

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4 HORSE PLOW

3 HORSE WAGON

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GOOD SEEDS

GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K— money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.

R. H. SHUMWAY, Rockford, Ill.

Tillage Experiments with Corn

A. M. TEN EYCK

The writer conducted several tillage experiments with corn in 1917 on Mr. C. S. Brantingham's farm near Rockford, Illinois. Mr. Brantingham is president of the Emerson-Brantingham Implement Company and owns and operates a 200-acre farm near the plant. The tillage experiments were undertaken for the purpose of comparing different kinds of plowing and different depths of plowing in preparing land for corn. The plowing compared was done with the farm tractor, using the moldboard plow, the disc plow and the deep furrow plow. The plowing was completed between the dates of May 6th and 19th.

The yields of corn secured by the use of different plows and different depths of plowing are given in the following table:

Plot No.	KIND OF PLOWING	Yield of Air-dried Shelled Corn per Acre
1	4 in. deep, moldboard plow	31.68 bu.
2	6 in. deep, moldboard plow	34.69 bu.
3	6 in. deep with disc plow	35.44 bu.
4	9 in. deep with disc plow	35.21 bu.
5	12 in. deep, deep furrow plow	29.95 bu.
6	16 in. deep with furrow plow	25.83 bu.

A comparison of these yields shows that plowing six inches deep gave the largest yield, both with the moldboard and the disc plows. Shallow plowing four inches deep with the moldboard plow yielded three bushels less per acre than the six-inch plowing. The disc plowing six inches deep yielded three-fourths bushels more per acre than the moldboard plowing at the same depth. The results are favorable to medium plowing, six inches deep and slightly favorable to disc plowing.

The lowest yields were produced from the land that was plowed with the deep furrow plow. The corn on these plots did not make quite so good a stand and did not mature quite so well as the corn on the other plots. The average yields from different types of plowing are given as follows:

Moldboard plowing.....33.18 bu. per acre
Disc plowing.....35.32 bu. per acre
Deep furrow plowing.....27.89 bu. per acre

Due to the unfavorable season and to the fact that the corn did not mature well in 1917, these results cannot be considered conclusive, but the indication is that medium plowing six or seven inches deep on brown silt prairie loam soil, such as was used in this experiment, will give better results in spring plowing for corn than deeper or shallower plowing.

Comment by Parsons

The above experiments by Professor Ten Eyck are interesting to dry farmers as tending to demonstrate that even in a wet state plowing counts for very little unless the soil is allowed time for settling or compaction. To plow in May for corn and plant immediately is the poorest possible way to raise corn.

It will be noticed that the six-inch plowing did the best. Why? Because it requires about half the time to settle and become solid enough to raise a crop that twelve inches would require. Land plowed this deep (12 inches) is not ready to plant to corn for three or four months, to small grain not for five or six months, but a heavy precipitation will shorten these periods. It is to be hoped that Professor Ten Eyck will plant these same plots to corn again and tell us the results.

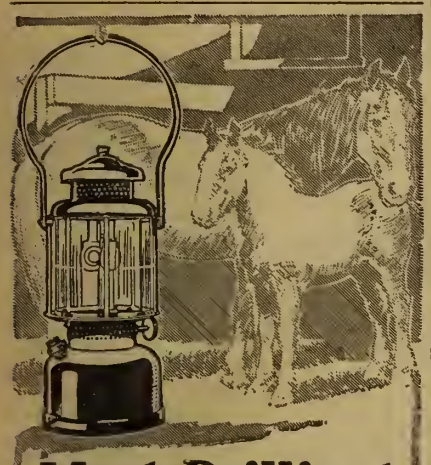
These one-season experiments are of no practical value, for the work done one season may bring in returns and have its influence on the land for several years. Dry farming especially is farming for the future, for all good work has a cumulative effect on production, which becomes more pronounced as the years roll by. It is altogether this way with deep plowing.

As a contrast to these experiments which produced about thirty bushels of corn per acre in the great corn state of Illinois I will tell you what a boy did in the dry districts of North Dakota which everybody says is not a corn state.

In 1917 (I haven't his record yet for 1918), he raised 103⅓ bushels on a single acre, measured and recorded by the Farmers' Institute of De Lamere, N. D. His name is Walter Granland. The land was plowed twelve inches deep the year before, and again in the spring eight inches before planting. The year before that he raised 90 bushels; before that 98¾. Can any six-inch man raise half of that? It is becoming pretty well recognized by the best farmers in western Kansas, Nebraska and eastern Colorado that the best crops are made by plowing as deep as possible in the fall and then cross listing in May. Mr. Crosby of Wray and many other farmers have told me that this method has just about doubled their crops over and above the old way of plowing in May and planting immediately. The deepest that we dare to plow for corn in the spring is ten inches in February or March. If this depth of soil is properly disked and harrowed it will produce at least one-third more than any six-inch plowing in May.—E. R. PARSONS.

The spectre of famine abroad now haunts the abundance of our table at home.

Begin to save for the Victory loan.



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Lights With Common Matches

Most brilliant light made. Brighter than electricity. More light than 20 oil lanterns. Cheapest—costs less than ⅓ of a cent per hour. Most convenient—no wicks to trim, no globe to wash or break, no dirt, grease or odor. Can't spill—no danger if tipped over. **Guaranteed 5 Years**—will last a life-time. Thousands in use on farms in all parts of the country.

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Sonderegger's Mammoth Wax Bean is a giant. Pods 8 to 10 in. Absolutely stringless and enormously productive—often as many as 50 pods on a bush.
Sonderegger's Summer Ballhead Cabbage unsurpassed as a keeper. An all-summer variety.
Sonderegger's Golden Sweet Corn (yellow) is a new variety. Much more sugar and much less starch than others. Try a packet.
Sonderegger's Prizetaker Onion is the largest and handsomest Yellow Globe Onion. Reaches an immense size—commands a high price. Delicate flavor.
Sonderegger's Icicle Radish produces an excellent crop when others fail. Very early, fine flavor and keeps crisp for a long time.
Oregon Champion Gooseberry—Fine for table or pies. You will like it.
All kinds of vegetables, flower and field seeds; also Trees, Shrubs, etc. Delicious Apple, 14c, 2 to 3 feet. Get our prices before you buy. Catalog free.

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How I Make Big Money Out of "Ornery" Horses

By J. A. BUTLER

ABOUT two years ago I witnessed up in New York State an exhibition of horse-training that opened my eyes. A man by the name of Mackley took a devil of a mean, vicious mare that hadn't been harnessed for seven months and in a few days had her gentle enough for a school girl to drive. Mackley had taken the mare off the owner's hands for $50 and just ten days after sold her for $175.00. A clear profit of $125.00 in ten days!

That started me investigating. I learned that Mackley had simply used the methods introduced by the famous horse trainer, Jesse Beery. Beery, I learned, used to go about the country giving wonderful exhibitions in colt-breaking and horse-training; but realizing that he could accomplish more by teaching his methods by mail, had given up his exhibition work to spread his horse-training secrets by mail-instruction. Mackley had studied Beery's Course in his spare time and in a few months was able to accomplish magical results with green colts and horses with bad habits.

Other Successes

Mackley's work showed me a way to make some nice money and I determined to take Prof. Beery's Course in horse-training—but before doing so I made further inquiries. Here are what a few of Beery's students said. I'll let them tell of their success in their own words.

Mr. S. L. Arrant writes: "Just to test Beery's methods, I bought the worst balky, kicking, fighting horse I could find. Paid $65.00 for him. After handling him only a few hours according to Beery's system I sold him for $135.00.

Mr. Dell Nicholson, Portland, Mich., writes: I have trained a four year old mare that was given up by everybody. Bought her for $35.00, and now have her so gentle, my little boy handles her. Wouldn't take $200.00 for her.

Dean L. Smith, Findley, Ohio, writes: By following Beery's instructions have changed a worthless, dangerous balker into a horse worth $225.00.

Everett McBlock, Elkhart, Ill., writes: Have just broken a pony to drive and taught it some tricks. Owner bought it for $17.50. Paid me $40 to train it. He just sold it to a show company for $150.00.

How I Work

The big source of my income is in buying up "ornery" colts and horses at bargain prices, and after training the animals, selling them at a good profit. However, I also pick up good money handling colts and training horses for others on a fee basis. For instance, a farmer had a beautiful driving bay that had the bad habit of shying. A piece of paper blowing across the road would set the horse crazy. The owner thought a great deal of the animal, but couldn't take chances on the shying habit. A friend of his for whom I had done some work put this man in touch with me and in a few hours I had the horse completely cured of the habit—for which job I received $50.

Curing Bad Habits

You can see from this that my work consists not only in breaking colts and "gentling" vicious horses, but in curing the various bad habits a horse can have—such as shying, balking, fear of automobiles, etc., pulling at hitching strap, pawing in the stall, etc. etc., Beery's methods of colt breaking are particularly amazing. Under the old way of handling green colts one usually had to half kill the horse as well as himself to accomplish anything—and then the colt was usually spoiled or hurt in some way or other. But, when you apply Beery's principles, there is no hard, long work or injury to the colt.

No one should have a biting, kicking or balky horse when it is so easy to cure these vicious habits. No one should attempt to break in a colt the old fashioned way when Beery's methods make the task so easy. To every horse owner, to every lover of horseflesh, my advice is to get acquainted with the Beery principles. You can not only make money for yourself, but you can do a world of good, particularly at this day when war-demands have placed a premium on horses.

Wonderful Book Free

I have been requested to state that Prof. Jesse Beery will send his remarkable booklet, "How to Break and Train Horses" free to those interested. It is a booklet well worth having as it reveals some startling information on horse-training. I have heard men who considered themselves expert horsemen say that the booklet was a revelation to them. There is no use in my going into details on the booklet when you can get it free for the asking.

Just drop a line to Prof. Jesse Beery, Dept 501 Pleasant Hill, Ohio, and the booklet will be sent free by return mail. A postcard will do as well as a letter.

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Use of Manure Spreaders

Improper handling of farm manure causes an annual loss to farmers amounting to many millions of dollars. This does not take into account the loss that occurs by reason of failure to utilize this source of fertility at all, but merely that, due to lack of proper methods of applying the manure, as well as poor methods of keeping it before it is applied to the land. Manure needs protection from the action of moisture and winds; it needs to be kept damp, but must not be exposed to leaching, nor allowed to get dry enough to fire-fang. A most important consideration is the method of application. The use of a spreader is essential, if we are to get the full benefit of evenly distributed fertility, applied at the right time. On the cover page of this issue will be found an illustration made from photograph taken in the Northern Colorado sugar beet districts, where manure is applied by farmers who practice crop rotation and who either keep a dairy herd, or feed beef cattle or lambs, and who count the manure one of the most profitable by-products of the farm.

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Prof. Morton's Department

Announcement of editorial plans in the issue of January 1st made only brief mention of the fact that Prof. Morton would continue as our livestock adviser during 1919. There has been such a tremendous development along dairying and hog raising lines in the last year that we have decided to give that branch of livestock more attention than heretofore. Prof. Morton's articles will hit the bullseye in every issue.

He starts in this issue with an answer to questions from Mr. L. E. Harbour of Pueblo county, whose 80-acre irrigated farm is just going on a dairy and hog basis. What he has to say to Mr. Harbour will apply to a hundred other farmers, who are getting away from the all-grain farm on which the fertility is hauled away to the elevator. In subsequent issues Prof. Morton will take up "Milking Machines," "Co-operative Shipping Associations," "Self-feeders for Hogs," "Pasture for Dairy Cows," and—most important—"Dr. McCollum's Discovery of Vitamines." This subject is of interest to all farmers; to dairy herd owners, because it gives us the reason why milk is essential in the diet—why humanity would perish without dairy products—and to all other classes of farmers because of the effect of this discovery on our methods of feeding farm animals.

Timely articles by such authorities as Prof. Morton often mean the difference between profit and loss on a season's operations. We have confidence in his judgment because, as head of the animal husbandry department of Colorado Agricultural College, he is responsible for the success of purebred herds of beef and dairy cattle, of hogs and sheep. He is also the Colorado State Dairy Commissioner. He has made livestock a lifetime study. It is his profession. He is a breeder, a feeder and a judge. And his knowledge and experience are passed along to our readers as a part of our duty in building up agriculture in these western states.

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Hog Cholera Control

Losses from hog cholera are declining all over the country. A report just received from the United States Department of Agriculture shows that in 1914 the disease claimed 6,304,300 animals which, at $10.40 a head, made the money loss $67,697,461. In 1917 the loss was only 2,952,144 head, which at $11.73 per head, means $32,475,190. Effective control through sanitation and prevention—application of the serum treatment—is responsible for this good showing.

In this issue Dr. George H. Glover, head of the Veterinary Department of Colorado Agricultural college, gives us an outline of methods of prevention and control. The article should be read by every hog-raising farmer. It contains information that may save a farmer's drove of hogs and, in fact, entire communities from tremendous losses. Dr. Glover is responsible for banishing hog cholera from the San Luis valley and redeeming the industry from utter ruin in that favored locality. He is worth listening to on this, or any other veterinary subject. His advice is sound and sensible and the methods he advocates are practical. They have been tried and proven effective.

Let's not go to sleep over the immunity that many districts have enjoyed from this disease, or get the mistaken notion that, because losses in the United States have been cut in half, our hogs are safe. Eternal vigilance is the price of immunity.

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The Daylight Saving Plan

Daylight saving is rated a distinct gain to rural life in this western country. It works out for more hours of sunlight during the period of human activity. It has brought many farmers back to the summer schedule of their fathers, offsetting a tendency toward urban hours, due to closer association with the people of the cities, through the rural mail, the daily newspaper, the telephone and the automobile. The farmer can enjoy the socializing influences of these modern improvements without sacrificing the benefits that come from wholesome hours, wholesome food, and wholesome rural surroundings. It will be a sorry time for him should be become a slave to an alarm clock and a steam whistle. His gain from modern tendencies must come in making labor lighter and more attractive, and not merely in fixing an arbitrary eight or nine hour period for labor.

The daylight saving plan approximates sun time and allows the farmer to so arrange his working schedule that it will be compassed within the rising and the setting of the sun. It means a longer twilight for the family circle and for intercourse with the neighbors. In winter it probably means the actual shortening of the labor period, because of the later start. In summer it allows him to make full use of daylight, as may be demanded by the duties of his partcular line of farming.

"Let there be light" was a biblical command, not to turn on a switch but to flood the earth with daylight. Our scientific agriculturists are agreed concerning the beneficial effect of sun-heat on plant growth. This is emphasized in a peculiar way in the higher altitudes of the Rocky mountain region, where certain crops indigenous to lower altitudes violate all the canons of meteorology by ripening in spite of the arbitrarily fixed limits of the weather man's frost free period. The answer is, we get more hours of sunlight, and greater effectiveness of sunlight, because of the rarefied atmosphere and the lack of humidity, the water requirements of the plant being cared for by artificial irrigation, or by the storing of moisture in the soil through scientific methods of cultivation.

What is true of plant life in a physiological way is true of human life, physiologically and psychologically.

The human responds to more hours of sunshine as readily as does the plant; hence our climate has the reputation of being more healthful than in regions nearer sea level, where cloudy, damp days predominate. If we then take greater advantage of our naturally bright hours of daylight we must benefit, no matter if we put in more time at labor. The very vigor of the sunlight enables the greater labor and the keener enjoyment of leisure that follows. The West is not complaining about the daylight saving plan—we like it.

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A Harm Done Our Soldiers

From the standpoint of many people, the European war will have one very regrettable effect—it will make this country a people of cigarette smokers. Before the war sentiment had been created by medical men and teachers of health and morality, that cigarette smoking should be stopped and bills had been introduced in the legislatures of the country to bring about that result. This movement, which all thoughtful people will agree had a most worthy object, was more than offset by the breaking out of the war. Military officers, if they did not recommend cigarette smoking, at least approved it and all sorts of movements were inaugurated all over the country in the enthusiasm of the people for the war, to furnish "Smokes for the Sammies." In this campaign, even the good women who had opposed smoking of any kind were enthusiastic in soliciting. There seemed to be no thought of the care taken in all the cantonments to see that rations were only such as would give the greatest strength and endurance, and the cigarette vice was universally introduced notwithstanding the well-known fact that it would, to a great extent, offset the strength-giving rations.

There are plenty of people old enough to recall that in large portions of the country, in earlier days, it was thought that harvest work could not be effectively accomplished without furnishing the workers with whiskey or other intoxicating liquors. In former wars, strong drink was considered essential. Without this, however, in the recent great struggle there were performed acts of heroism and valor as great as any recorded in history. No doubt, the clearer-headed soldier was able to obtain better results. How the cigarette, with its weakening effects, could materially help in this war has not been explained. The habit, nevertheless, has been fastened upon a whole generation of young men, and habits such as these are difficult to break. The example set by them will be followed up by the still younger generation and it will require many years to again create a sentiment that will adequately control this evil. If we are to have a race of great men in the future we must give more attention to physical training than we have in the past, and bad habits, whether they be cigarette smoking, or others, must be put under the ban, even though the effect may be to compel some people to find other occupations.—E. M. AMMONS.

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The Livestock Show

Of all the enterprises ever inaugurated in the West for the promotion of the livestock industry, the National Western Stock Show at Denver has been most potential. It had a very humble beginning about fifteen years ago. It was started by a score of men, who had a definite purpose for a long campaign of education, nearly all of whom are still actively working for its support and growth. Since its inauguration some of the finest breeding herds in America have grown up in the Rocky Mountain states. Livestock of all kinds has been greatly improved; feeding conditions and grade have been bettered, the output increased to an unprecedented extent and a great central market built at Denver, with millions invested in improvements. In addition to this, Denver and Colorado have been made the center of the industry for this portion of the country, and our capital city has gained untold advantages in trade relations which it did not enjoy before. These things show promise of unusual growth. The tremendous influence which has been exerted in the past will, doubtless, continue in the future until the growing of livestock on every farm and ranch shall be the most successful industry in the West —E. M. AMMONS.

The Branding Iron

Applied by Elias M. Ammons

It is reported from Washington that the Reclamation Service desires to take up one new project in each of the public land states and that the one considered in Colorado is the drainage of the San Luis valley. Inasmuch as hundreds of schemes are proposed and that only a few of these can be undertaken, it is likely the government considers the choice of one in each state will be a fairer distribution than could be had otherwise and in such selection, the best enterprises only will be taken up. The drainage of the San Luis valley would be an especially satisfactory proposition for the people along the entire length of the Rio Grande river. At present there is no outlet for more than one-half million acres of waterlogged land in this valley. The building of canals would not only return this vast acreage to production, but would deliver a large amount of water to the river for repeated use below. It has been estimated by engineers that more water can be secured for irrigation through the building of these enterprises than can be obtained according to the cost, than through any other scheme in the west. In this connection it is said that recent surveys have disclosed a very much cheaper plan than that originally proposed and one which will release considerable more water for use in the valley proper.

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The schedule of all the schools in the state has been much interrupted because of the influenza epidemic. In most of them an effort will be made by continuing the spring term, to complete the year's work. The Fort Lewis School of Agriculture was compelled to abandon its winter term and about the first of April will go upon an all-year or four quarters basis, in order that the plant may be kept in continuous operation. The Agricultural college, beginning practically anew on the first of the year, will attempt to finish up its year's work by the beginning of the summer.

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Uncle Sam, in his hurry to furnish homes for returning soldiers, should not forget that he has a few hundred million acres of public lands needing settlement, and that laws and rules should be very promptly changed to permit the boys coming home to select the best of these agricultural and grazing lands without annoying hindrances. Many of the boys have already made application for lands, some of which have not yet been allotted to them, and there are erroneously withdrawn a great many other tracts which should be open to entry without delay, or settlement permitted on application.

Since the passage of the District Irrigation act, about twenty years ago, fifty-eight irrigation districts have been organized in the state; seven of these have been dissolved, and there are probably a million acres in those now alive. A few of the districts have been quite successful, but many of them have become stranded after a large amount of work has been done on their plants. A part of the districts organized have been wholly unsuccessful, have tied up a great deal of land and are hopelessly involved. A committee of business men, well acquainted with the conditions, has been appointed by the retiring governor to work out an available plan to complete the unfinished projects and liquidate those unable to proceed. If these plans shall prove successful hundreds of thousands of acres of land will be added to the productive areas of the state.

Comment by Farmer Putnam

HEARS FROM FRIENDS WHO ATTEMPT TO HELP HIM DECIDE THE SAUSAGE CONTROVERSY

JOSEPHINE sez I'm entitled to a patent on ways of sluffin labor. She sez Edison cain't hold a candle to me when it comes to inventions of labor savin' devices, fur my own use. If I could pass some of 'em along to you-all she thinks maybe I could do some good in the world. Well it's nice to have that woman approve of somethin' that I do. If everybody had as poor a opinion of T. J. Putnam as his wife Josephine has got, T. J. wouldn't carve his name on the scroll of fame, like he is a-doin' by writin' these here literary articles fur Western Farm Life. One of my friends was up to the ranch not long ago and he said he wanted to see Josephine and ask her if she really took all them sayin's of mine to heart. He felt kind-a sorry fur her, because he thought she didn't have no way of comin' back at me. He took dinner with us and spent the afternoon settin' by the kitchen fire, because it was a-snowin', and when he left he called me off to one side and sez he: "Tom, you-all is the one that needs our sympathy. I don't see how you kin manage to keep even, when she lands on you every day you're to home, while you got to wait fur that twict a month Farm Life. Why don't you start a daily?" I told him that wouldn't do no good, because if I did she'd simply talk in her sleep. As it is now, I git my rest at night anyway.

I started out to tell you all about my labor savin' devices and how they was workin'. Not long ago, I guess it was about December 1st, I had somethin' in the paper about who invented sausage and I left it to you-all to decide between me and Josephine which was right. Well, my friends is comin' through with letters and I kin print some of them and save writin' so much, which is a blessin' fur me and fur all of our readers, because they git tired of the same dish of sass every meal. Onct in a while a change is good and so I'm goin' to print two of the letters. One comes from Wenzel Blach, down in Yuma county, Colorado. He's married; I kin tell because he don't take no sides in this here controversy, but sets on the fence. The other is from my old friend and war hoss, Gad Barney, in the Haswell country, and he ain't married, because he takes the woman's side. Durn them fellers, why cain't they have courage and come out and say what they think?

Wenzel Blach sez: "I like the Western Farm Life; it gives so much information about everything. It is the best paper I get in the house and everybody wants to read it first, especially what Thomas J. Putnam writes. I see he got into a squabble with Mrs. Putnam about making sausage, and he left it to readers to decide. I am not going to decide anything, but I will say, as a dry farmer in Yuma county, the best thing you get out of a pork when you kill him is the sausage, if you make it right. I don't think there is a farmer in this county that will kill a hog and not make any sausage, and it don't make any difference what countryman you are, they all like sausage."—Wenzel Blach.

All right, Wenzel, I kin understand why you don't want to decide. You do just what I been a-doin' fur many years, grindin' up the odds and ends of the hog, with some of the loin in it, and makin' good pork sausage, smokin' it and eatin' it, and it don't make no difference who invented sausage, it's almighty good eatin'.

Now look at what old Gad Barney has to say. Gad is runnin' a section of dry land down in the southeast corner of Lincoln county, and he oughter know what makes good sausage, because he's producin' big type Poland Chinas. He sez:

"My Dear Tom: In regard to your writing in Western Farm Life of December 1st, requesting your readers to decide who was wrong on the sausage question. You sure have my heartfelt sympathy—about as much as a single man can understand the conditions. There have been a few times in my life when, in an unguarded mo ment, I offered advice or information to a man and wife, and each time, as I remember it, it was me that came out second best. However, as in this instance the advice is clearly asked for, at least hy one of the parties to the difference, and there is at least a hundred miles of snow blockade between us, I will make bold to say that Josephine—I mean your wife, not the calf—was entirely right on the sausage question, although if it were the Italians that invented that dish is not for me to say. You may rest assured that it was not the Germans. What the Huns did invent was wurst—and everything else they have done has been getting worse ever since. No, Brother Putnam, the German wurst is not the same as our sausage and you can eat as much as your wife will permit with a clean bill of health and no fear that you will he classed as pro-German.

"Now in respect to the rye bread and kraut. Were it not for the fact that you are a Missourian I would be surprised at your ignorance.

"I would suggest that you borrow a copy of the Allies Revised Dictionary. In it you will find the words: 'Rye bread, obsolete; meaning Victory bread.' Also you will find the word 'Kraut, obsolete, meaning Liberty cab-

Turn to Page 13

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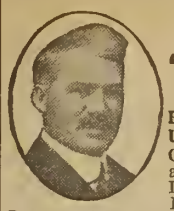

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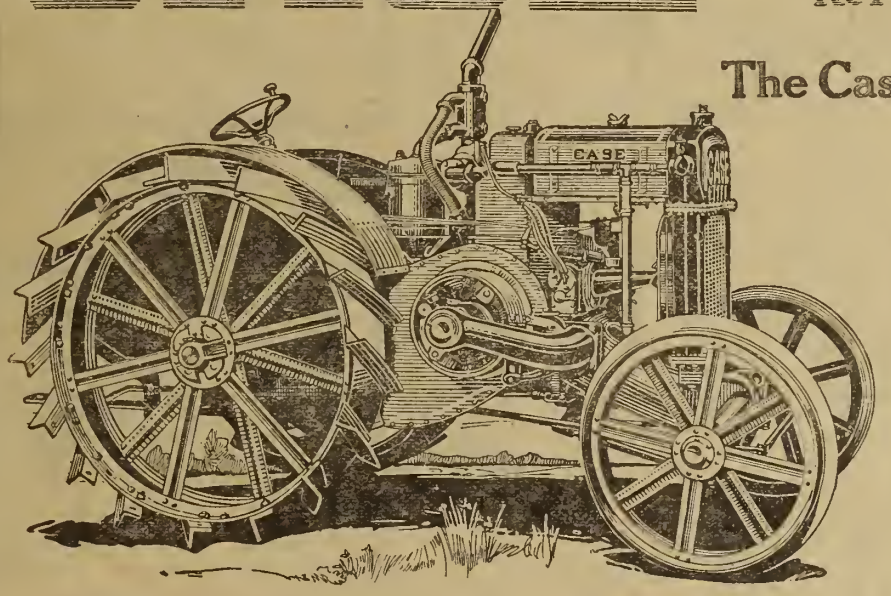

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Trees for Dry Land Planting

Ans. to A. O. P., Arapahoe county, Colo., who wants trees for dry land planting:

I can supply you with American elm, hackberry, black and honey locust, and green ash, young trees, all grown in the U. S. Forest Service nursery at Monument, Colo., under contract for this office. These trees are sold at cost, which averages around one-half cent each, in lots of not less than 25 of each species. Some of the trees are one-year-old and some two-year-old seedlings. Delivery is made in late winter for early spring planting; a price-list will be sent you later on. The hackberries are about exhausted, as the city of Denver has bought the larger part of the supply for park planting.

I can reserve the number of each species you desire upon your order, delivery and payment to be made in the spring. I am not yet in a position to offer tamerix as our shrubs are not yet large enough to furnish many cuttings. Mr. Burton Smith of Chivington, Colo., and Mr. John Clay of Arlington, Colo., have been supplying cuttings of this species.

The tamerix, or tamerisk, is extremely hardy on dry land, grows rapidly, is easily propagated from cuttings, and is ornamental. It will likely become very common and popular for hedges, planting around the underpinning of houses, for ornamental clumps of shrubbery, and for flanking windbreaks as well as for low windbreaks around chicken yards.—W. J. Morrill, State Forester.

Taking Iron out of Water

Ans. to C. G., Bent county, Colo.:

To remove iron from drinking water, all that is necessary is to aerate the water thoroughly, which causes the oxidation of the soluble ferrous compounds to the insoluble forms in which state the iron can be removed by filtration. The iron can also be precipitated by milk of lime and the resulting precipitate removed subsequently by filtration.—Walter G. Sackett, Bacteriologist, Colorado State Experiment Station.

Bean Straw as Silage

M. Bros., Kit Carson county, Colo.: In answer to your letter inquiring about the use of bean straw as silage: Legumes do not make satisfactory silage when used alone. In combination with corn, kafir or sorghum, bean straw would make good silage. It needs some plant that carries more sugar and less protein to mix with it for a combination silage. The best use to be made of bean straw is to feed it dry with silage. It works out most satisfactorily and economically that way, being practically as valuable as alfalfa.

Two Legal Questions

To settle an argument please quote me the law about soldiers voting in time of war or not voting in time of peace as the case may be.

Can a criminal hold the office of president or ex-criminal either?—T. M. R., Arapahoe county, Colo.

1. Where the state of the residence of a soldier permits him to vote when absent, he may vote, but not otherwise. Colorado has no such law.

2. Unless the crime for which the person was convicted was one for which the punishment was deprivation of the right to hold any office of trust or honor in the United States, the conviction of crime would not debar one from holding the office of president. Such a crime, too, would have to be one against the laws of the United States.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Fence on Neighbor's Land

I fenced my land, leaving 30 feet for road. My neighbor fences it in in order to save, putting up a fence on his side of road, and thereby making use of my fence. He put in a gate. I notified him that I did not want him to fence in the 30 feet left by me for road, and he said I could not stop him from doing so. Have I the right to tear down said 30 feet of fence?—C. N., Weld county, Colo.

If the 30 feet of fence is on your land you have the right to tear it down—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Question of Damages

While driving along a country road at night in a buggy, on which I had no lights, I was struck by an automobile and my rig was badly damaged. Can I recover damages, or does the fact that I did not have lights keep me from recovering?—X. Y., Colorado.

The whole question is one of duty and negligence. If the automobile driver owed a duty to the driver of the buggy and the auto driver was negligent, then the buggy driver can recover. The absence of lights would not conclude the driver of the buggy, but might be an element going to show contributory negligence on the part of the driver of the buggy. You have not given me all the facts. If you deem the absence of lights the pivotal fact, then I can only say as above; it is an element for consideration of the court or jury. The absence of the light does not necessarily bar recovery.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Suing For Breach of Promise

Answer to Wyoming subscriber:

In regard to your question about breaking of engagement of your daughter to an officer in the Navy. It is hardly advisable to bring suit in a case of this kind. While such suit may be brought asking damages for distress and humiliation caused by the breaking of a promise to wed, it is seldom that a case of this kind is won by the party suing. It usually causes more trouble

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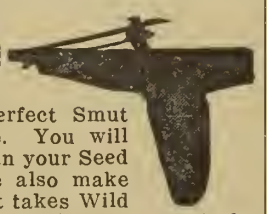

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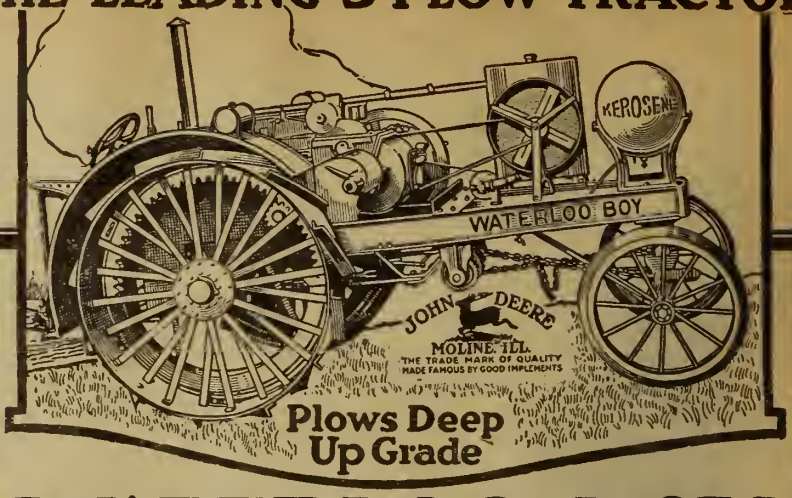

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The two-year-old dam of this youngster is the daughter of Goodnow White Clover, who made 17 pounds of butter in seven days. This individual of good dairy type has nothing but the best blood back of him. Write for particulars.—VanMeter & Krebill, Route 2, Loveland, Colo.

and expense, as well as adding to the humiliation of the girl. The only thing that could be gained would be a sum of money, most of which would probably be used up in court costs and lawyers' fees.

Rule for Measuring Alfalfa

Ans. to H. C. C., Huerfano county, Colo.:

We have measured up alfalfa stacks on the college farm for a number of years, in fact, since 1910, and have weighed out the stacks later so that we have had measurements and tonnages to compare. The following rule will give the number of cubic feet in a stack very accurately:

Q= F O W L

Where F equals a factor, varying from .25 to .37 according to the shape of the stack, .25 or one quarter of the over is used more in northern Colorado than any other figure, although a great many of the stacks commonly found on farms would fall under the rule of .31 of the over; O equals the over, W equals the width and L equals the length This formula simply means to multiply one-quarter of the over by the width and the length which will give the cubic feet in the stack.

The following values for cubic feet will be found approximately correct:

512 cubic feet measured up October 1st is commonly the practice in northern Colorado; where hay has been in the stack 30 days, 560 cu. ft. per ton; 60 days, 540 cu. ft. per ton; 90 days, 512 cu. ft. per ton; 120 days, 485 cu. ft. per ton; from 5 to 6 months, 450 cu. ft. per ton. Native hay well settled in large stacks, 430 cu. ft. per ton.—Alvin Kezer, Chief Aronomist, Colorado Agricultural College.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Oak Leaf Poisoning

In a recent issue of Hoard's Dairyman is a statement by Mr. H. M. Rowe of Maryland to the effect that he had lost heavily in milk production because of his cows having eaten oak leaves. In Colorado the poisoning by oak leaves is a very common occurrence. First, we have what is commonly known as the poison oak, or western poison ivy (Rhus rydbergii), which poisons people by contact sometimes but is not supposed to be poisonous for ahimals. Then we have scrub oak (Quercus gambellii), which is found growing at the lower altitudes of the mountain ranges. Cattlemen are well advised of the "oak zone" and its dangers. We do not know how much of the loss claimed as being due to oak leaves can actually be attributed to them, but the losses claimed are quite heavy. Oak leaves do not have any distinctly poisonous properties, but are astringent and when eaten in considerable quantity cause constipation, or in some instances fatal impaction. The suppression of the milk flow is of course not a factor in western range animals, but has been reported among milch cows in a few instances. Most cattlemen in trailing to and from the high mountain ranges are careful not to hold the cattle too long in the oak zone.—G. H. G.

Remedy for Ear Ticks

Ticks taken from the ears of both horses and cattle have been sent to the Agricultural College quite frequently of late, with a request for information as to the harm they do, treatment, etc. Farmers' Bulletin 980, U. S. Department of Agriculture, has just been received, and is replete with valuable information. This bulletin is especially valuable because it relates the results of much investigation and concludes with a treatment which has been found to be harmless to animals, cheap and effective.

A farmer who is abreast of the times in modern agriculture realizes that eternal vigilance is necessary to guard his animals against what may seem like a thousand and one diseases, ranging from diseases of accident, exposure, poisoning, parasites, to an array of microbian diseases that appear to be ever on the alert and ever on the increase. Ticks in the ears of horses sometimes cause symptoms which lead to investigation of the ears to see what is wrong, but not so with cattle, sheep or hogs. In some instances the ear canal has been found to be almost filled with ticks. They cause much irritation and reduce the vitality of the host. They suck the blood of their host, cause canker of the ear, secrete poisons, and altogether exhaust and deplete the animals to the extent at least that they do not make the gains that they otherwise would.

The remedies used have consisted of such things as gasoline, petroleum, bland oils, etc. These remedies have been found unsatisfactory. Those that are effective in destroying the ticks are too irritating to the auditory canal. It is interesting to note the amount of work that has been necessary to determine just what poison is effective in destroying prairie dogs, rats, gophers, mice, coyotes and wolves. Different poisons must be used, and used in different ways, to be effective. So in the matter of treating animals for ear ticks the government specialists have worked out a remedy which they pronounce as eminently satisfactory. Here it is: Two parts by volume of common pine tar mixed with one part by volume of cottonseed oil. In cold weather this mixture may be warmed until it will flow readily, but should not be heated more than is necessary. Animals object to having their ears handled and restraint will be necessary. Branding chutes with "squeeze gates" will be best for treating unruly animals. An all-metal one or two ounce syringe will be best for making the injection. This treatment will not only destroy the ticks without injury to the animal, but will prevent reinfestation for at least 30 days. One man can treat from 20 to 30 cattle per hour. For full particulars it will be well to secure a copy of the bulletin mentioned.—Dr. Geo. H. Glover.

More Livestock and Silos

Colorado has made a splendid record in its support of government war measures—a record for which we are being commended everywhere. We have loyally and generously supported the Liberty Bond and Red Cross drives and have largely increased our production of foodstuffs. Our boys at the front, "Over There," have brilliantly upheld the best traditions of American arms and have won the admiration of the world.

Our great fighting army—the flower of America's manhood—marched away with a grim smile that told the Kaiser's doom. Over there in the shell-torn wastes of No Man's Land they have done deeds that startled the whole world and all that these heroes (our boys) asked of us was clothing to protect them, plenty of steel and plenty of good things to eat.

Our great feeding army, farmers, dairymen and stock raisers—many of whom have seen sons or brothers march away—compose a grand army extending over the whole country, on whom has rested the responsibility of furnishing good grub for our boys—our brave fighting army. With true American spirit this great task has been carried out in 1918 and now is the time to start for 1919.

Today the government of the United States is everywhere urging conservation of feed and foodstuffs more vigorously than ever. It is not sufficient that we produce more—we must also save more in order to accomplish our task of "feeding the world."

As the silo is recognized as the most valuable single means for the conservation of feed and increased production of meat and milk, the government now urges the erection and use of silos wherever possible.

Since the war began the world's livestock has decreased in round numbers—cattle, 28,000,000 head; sheep, 54,000,000 head, and hogs, 32,000,000 head. This shrinkage must be covered and there's only one way to do it—more livestock and a silo on every farm for 1919.

We are told that livestock prices are not likely to go down for some time to come, and such an assertion seems reasonable. Think it over.—D. W. Thomas, General Secretary, State Council of Defense.

Comment by Farmer Putnam

Continued from Page 11

bage.' If you will study these definitions you will find both dishes more agreeable. It was to a large extent due to the fact that the Allied armies consumed large quantities of sausage Victory bread and Liberty cabbage that they were able to lick the Huns and by the Great Horned Spoon, we'll keep them licked."—Gad Barney.

Havin' settled this here sausage controversy, I want to thank Wenzel and Gad fur their kindness in helpin' me fill this page. I hope you're comin' up fur the State Grange meetin', Gad. I'll be down to Denver then and we'll have a supper of pork sausage, Liberty cabbage and rye bread, and a nightmare follerin' that'll give me somethin' else to write about. I kin git more literary inspiration outen a good, scairy nightmare than most any conversation with Josephine. ,

THOMAS JEFFERSON PUTNAM.

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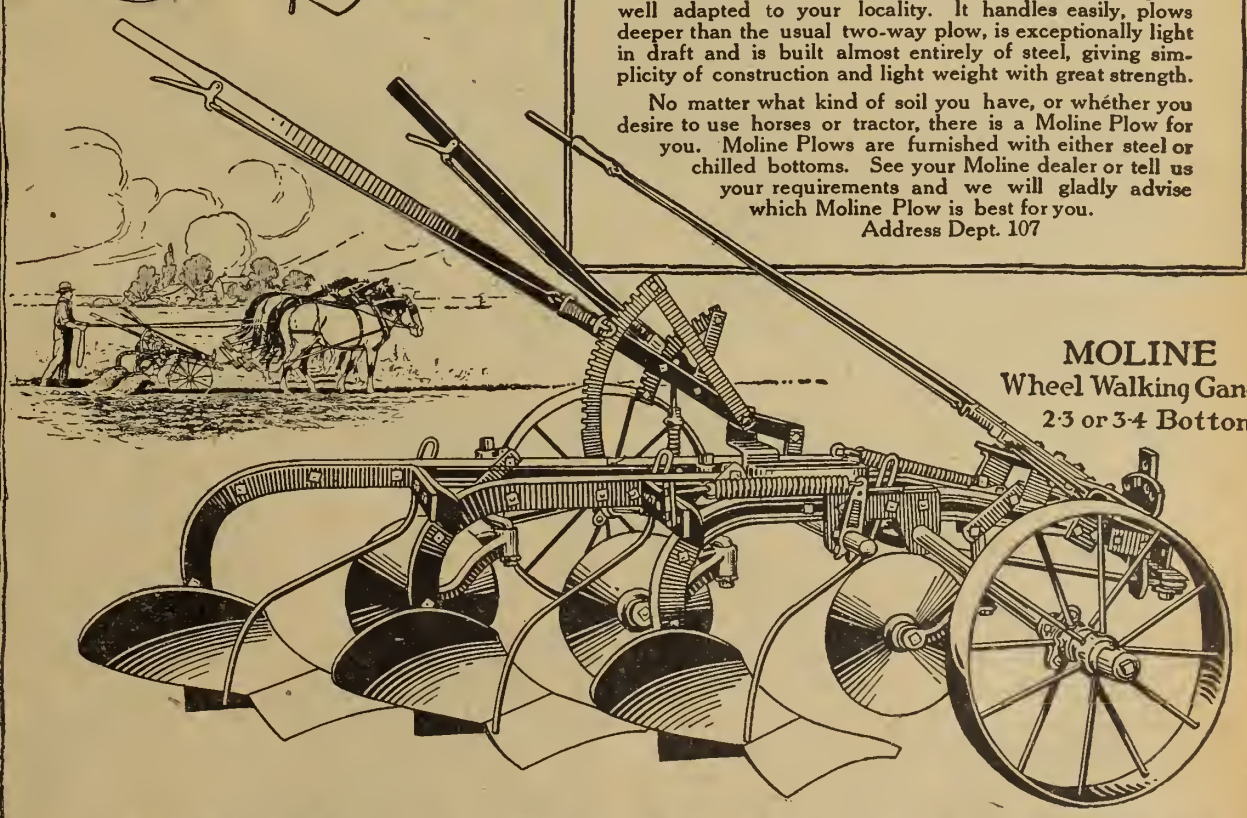

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Steamboat Gold

Continued from Page 6

A pilot knows how such things happen better than anybody else—he knows it in a way that no other man can know."

"You're right about that, Jonathan; a pilot seems to feel it deeper than the next man, too. I guess if I'd had a hay'net socked into my own gizzard that day it wouldn't 'a' give me much more of a twist than that snag rippin' that purty boat like she was a paper box. She swung, and drift took her rudder. She was left there in that b'ilin' river like a man with his hands and feet tied and a log-chain around his neck. No power of man could 'a' saved her, and Captain Randolph sensed it when he felt her shiver on that snag. He got most of his passengers off before the current grabbed her and sucked her down in nine fathoms."

"And she went down in a hurry," sighed Randolph, his eyes still roaming the river.

"Inside of twenty minutes. When she struck bottom her stacks was showin' four foot clear. I can see them stacks now, a red band painted around 'em and scallops at the tops like the p'ints on a crown. She was a Diamond Jo boat, and a big gilt diamond hung between the stacks. Captain Randolph stuck to her to the last, givin' his place in the boat to passengers. He was swingin' onto one of them stays, the river rasslin' to pull him loose, when the last boat made the bank. It was one little favor of Providence the b'ilers didn't bust like they most always did when a boat went down with 'em red-hot and a sizzlin'."

"I've heard there was another brave man clinging to a stay on the other stack," said Randolph.

"Well, I don't know how brave that feller was, Jonathan," chuckled the captain, "but he sure was there, hangin' on tooth and toe-nail, them stacks trimblin' like they'd go the next breath. I never saw the river tearin' up like she was that day, before or since. That was the time she cut through about a mile below that tow-head you can see down there, and made herself a new channel around the Narris."

"And in the river's dry bed in the Narrows, opposite Price City, the wreck of the Morning Star lies, where she went down that morning, fifty years ago."

"Fifteen years before you was born, I'd say, Jonathan."

"Eighteen, Captain Gregg."

"You look older than that. But it's the style of the Randolph's to look older than they are."

"And wiser, maybe, captain."

"Oh, from what I know of 'em they can generally make out their bills without a ready reck'ner. But let me tell you one thing, John; don't go around here callin' it the 'Narrows.' I know it's Narrows, as well as anybody, put down on a chart that way, spelt that way and spoke proper that way. But the folks around here they call it the 'Narris,' always have and always will, down to the last one of 'em to haul a catfish out of the river. If you come in here callin' it 'Narrows' they'll think you're tryin' to show off; they'll resent it, and swell up. That's the Missouri way."

"I suppose it's the human way, all over the world, captain."

"Likely it is, John."

"So it's going to be Narris from this time on, in spite of charts. What is there left of Price City now?"

"Old man Moore."

"You mentioned him a little while ago. Does he cut much of a figure here?"

"Well, he's one of the queerest genluses you ever run acrost in your mortal borned days. I can't say he cuts much of a figger in a way that counts, but he owns the land, as I told you, where the Morning Star's buried."

"Well, I supposed somebody would own it by now. Extended his line out as the water dried up, I suppose?"

"Ex-ac'ly. That's what all of them land-owners along the Narris done as the water dired up out of the old bed in the course of years, and the wash filled it in and made it fit for pastures and fields. Moore had a store down there at Price City—well, you might say he was Price City in them days just about as much as he is now—right on the edge of the river. He had a dock where the big boats used to land, and done a smashin' big business. Well, he's got his old store down there yet. He's got it about like it was in them days, only it's locked up and rat-et and dust-riddled now. He's waitin' for the river to come back to the Narris and fetch the steamboats up to his dock like it did before it cut around him and left him high and dry."

"Waiting for the river to come back, captain?"

"As patient as a hen settin' on a door-knob."

"Surely he isn't fool enough to expect to resume business where he left it off fifty years ago?"

Randolph spoke with a little heat, for there was suspicion of Captain Gregg's sincerity in telling such an improbable tale.

"He always said it would come back," Captain Gregg nodded, undisturbed by the cautious, sparring attitude which his visitor had assumed mentally, as his suspicious eyes betrayed. "I always said his hangin' on that way had more stubbornness than faith in it, and I ain't changed my mind on it, neither."

CHAPTER III
CALEB MOORE

Randolph sat up, rather resentful, a stiffening of dignity over him.

"Do you mean for me to believe, Captain Gregg," he asked, "that any man is fool enough to sit by a dry river bed and keep his business house locked up for fifty years in the hope that a shift of the current will bring his trade back?"

"Fool or no fool, I'll leave you to judge him yourself when you meet him. But that's pre-cisely what Caleb Moore's done. He's more than a mile from the river now, and his store ain't been opened for forty-eight years. Trade went with the river when she cut him off, and he was too stubborn to foller it. Everybody else in Price City went, but Moore told 'em they wouldn't any more than get settled over there till the river 'd come back to the Narris. He believed it, too, firm as salvation."

"He thought it was only a flood shift, and that it would be temporary."

"Yes, he said the next high water 'd put her back in the Narris, and he hunkered down to wait. Well, he's a good waiter; I reckon you might call him the champeen waiter of the world."

"It must have been a costly wait for Moore."

"No tellin' what he lost in that time, in waste and all. He could 'a' turned that stuff once, but he couldn't do it now if he had rivers on four sides of him."

"It's the strangest case I ever heard of," said Randolph, no further question in his mind that Gregg was telling the truth, "the man must be crazy."

"Some says he is," the old man nodded.

"What do you think about it?"

"No, I don't think he is; I think he's just a 'tarnal fool!"

"But you'd think a sane man would have given up such a fool idea after he'd tried it out a year or two."

"Some men would—you and me would, any man would that wasn't cussed with bull-headedness and pride. That's what was the matter with Moore at the start, and the older he got the deeper it set in."

"So he wouldn't go after the river, but held out that it was the river's place to turn round and come to him?"

"That's about the size of it, Jonathan. Oh, I don't know—I reckon Caleb might 'a' went in time if folks 'd 'a' left him alone. They made a joke out of him stickin' down there to Price City all by himself, and the more they laughed and joked the stubborner he got. Caleb never was a man that could take a joke."

"It surely looks that way."

"He tried it out two or three years—I think it was two, maybe—keepin' his store open, settin' out in front with his chair raised back waitin' for customers and the river. Dang few customers drove around here, and they got scarcer as time went by. That little town you can see down there, New Bend's the name of it, took the place of Price City. The post-office was moved over there, and it's there now, fur as that goes. It ain't much of a town now, but it was a little hummer till the boats left the river back in the early seventies."

"And after a while Moore locked up, did he?"

"Locked up," nodded the captain, his beard making a magnified shadow in the road, for the sun was thrusting under the branches of his elm and smiting him with the full ardor of its declining fire. "He swore the goods 'd lay there on the shelves and no foot ever pass that door till the river come back. Danged fool! Well, anyhow, he's kep' his word, and that's more than you can say of some folks in the Narris."

"Do you think the river ever will come back into the Narris, captain?"

"No man can't say it won't. It's done queer things in my time, but I'd say the chances of it ever swingin' back to that old channel is mighty slim. The land's been fillin' at the head of the Narris for fifty years; it'd take a bigger rise than the one that took her out of it to put her back. But if she ever did take a notion to cut back there, Lord, son! you

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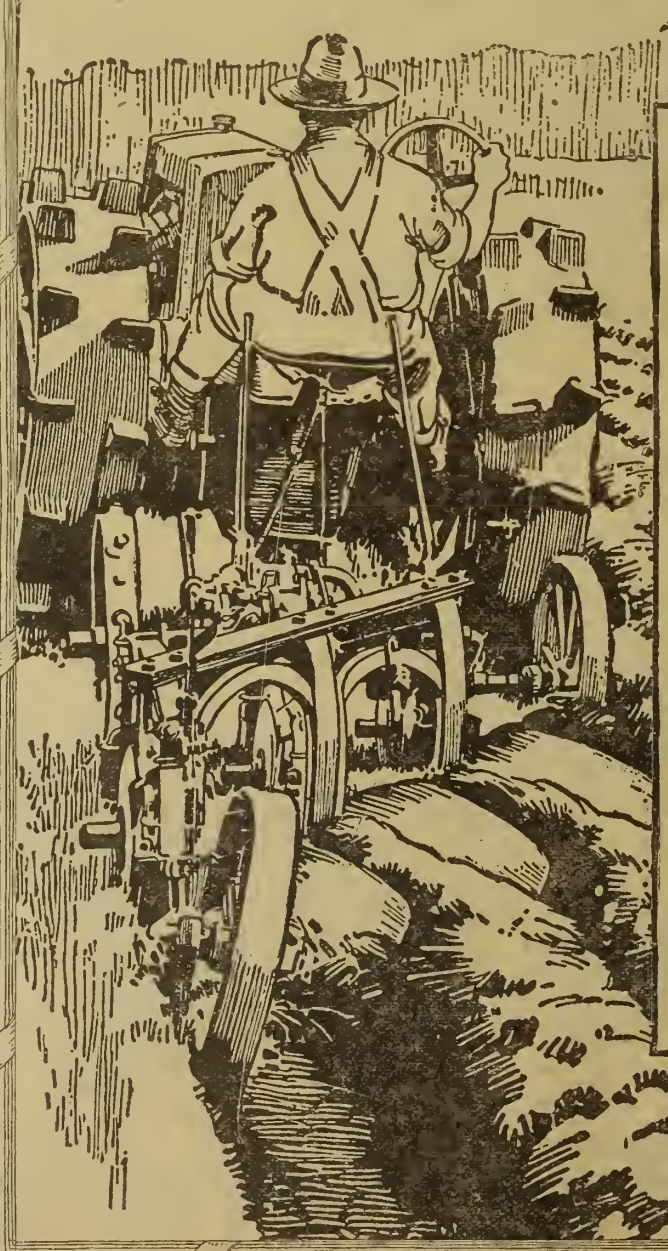

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wouldn't need no steam shovel to uncover the Morning Star."

"I expect she'd make a job of it in a day."

'She would; she'd scour that old channel out and set New Bend away over there in the cornfields. But she wouldn't bring back business to old Caleb, for no man 'll ever see the streak of a steamboat's smoke up and down this river any more."

"It's unlikely, captain."

"It's a settled fact they won't. The days of steamboats on the rivers is past; the railroads knocked us out forty years ago. I tell you, John, I used to wear kid gloves and a stovepipe hat every day, and draw down my eight hundred dollars a month as pilot on this old river. That elm was one of the marks of this ranch in them days, lookin' purty much the same as it does now. I used to joke with the boys and tell 'em when I was ready to quit the river I was goin' to build me a copper-bottomed mansion under it and settle down. Well, I reckon I quit pilotin' a spell before I was ready. Nothin' left to pilot now but sand boats and gover-ment stern-wheelers on revetment work. So I did settle down here, but it wasn't much of a mansion that I built, but it's good enough for an old slip-and-go-past like me. So you aim to salvage the cargo of the old boat, John? well, well, well!"

"I'm going to try for part of it, captain, if I can get permission to explore from that old savage, Moore."

"Yes, part of it's worth lookin' for. Her main cargo was whisky—you know it though, I reckon."

"Yes, I know."

"Nine hundred barrels of Mononga-hela whisky, brought down the Ohio, goin to Leavenworth and Saint Jo. That whisky't be worth over a hundred dollars a barrel, wholesale, if it could be got at now."

"I suppose it would," Randolph agreed. But there was a manner of indifference about him that caused the old man to look up at him with inquiring sharpness.

"No doubtin' it," he said.

"More than likely the barrels have rotted before now, and the whisky has seeped away."

"If it got away at all it seeped," said Gregg, "for she was buried to the texas in sand and mud when the river stopped runnin' in the Narris. She laid there in the lake the Narris was turned into and settled; inside of a month she was out of sight. But I reckon she' struck rock and stopped, long before this."

"Do you know whether anybody ever explored her?"

"Nothing was ever taken out of her, Jonathan, not even a brass tack. Times was purty hot around here in this country about the time she sunk, and folks was thinkin' more about keepin' their hides whole than pokin' around a wrecked steamboat. I reckon she was overlooked for a while in the excitement of bushwhackin' and hangin' off of folks, one side and another. I know I didn't bother my brains over her till a long time after the war when men begun to hunt me up with schemes for locatin' her and pumpin' out that whisky."

"But nothing's ever been done?"

"No man's ever smelt a drop of that whisky. She was clean out of sight years before they begun to think about it, and long before then Moore he'd took over the land clean over to the bank of Skillet Lake, as they call what's left of the water down there in the Narris. He wouldn't let anybody go soundin' to find her. His claim on the land was good under the law, and he knew it, too, even if he is cracked, as some folks say."

"Of course his claim is good, there's no denying that."

"Always said he wouldn't have no whisky-mine on his farm. She'll lay where she is till he's in his grave, and longer than that I reckon, if writin' can bind them that inherits after him."

"It's strange that Moore never salvaged anything out of her—metal from her—metal from her upper parts, if nothing more. It would have amounted to considerable."

"He always said he wouldn't let no man drive for that wreck, seemed to have a prejudice ag'in the Morning Star because she was loaded with whisky. Folks said he considered it a judgment on her when she was snagged. He never handled whisky in his store, never 'lowed it around him."

"Did you ever hear it said there was anything of value besides the whisky aboard of her, captain?"

"Well they used to tell tales of forty or fifty thousand dollars in gover'ment gold goin' north to pay off the soldiers, but I never took any stock in that. If she'd 'a' had that much of Uncle Sam's money in her safe he'd 'a' been after it like a towhead before ever she settled out of sight."

"You're right, captain; there wasn't any government money in her safe."

Captain Gregg livened up a bit, like a man who has emerged from generalities and arrived at specific and personal proposals.

"Well, I'd bet any man money that whisky's right there in them white-oak barrels today like it was the morning she was snagged," he said, looking round about him as he spoke, as if to discover the man who would have the boldness to face him on the other side of the question.

"It's a durable wood," Randolph agreed, but with such little heat that the old man believed the spirit must be burned out of him.

"And they made barrels in them days," said Gregg. "That whisky's as good as money down there on that deck, and I'll bet any man a wheel-horse on it."

"It may be, captain, but it doesn't matter, one way or the other. I've never given the whisky any consideration, for it never occurred to me that it could have held there in the barrels all this time."

Captain Gregg eyed him shrewdly for a moment, puzzled how any man could be indifferent to nine hundred barrels of whisky, especially whisky more than fifty years in the wood. After a little searching in his visitor's immobile face the old man shook his head.

"Well, you ain't after the b'iler iron," he said. "Outside of the whisky there ain't nothing else worth diggin' ten feet for."

"Yes, there's something else. If you remember the passengers coming aboard in St. Louis—"

"Not one day out of a hundred of days that I've watched 'em, John. It was always alike, carpet sacks, hoops and stove-pipe hats—that's what I can see now when I look back to them loadin' days."

"If you had been watching that day you'd have seen a passenger who boarded the Morning Star at the last minute. Father often told me about the arrival of that passenger, an old man, tall and bony, with thin shoulders and a stoop in his body; gray and starved of features, with a long black coat striking him below the knees. It wasn't anything unusual in those days for men to move in a hurry, with more or less excitement and anxiety in their going."

"You're right it wasn't!"

"But there was something unusual in the way that old man stuck to a chest—a rough box, like a carpenter's tool-chest,, with iron-bound corners—that four truckmen staggered up the gangplank ahead of him with."

Randolph paused, as if considering the need of further explanation. Captain Gregg was not unmoved. He nodded. "I'll bet you it had money in it, knee-deep!"

"There was something so marked in the old man's excitement and strain that father couldn't put him out of his mind. Even after the boat got under way and the heavy chest was safe in the old man's stateroom, father saw that he kept guard outside his door like a man who had murdered somebody and feared that he was followed."

"He had—I'd bet you seven dollars he had!"

"After a while his fear seemed to calm down a little. He locked himself in his cabin and didn't appear at supper at all. Maybe you will remember that there was a commotion among the passengers that night?"

"Must 'a' ben the other pilot's watch," said Gregg, shaking his white head.

"It rose from an alarm and a call for help in the old passenger's cabin. When father and others ran to him they found the old man knocked down and bleeding, his chest broken open, the bags of money in plain sight."

"He'd robbed a bank, or busted up some kind of a gamblin' house, and his pardners had followed him aboard to make him fork up," said Gregg.

"There's no telling what he had done, or where he got the money. But whoever it was struck him had to leave without any of it—the mate saw a man dive overboard and disappear in the dark. The old passenger couldn't give any explanation; he was knocked senseless. Father transferred his treasure to the clerk's safe and locked it up, and next morning before many of the passengers were awake the steamer struck the snag in the Narris and went down."

"And that old feller went with her," said Gregg, conclusively.

"Unconscious of his end."

"How much do you reckon he had in that chist, John?"

"It was all gold and they didn't make any attempt to count it, but father used to say, judging from the weight, it must have run around a hundred thousand dollars."

Captain Gregg came to his feet, with a great deal more vigor in his movement than his years forecasted. He stood looking hard at Randolph, amazement in every feature, the very words knocked out of him by the revelation of a secret that had lain buried with the wreck of his youthful pride so long.

"Heav-e-e-ns and earth!" said he at last. He buckled up his right suspender as far as the slack would allow with a quick, strong jerk; reached across with nervous hand and braced the other with a second tug. All the time he was holding Randolph with such an expression of astonishment that it was as if he feared the young man might fade away and vanish between winks.

"He was bound for St. Joseph, but what his mission was, or what he intended to do with that much money, no man ever knew. Even his name was lost with him, and anxious as somebody was to get hold of that gold that night, nobody ever came to trace it as long as father was on the river. The old passenger seemed to be a man moving in the dark. His mystery ended with him."

"Heav-e-ens and earth!" said Captain Gregg. He tugged at his braces again, buckling himself up until he looked as if he hung suspended in his spare pantaloons, like one coming from a wreck

Turn to Page 22

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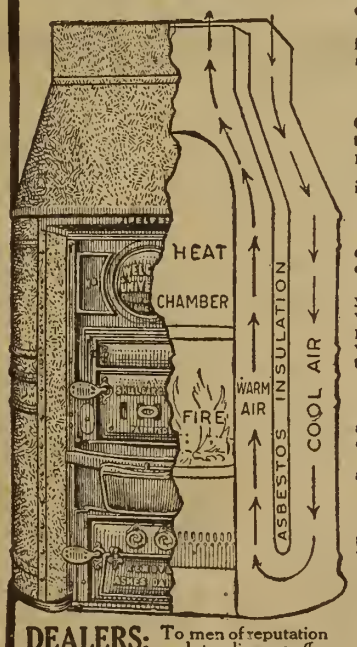

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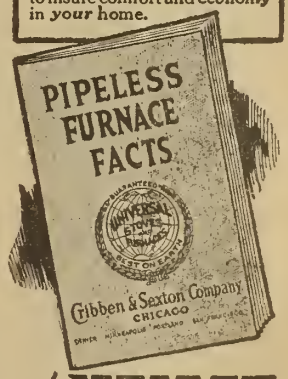

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In 1917 the Huerfano County Farm Bureau made an agricultural survey of the county. In tabulating summaries of this survey it was discovered that there were over 50,000 acres of their farm land badly infested with prairie dogs. When this fact was brought to the attention of the farm bureau executive committee, it was at once decided that one of the necessary projects for 1918 was the eradication of the prairie dog as a farm pest. A request for assistance in eradicating the prairie dog was sent to the U. S. Biological Survey office and the office of the state entomologist, and through co-operation between these two offices the necessary assistance was obtained not only for eradication of the pest on the farm lands, but also the waste land, forest reserve and other public land.

The campaign for the eradication of the prairie dog as a farm pest in Huerfano county began in April, 1918, and through the farm bureau executive committee, the special pest committee, and community committees, it was possible to form six pest districts in that part of the county infested with prairie dogs and in private hands. To meet the necessary expense of the work of eradication, a prairie dog association was formed by resident land owners to co-operate with the Biological Survey; $554.26 was subscribed by this association and $300 was appropriated by the board of county commissioners to employ labor to distribute poison under the direction of the Biological Survey. The poisoned grain and the foreman for the field party were furnished by the Biological Survey at a cost of approximately $1,500. A five-man field party was started on April 22nd, but were withdrawn on June 30th because of lack of funds. After the field party work was stopped 2,226 quarts of poisoned grain were distributed free to the farmers for use on public lands near their farms.

Work of poisoning the prairie dogs continued throughout the season and it is estimated by a representative of the U. S. Biological Survey that from 85 to 97 per cent of the prairie dogs have been killed on the area treated.

Fifty thousand seven hundred and eighty acres of privately owned land requiring 5,078 quarts of poisoned grain were treated by 300 co-operators at a cost of $854.20 and an estimated crop saving of $38,085; and 11,130 acres of public lands were treated by individuals who were furnished 2,226 quarts of poisoned grain, killing approximately 90 per cent of the dogs, saving crop and range pasturage valued at $2,782. The co-operative field party treated 27,225 acres of public land using 9,040 quarts of poisoned grain, obtaining approximately 95 per cent of dogs and saving crop and range to the value of $6,806.

Without the assistance of other co-operating parties, it would not have been possible for the farm bureau to obtain these results, but had not the farm bureau started the movement by asking definitely for assistance and outlining the damage already being done by the prairie dogs, this work would not have been done this season.

In a statement to the county agent, a representative of the U. S. Biological Survey advises that in his estimation $50,000 is a very low value to place upon the work accomplished during the past season in Huerfano county.—From Report of County Agriculturist Waldo Kidder.

Prevent Hog Cholera; Don't Wait for an Outbreak

Continued from Page 3

Serum alone protects a hog for only a few weeks at the best, or until the serum is eliminated. When the serum and virus are both injected (serum simultaneous method) the virus which would kill the animal but for the serum, stimulates the body cells to produce "anti-bodies" or elements which make for a lasting immunity. This, of course, is simply building upon a fact which is a matter of common observation, that animals having recovered from certain diseases will not contract them a second time. So the virus in the treatment gives the animal the disease and the serum injected saves his life. It is very apparent that the potency of the serum and the virulency of the virus must balance each other, otherwise the virus may kill the hog on the one hand or fail to stimulate the production of a lasting immunity on the other. The serum alone is to be considered in connection with the immediate transportation of hogs into new territory, or while being exhibited at a stock show. The simultaneous treatment is always appropriate in communities where cholera is rampant. The results depend upon the accuracy of detail, from the making and testing of the serum, to the care of the hogs after they have been treated.

All of the hog serum plants are now under government supervision and their products are reliable. It is no longer necessary to send east for serum. The Denver Hog Ranch company is producing a serum of first quality and other firms have agencies in Denver. Some of the bad results are unjustly attributed to the serum and virus or to the veterinarian who has administered them. The farmer must come to a realization of his part in following specific directions in feeding and otherwise caring for the hogs, both before and after treatment.

In districts that are remote from hog cholera, farmers should zealously guard their hogs against importations of the disease. In communities where cholera exists, or where there is much liability of infection, all hogs should be kept immune. Pigs should be immunized at weaning time, or before, and to make them permanently secure should be again treated when they have attained a weight of about sixty pounds.

Considering the complexity of the many details involved, common judgment would dictate, and experience has fully demonstrated, that only veterinarians who have had special training and experience should be employed to administer the anti-hog-cholera treatment. In an outbreak he will know which hogs to try and save by therapeutical dosage of serum, those which should be given relatively large doses of serum, and those which should be immediately destroyed. No two outbreaks can be handled in just the same way and both good judgment and professional skill are taxed to the utmost.

In case where hog cholera is suspected the State Veterinarian should be notified at once. He will immediately take charge and help to save the hogs and to prevent the spread of the disease. The law requires that this be done. The Veterinary Division of the Agricultural College stands ready at all times to assist by laboratory and field investigations, to carry on research under special projects, and to promote educational propaganda.

Horse Breeders, Attention

All Colorado horse breeders are requested to attend a meeting at the Albany hotel in Denver, January 23, 7:30 p. m., for the purpose of forming a state horse breeders' association. Mr. Wayne Dinsmore, secretary of the Percheron Society of America, will be present to address the horsemen. The object of the meeting is to discuss urgent matters of legislation to come before the assembly now in session at Denver. Ways and means of closer co-operation for the benefit of the horse breeding industry will be presented and discussed.—R. W. Clark, Livestock Extension Specialist,

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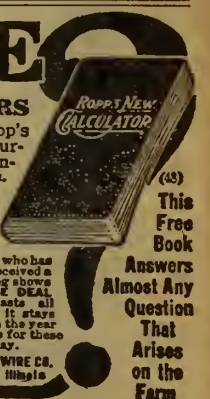

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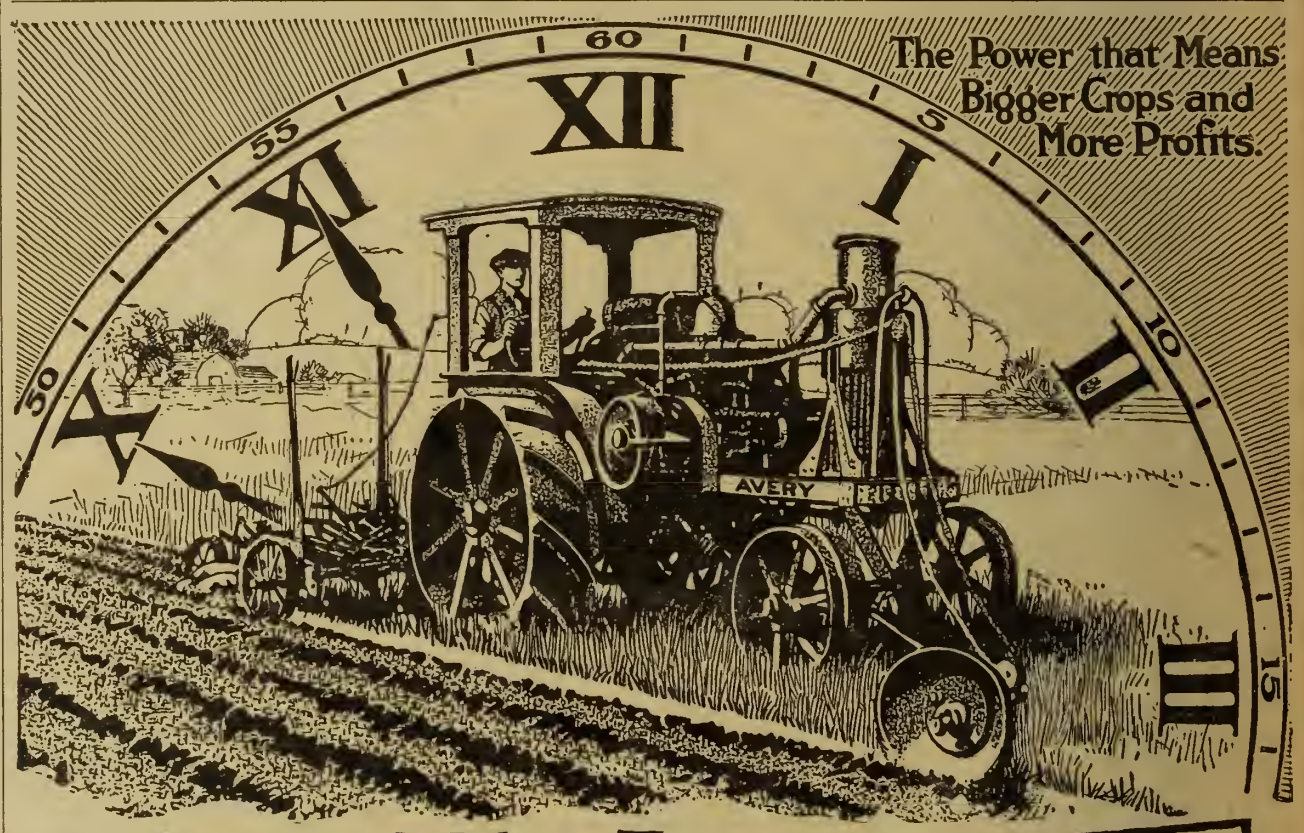

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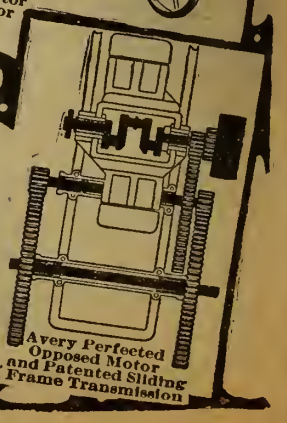

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Starting a Dairy and Hog Ranch of 80 Acres

One of our correspondents has written us that he is starting with 80 acres of irrigated land near Pueblo and wishes to know what practices he should follow. The letter is typical of the information desired by people starting in dairying in this state, and the discussion of a number of the points to be considered should be of benefit to many of our readers. The inquirer gives the following statements with regard to his conditions:

1. I have 80 acres of irrigated land mostly in alfalfa, and all the prairie pasture I can use.
2. I have fifty head of grade heifers of the best herd in Pueblo county, high bred grades. They will freshen in the next nine months.
3. I have the best Duroc hogs that can be bought, pure-bred and papers with them. Will have quite a bunch of March pigs.
4. I am putting up a cow barn and silos.
5. I am feeding out 50 head of white face steers on ensilage now and 40 head of hogs.
6. I never had much experience in the diary business. I have capital enough to carry out the dairy and hog business. All I am trying to do is to get on the right track to start off with.

The first thing to be considered with regard to this business proposition is whether dairy cattle, hogs and fattening steers are suitable as a livestock combination on one farm. If dairying and hog raising are to be the main source of livestock income it is doubtful whether steer feeding should be entered into. Dairying and hog growing make an ideal combination, because skim milk is very necessary in getting the best growth from young pigs. Cows require considerable pasturage, and not a great amount of grain compared with the amount hogs use. With plenty of pasture available for cows the labor of dairying lessens during the summer at the season when close attention to pigs is required, if a large per cent of them is to be saved. In the winter the work with the dairy becomes much heavier, and the work with hogs can be lessened and become more of a routine by the use of self-feeders.

The fattening of steers brings in an additional element of labor during the winter when the amount of labor used is already great. I would be inclined to advise discontinuance of steer feeding.

Eighty acres of land will not be sufficient to take care of fifty head of cows and any considerable number of hogs, except by the purchase of grain from off the farm. Grain crops must be grown on the farm in order to cash in on the fertilizer which will be put on the land by the alfalfa and by the use of barn manure. Cultivated crops will be necessary to keep the ground from becoming foul.

Fifteen acres of corn for silage will be sufficient to yield the amount of ensilage needed for the dairy herd during the winter. It would probably be advisable to hold about twenty acres in corn, using the additional acreage for feeding hogs. Fifteen to twenty acres can be put in oats, as the heavy Colorado oat, weighing over forty pounds to the bushel, is the most satisfactory grain feed we have for dairy cows. Oats will also put more bone and frame growth into gilts that are to be raised for the breeding herd than can be obtained by the use of corn or barley. This would leave forty acres of alfalfa which should yield from 120 to 160 tons of hay. This is sufficient for about forty head of cows.

There will be horses on the place to feed from both the oat supply and hay supply. The hay would come very close to taking care of forty head of cattle and horses on the place. The oats should yield 80 to 100 bushels per acre if the soil is in good shape with regard to fertility and tilth. The oats supply would not be sufficient for the cows, so that some grain would have to be bought for them, and very nearly all the grain supply for the hogs.

The concentrate feed that is purchased for the cows should be cottonseed cake, which would be fed chiefly while the cows were upon prairie pasture. Our native grasses in this country are deficient in protein, and this is supplied in a concentrated form most cheaply in cottonseed cake. Corn gluten feed can also be used, and may replace the cottonseed cake if desired. Silage should be fed during all the period that tne cows are on dry feed in the yards. If there is a sufficient supply, it may also be fed in connection with grain during the summer pasture period.

The Duroc hogs, being registered, will furnish a source of income somewhat different from that to be got from commercial hogs. Only one litter a year should be farrowed. Fall pigs make a much slower growth than spring pigs in any case, and when one is breeding purebreds, the sows can be kept in better shape with only one litter a year; also the demand for purebred pigs begins in the fall and extends through to about February, and then there is only a slight scattering demand the rest of the year. Self-feeders can be used for young pigs as well as for the shoats six months and over. Arrangements

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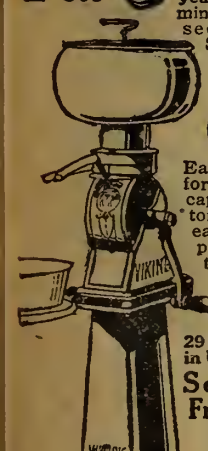

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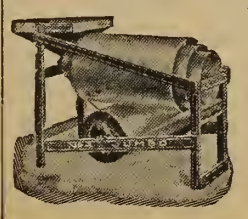

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before you sell it. Keep the Oats and Screenings Home for feed. The JUMBO has a 60-bushel capacity per hour. The JUMBO cleans all kinds of Grain for Seed, and the only perfect Cockle and Pea Mill made all in one. You need it, as you will save the price on a small amount of Grain and Grass Seed. For Smut, use the Imperial. We guarantee your crop will be free from Smut at little cost. Our prices are the lowest. Direct to you. Write us for full particulars and save $10.00.

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should be made, of course, for growing pigs to be penned according to their size, with not over ten or twenty to a pen, so that all may have an equal chance at the feeding trough. This is necessary even with a self-feeder, as large pigs will crowd smaller ones away.

The business of breeding purebred hogs should be gotten into gradually, inasmuch as that kind is built somewhat slowly, the scope of business increasing with the widening knowledge of the integrity of business dealings carried on by the owner of the farm. One can easily become too ambitious in starting out with purebred hogs and overstock to an extent which will compel the unloading of the pigs upon the commercial market. This is unprofitable business, as the growing of purebreds is much more expensive than growing commercial hogs. The original sow stock cost more; the sire heading the herd costs more, registration also costs something, and the man must have bigger margins than that found with pork hogs in order to make a profit.

I would be inclined to have all of the heifers now upon the place freshen before selling any, and then gradually cull out the poorest of them and try and retain a herd of about forty.

There appears to be good prospects both for dairying and the hog business, and those entering the combination business conservatively and with careful attention to details should make a success of it.—G. E. M.

Bean Straw for Silage

A correspondent desires to put bean straw in the silo. It can be done, of course, by wetting down the straw very thoroughly, but it does not make anything like the quality of silage that is gotten by putting green material into the silo. I am surprised that bean straw does not seem to be a satisfactory feed in this case, inasmuch as reports from over the state have uniformly stated that cattle like bean straw better than grain straw, and eat it reasonably clean. The method of using cottonseed meal with the bean straw is satisfactory insofar as it is used to correct the laxative effect of the bean straw. In feeding these two feedstuffs together, protein is being fed in large quantities, and the rest of the ration should be balanced by making it up chiefly of carbohydrates. —G. E. M.

Non-breeding Heifer

Some heifers are barren and cannot be gotten with calf. Usually, however, a heifer that takes repeated services can be gotten in calf by opening the womb at the time of heat, and giving service the same day.

Instruments for the purpose of opening the womb can be obtained from dealers in cattle equipment or veterinary supplies, but home-made ones have been used successfully. A good quality, fine-grained, hardwood broom handle should be tapered off to a pointed end about four inches long, and smoothed with a draw shave or a piece of glass. This must be carefully done, so that no slivers or sharp edges may tear the womb.

The arm of the operator is thoroughly cleansed and disinfected, and covered with a little soap and vaseline. The arm is then inserted in the vagina, and one finger worked into the mouth of the womb. This is often a very difficult and tiring operation, as the tightly closed womb does not open easily.

As soon as a large enough opening is secured, the point of the enlarging instrument is inserted and revolved until the opening is made somewhat larger. Service is then given.

If the heifer does not get with calf, repeat the operation at the next period of heat.—G. E. M.

A Johnstown High Producer

Tahmeroo Piebe Mechthilde 2nd (205076), a Holstein cow owned by S. A. Gray of Johnstown, Colo., recently produced 88.2 pounds of butterfat in 30 days from 2,207 pounds of milk. She was also tested for A. R. O. and in seven days produced 20.3 pounds of fat, or 25.3 pounds of butter, from 478 pounds of milk. The record was furnished us by Roy M. Curtis, tester

Tahmaroo Piebe Mechthilde 2nd

for the Johnstown Cow Testing association. The district is famous for high production cows and the Cow Testing Association has helped the farmers to weed out the unprofitable animals.

An annual show is held in the Johnstown district during the late winter, at which there is lively competition between the various breeds, as well as individual animals, for supremacy, not only from the standpoint of type, but also of production. Dates for the 1919 show will be announced soon.

After Veracity, with her 40,080 pounds of milk in four years, comes the news of Waterloo Baroness 2nd with her 62,601 pounds yielded in six lactations, and there are other record-breakers in the offing. Let the good work of publicity go along. The Americans still do not believe that we have the milking Shorthorns there are to be found over here and which only need bringing into the limelight. —London Live Stock Journal.

654,375 Holsteins Recorded

Volume 38 of the Holstein-Friesian Herd-Book is off the press and ready for delivery. It contains a record of all purebred Holstein-Friesian cattle approved and admitted for entry since the close of volume 37. The registrations include bulls numbering from 216626 to 230705, and cows from 391506 to 423670 —a total of 14,080 males and 32,165 females recorded between September 1, 1917, and February 26, 1918. The grand

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good B. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
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I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

$25—HOLSTEINS—$25

Five weeks old, 15-16 pure, mostly white, $25 crated. Two months old, $35. Registered bulls two months old, best quality, $70. Two-year-old springers, $125. Cows crated, $150. Write us for car lots. Buy the best —it pays in the end. Dr. J. A. Roberts Stock Farms, Oconomowoc, Wis.

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Open and bred gilts sired by or bred to "Western Cherry King Orion," first prize under year boar at Colorado State Fair, 1918, also a few young boars ready for service. E. D. HARDMAN, Route 1, Pueblo, Colo.

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It is estimated that nearly a billion bushels of grain are wasted because it is fed whole. As a patriotic measure this waste must be checked. The best way to stop this loss is to feed the most acceptable substitute for corn and that is

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It is really better than corn for all feeding purposes because it is the best feeding part of the grain. It contains more than three times as much protein and two-thirds as much starch as whole grain.

Don't feed an expensive whole grain ration when you can buy Douglas Corn Gluten Feed for less than the cost of good corn. It will increase your net profits in the production of beef, pork or milk.

Douglas Corn Gluten Feed is made in the corn belt. It is an absolutely pure corn product—clean, uniform in quality and almost wholly digestible.

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Manufacturer of Corn Products

total registrations of Holstein-Friesian cattle recorded in the Herd-Books to date reach 654,375, with volume 39 in course of preparation.

Volume 38 contains a complete record of animals registered, their age, sire and dam, also their breeders and owners. The price charged for the Herd-Book—$2.75 delivered—is much below the actual cost of compilation, and every owner of purebred Holstein cattle should avail himself of the opportunity to obtain a copy by ordering one immediately from the office of The Holstein-Friesian Association of America, Brattleboro, Vt.

Pancake's Sale of Jerseys

A letter from J. D. Pancake of Berthoud, Colo., gives the following information concerning his recent sale:

It is with a good deal of hesitancy that a farmer of ordinary means has anything to do with purebred stock. He looks upon that business as a rich man's job. If he were sure of a ready outlet for his increase and that purebred stock would be much more profitable in the end he would not hesitate to embark in the business. I learned several lessons from my recent sale of Jerseys. I had two good local auctioneers. Their advertising brought in farmers from miles around. But the sale would not have had the snap it did have, had it not been for the fact that the Jersey organization stood by me. The Jersey breeders not only came to buy but they came to boost. Twenty-five letters sent to Jersey breeders were worth more to me in buying than all other advertising. I would under no consideration underestimate the effect of the other advertising, but I do wish to give full credit to the help I got from the other breeders.

When you can have such men as Clark of Fort Collins, McClenahan of Greeley, Hinman and Taylor of Denver, Eversole of Longmont, Lamb of Windsor, Gilliam, Dickle, Baird, and others, you can have a sale.

I consider my sale a success, because it demonstrated that people want good stuff. The sensation of the day was the sale of Landseer's Lad Annie. She is a granddaughter of Sans Aloi. One buyer came here to pay $500 for her, but she had a hip knocked a little. Outside of that she looked every inch the dairy cow. After much spirited bidding, she went to Clinton Eversole, although A. W. Gilliam wanted her badly. She brought $315.

The only regret of the sale was that the herd bull did not go for what he was worth. They are usually a disappointment when it comes to a sale, and the owner was prepared for it in this case. Taking it all in all I was more than gratified with results, as the sale netted me considerably more than I expected. Following is a partial list of the sales:

Landseer's Lad Annie to Clinton Eversole, Longmont	$315
Dora of Wayside to P. C. Lamb, Windsor	200
Bess Barbara of S. D., to Earl Tromble, oJhnstown	175
Elwell's Fortuna, to C. O. Woodmansee, Loveland	160
Herd Bull, Orgetorix, to Kerr and Son, Berthoud	160
Elwell's Silver Belle, to Robert Brown, Johnstown	155
Winchell's Acme, to Joe Jung, Loveland	150
Forfarshire's Two Spot, to Earl Tromble, Johnstown	150
Florence's Majesty Lad, to George Adler, Berthoud	150

Trench Silos Used by Stockmen for Beet Tops

Continued from Page 4

also using some water. He had put in the silo at this time 57 tons of tops from ten acres of beets. He had put in with this 23 tons of wet pulp. Mr. Mansfield considered the pulp a little expensive, as he is 12 miles from the factory and the pulp cost him $4 per ton to put in the silo. The wet pulp sells for $1 per ton at the sugar factory in Lovell. Mr. Mansfield is fattening steers on beet top silage, alfalfa and corn.

While the beet tops work in well with the fattening ration for cattle and sheep, their value is particularly appreciated when fed to dairy cows. One acre of beet tops with the necessary alfalfa hay will furnish one cow with feed for 100 days. Two acres of beet tops are considered equal to one acre of corn silage. If the tops are put in the silo their value is increased Henry's "Feeds and Feeding" shows fresh beet leaves to contain a little more crude protein than silage corn, about half as much carbo-hydrates and one-third as much fat.

Although beet tops have kept well in most cases when put in the silo alone, it is recommended tbat straw or hay be put in with them. The ideal way is to put the tops and straw together through the silage cutter. This method offers an excellent way of utilizing the dry straw that otherwise would be largely wasted. Beet tops, when fed alone from the silo, tend to purge the animals. They should therefore be fed in a limited way at first and with some roughage such as straw or hay. In Europe straw is always put in with the tops, even when they are siloed in the trench. Six or seven pounds of salt is also added for each ton of tops put in the silo. This counteracts to some extent the formation of acid during the process of fermentation.

Dairy Farming in Huerfano County

Continued from Page 8

succulence which will keep the milk coming. He has purebred Poland China hogs, one of his boys being a member of the pig club and a prize winner at the Huerfano county fair.

Another farmer in the same neighborhood who is changing from ranch to farm conditions as rapidly as circumstances will permit, is Mr. John Hamilton. He bought a purebred bull from Spencer Penrose and has some fine high grade Holstein cows and purebred Poland China hogs. Here, too, the influence of the pig clubs is being felt, Mr. Hamilton's boy having grown one of the prize-winners of the county. Beef cattle under range conditions was the chief business on this ranch before the advent of the dairy cow. There is still some beef being produced, but more attention is being paid to dairy stock and hogs.

Huerfano county will not cut down its production of beef materially through the changes that are taking place. The big men in the cattle business are giving more attention to the production of feed crops and handling their cattle on a smaller acreage at a better profit than was possible under all-range conditions. The coming of the homesteader is restricting the ranges and causing the cattlemen to buy land and make long-time leases to protect their business for the future. The smaller men, who have been handling 50 to 100 head a season are, as above stated, changing their operations so that they will be able to provide a constant cash income from milk instead of spasmodic payments for feeders at the end of the annual round-up.

The first shipment of good dairy stock was brought into the county about a year ago from Wisconsin, there being 27 head which went to George Dobson, J. L. Morris, W. D. Russell and others. The second shipment, arriving during the late fall, was financed by one of the banks at Walsenburg and so quickly disposed of that further operations along the same line were decided on. The county is well started now as a dairy section and a creamery is being talked of for Walsenburg.—A. T. S.

New Milking Record

Tilly Alcartra, a registered Holstein cow, has just established a new world's yearly record for milk production on a farm at Woodland, California. In a year's official test her production was 33,424.8 pounds of milk. The test was conducted under the supervision of the University of California, College of Agriculture. Tilly Alcartra takes the honor from Lutscke Vale Cornucopia of Chimacum, a Washington state Holstein, which held a record of 31,246.9 pounds two years ago.

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Your Veterinarian can stamp them out with **Cutter's** Anti-Calf Scour Serum and **Cutter's Germ Free** Blackleg Filtrate and Aggressin, or **Cutter's** Blackleg Pills.

Ask him about them. If he hasn't **our** literature, write to us for information on these products.

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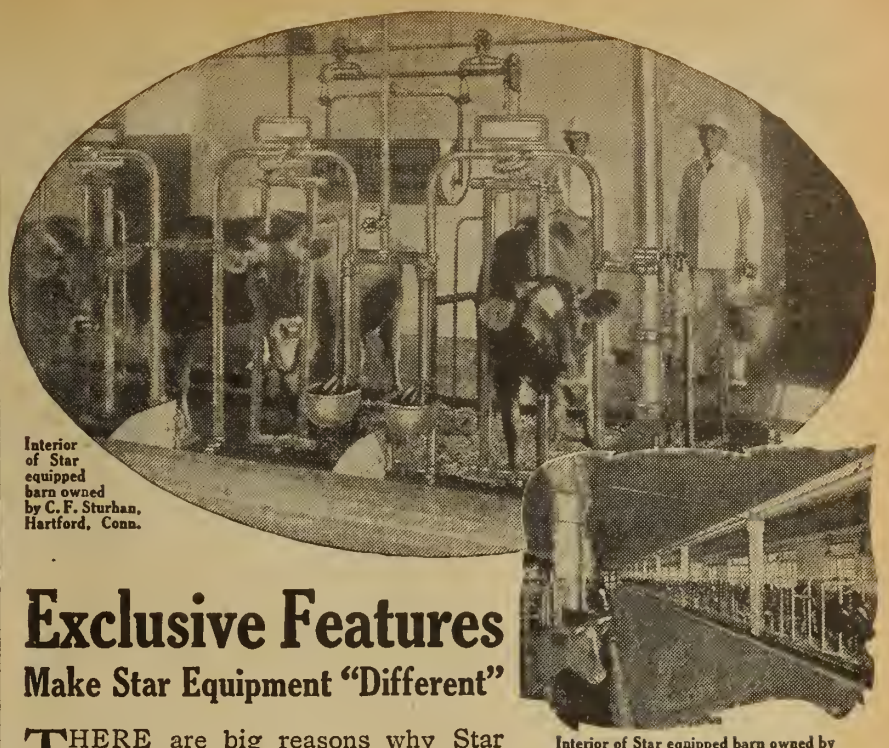

Interior of Star equipped barn owned by C. F. Sturhan, Hartford, Conn.

Interior of Star equipped barn owned by H. J. Krebs, Wilmington, Del.

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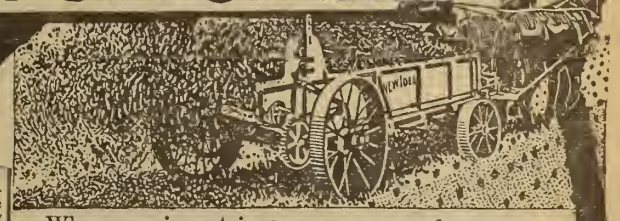

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The evenness and strength of the growth after top-dressing with your machine shows it is a tool no farmer can afford to be without if he wants results. J. H. McCLUER.

Two years ago I bought one of your spreaders, last year I got a second one.
A good Manura Spreader is one of the best paying tools a man can have on a farm. We spread lima as well as manura with your "NISCO" Spreaders. Would not think of running my farms without them. A. S. WELCH

I have used your "NISCO" Spreader for five years. Am so well pleased with the work it does, that I would not have any other. Has cost ma only 30c for repairs and that was caused by my own neglect.
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Original letters on file. Addresses upon request.

When you invest in a manure spreader you are buying an implement that will be the most profitable machine on your farm, if you profit by the experience of others and choose the machine that has stood the test of time. Buy the **original**, the machine which revolutionized old-fashioned methods, which has always been the leader in quality, in sales and in improvements. This machine is the

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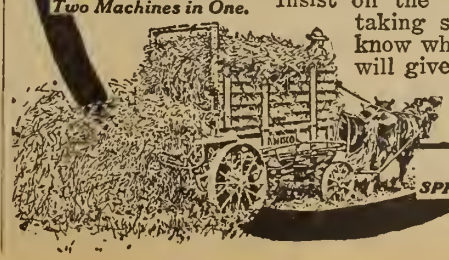
Lowdown, light draft. Loads and pulls without undue strain on man or team. Has solid bottom with chain conveyors. Pulverizes thoroughly and spreads evenly. 5 to 7 ft. wide. Spreads from 3 to 15 loads per acre, at your option, by merely shifting a lever. Drives with heavy sprocket chain—no gears.

See the "Nisco" at your dealer's. Don't wait for him to see you as he is probably short of help. Insist on the "Nisco," and don't buy regrets by taking some other machine. If you don't know who sells the "Nisco," write us and we will give you his name.

Get our Book—"Helping Mother Nature," which gives much new information about manure and soil fertility.

The "NISCO" One-Man Straw Spreader Attachment—Gives you Two Machines in One.



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(10)

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Just as You Make It

Life is just a constant grind,
If you wish to make it so;
All the breezes are unkind,
If you grumble while they blow.
Every hill is bleak and drear,
Not a song bird that you hear
Ever sounds a note to cheer
If you wear the mask of Woe.

Life is triumph, life is joy,
If you wish to make it so;
Why let the little ills annoy?
Toss them off and let them go.
All the woods with glee may ring;
Every season may be Spring,
If you have the heart to fling
Laughter in the teeth of Woe.
—S. E. Kaiser.

Music at Home

Much is being written nowadays on "Why Boys Leave Home" and the departure of the girls is sometimes considered also in these lengthy articles. Many are the reasons given, from weighty sociological ones to such flimsy affairs as those stating that mother wouldn't wash the dishes on Saturday night and let 15-year-old Sue and her young man go to a picture show in town. Some of the reasons why they do leave home are hard to understand, and so it seemed easiest to find some reasons why they stay. Of the families, both in country and town, whose interest in each other and their homes has been a marvel and joy to me, nearly every one has found their common interest in books or music or both; and of those who seemed to get a little more rollicking joy out of life, the music has had a little deeper hold than the books.

There are times when nobody in the family seems to want to read, the children are restless, father and mother are tired or very busy with something else; but an old melody picked out upon an instrument, piano, organ, or even a mouth-harp, brings a bit of enjoyment into the circle. One family which has been a constant source of cheer to the writer, though they live in a snug three-room shelter on a homestead, seem to play everything and sing likewise. Their list of musical instruments includes mouth-harps, jews-harps, octarinas, a violin, a horn or two and an old piano. When they can't find the notes, they whistle, and the mother is a marvel at playing little chord accompaniments for her boys' whistling. No winter evening ever gets very long or very dull in that home, though they're sixty miles from a "movie."

It doesn't seem to make much difference what the instrument is, so long as there is a real enjoyment in its playing, and that is expressed. Few people "hate" music, and where they cannot play, there are mechanical musical instruments ranging from little "talking machines" to very expensive player pianos, which, if rightly used, will satisfy and develop the musical taste. A love of music and of stories are part of people and, therefore, should be expressed in some part of our home lives. The desire for these things in children is much truer than that for other small earthly possessions. It should be fulfilled as nearly as possible by all of us, for these belong to the enduring enjoyments of life. We want to bring back these topics from time to time in these columns and would welcome any suggestions from the readers.—E. D.

Cream Checks and Their Temptations

Whether we know it or not, or whether knowing, we like it at all, we are all part of a big drive the food administrators of the world are making to increase the dairy products of the world. You have been reading, no doubt, of the thousands upon thousands of dairy cattle that have been slaughtered in Europe. Even Denmark which we used to call the home of the dairy industry has suffered its due share, and herd after herd of those carefully bred, wonderfully cared for cattle has had to be sacrificed because of lack of feed. It almost makes you ill, doesn't it, when you think of how terribly hard it is to get just an ordinary good "milk cow."

Now that some of the food stringencies have been adjusted, the attention of all men who have anything to do with the food situation has been turned to the re-establishing of those very necessary herds. All of us are agreed that the Lord has put very few, if any, species of useless animals upon the earth, and about the most useful is that old red and white, or any other reasonable combination of colors you want to mention, animal who "gives us cream, with all her might, to eat with apple tart." You have sometimes thought, no doubt, that the owners of these ball-bearing, self-filling milk wagons were unusually loath to part with them from the prices they ask you or your husband or your neighbor's husband to pay for such. But be very thankful that some of those same good animals are in your vicinity, for the owners may be still more loath next year. Europe is asking and will receive all of our surplus of dairy stock which it is safe to do without and send her.

This very lack of good dairy stock has done more to raise the price of milk than the increased cost of feeding and caring for the cattle. Therein lies the cause of the title of this little outburst. The size of the cream check now is a very real temptation, both to the buyer and seller of dairy products, and therein lies danger.

Women, who have small children, have been heard to boast of the fact that they have reduced their consumption of milk from two quarts to one pint. Other mothers, and in the country, too, have been known to make the statement that they didn't keep a cow, because feed was so high and "anyway milk was such a bother;" still others have asserted that it was much simpler and more economical to sell all the cream and buy the little butter they really had to have. It doesn't take long for the children in those families to show the results of such mistakes, and then the mothers wonder "what's the matter." Nothing takes the place of milk in the diet of growing children, notwithstanding advertisements of some well-known breakfast-foods, wherein is much juggling of such food terms as "calories." Milk, and whole milk at that, contains some necessary substances for which there is no substitute.

If the price of butterfat does tempt you, and you feel like stinting yourself in order that a little more may go in the cream can, just stop and think a minute. The extra half pint of cream of which you have deprived your little Johnny or Mary may go to finishing off a tempting dessert for some over fastidious hotel diner. Upon that basis, whom do you really want to feed, Mr. Sumptuous Eater, or your own family? —E. D.

War Work by Women

The chairman of the Routt county, Colorado, Council of Defense, Mrs. W. A. McKinlay, sent to the State Council of Defense the following report of the work turned in by the women of that county. This was all done in one month:

$30.00	home relief.
65	helpless case shirts.
47	pajamas.
58	bed sheets.
3	convalescent robes.
4	bandage boat socks.
180	pairs socks.
70	comfort kits.
3,190	pounds used clothes.
71	comfort pillows.
142	pillow cases.
14	layettes.
13	children's petticoats.
3	afghans.
32	hand towels.
15	dish towels.
18	wash cloths.
19	tray cloths.
12	women's aprons.
1	boy's suit.
14	pair drawers.
2	shirts.
5	pairs trousers.
3	neck scarfs.
3	women's union suits.
4	girls' union suits.

Interesting the Women

There will be competition this winter in El Paso county, Colo., among housewives in various communities as to which neighborhood can furnish the county with the most helpful ideas. The county paper during the past year has given its "Farm Home Department" into the charge of the home demonstration agent of the Department of Agriculture, working with the State Agricultural College, the county agricultural agent, and their helpers. Each week the department is to be in charge of women of different communities, who will fill the columns with articles and ideas they consider most valuable. Another interesting feature in the same paper is called "Bridget's Corner." This column is under the supervision of the home demonstration agent, who has been giving cookery lessons in it.—Department of Agriculture News Letter.

The above item sent out from Washington, refers to the good work being done by Miss Mary Collopy, County Home Demonstration Agent at Colorado Springs, through the columns of the El Paso County Democrat.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

Waist, 2649; Skirt, 2673—For Business or Home.—The waist is nice for linen, batiste, nainsook, lawn, silk, satin, flannel, pique or voile. For the skirt one might choose sports goods, jersey cloth, serge, plaid or check suiting, gabardine, velveteen or corduroy. The waist pattern is cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It will require 3 yards of 36-inch material for a 38-inch size. The skirt is cut in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure and requires 2½ yards of 54-inch material for a 24-inch size. The width at its lower edge is a little over 2 yards. This illustration calls for two separate patterns.

2655. A Serviceable Costume—Comfortable dress for morning wear. It may do as a house dress or a canning uniform. The lines are loose fitting. The blouse is in one piece, with collarless neck, and may be fastened with buttons or snap fasteners. The sleeve may be in wrist or elbow length. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38

requires 5¼ yards of 44-inch material. Width of skirt at lower edge is about 2 yards.

2652. Simple School Dress—Repp, poplin, gabardine, gingham, galatea, chambrey, percale and linen are good for this model. The sleeve may be in wrist or elbow length. Cut in 4 sizes: 4, 6, 8 and 10 years. Size 10 requires 3 yards of 36-inch material.

2666. Chic Style for Young Miss—Here is a splendid model for the growing girl. It has straight lines and comfortable fullness, and the design lends itself well to all kinds of material. One could combine plaid suiting with serge, or checked or mixtures with contrasting plain fabric. For linen, corduroy and velveteen this is very appropriate. Cut in 4 sizes: 8, 10, 12 and 14 years. Size 12 will require 3½ yards of 44-inch material.

Sugar-Curing Meats

Recipes for sugar curing hams and bacon, asked for by a subscriber:

A Missouri farmer who built up a good meat business uses the following recipe, which is especially fine for breakfast bacon: Salt, 15 pounds; brown sugar, 3 pounds; powdered borax, 1 pound; ground black pepper, 1 pound; saltpeter, ¼ pound. Mix thoroughly, place in a large pan on the stove and keep warm enough so that you can just bear your hand in it. With this mixture rub the meat on both sides until it sweats. Apply all the mixture that will possibly stick. Pack the meat away in barrels or boxes for ten or twelve days; hang and smoke with hickory wood or corn cobs until a nice straw color is obtained. This meat may hang all season without trouble from flies or bugs. The side meat will have the same flavor as breakfast bacon, and the joints the same flavor as sugar-cured meat.

Following is the dry cure for hams, as recommended by H. J. Waters, formerly of the Kansas Agricultural college: For each 1,000 pounds of meat use the following: Forty pounds common salt, 10 pounds New Orleans sugar, 4 pounds black pepper, 1½ pounds of saltpeter, half a pound of cayenne pepper. Weigh the meat and take such part of the ingredients as that is a part of the 1,000. Let the meat cool thoroughly. After mixing the ingredients, half the amount should be rubbed well into the meat. Put the meat in a dry, cool place—never in a cellar. Let it remain two weeks, then rub on the remainder of the cure and let it lie about six weeks, when it is ready to hang.

Mortgaging a Homestead

Can a man legally mortgage the homestead taken after they were married, without his wife's signature to the mortgage and without her knowledge or consent? Also can he sell this homestead that they have both lived on continually since taken without the wife signing the deed?—A. B. G., Colorado.

If the property has been homesteaded on the margin of the records by either wife or husband and continues to be occupied as a homestead, both must join in the conveyance to pass the title.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver, Colo.

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

POULTRY POINTERS

To build in a well drained spot; avoid dampness within.

To face the house to the south; sunshine within is a good medicine.

To make the north, east and west wind-proof; plenty of openings in the south for fresh air. Fresh air is health.

To furnish for small flocks 4 to 5 square feet floor space for a hen; for larger numbers 3 to 4 square feet. It never pays to crowd. Crowding encourages disease.

The convenience of the care-taker; roosts on a level and removable; nests and other appliances so arranged as to make cleaning easy.

To have the floor well covered with clean litter.

To make a wide doorway; much hard work can be eliminated by wheeling in clean sand or dirt for the floor, and by wheeling out old litter and the droppings.

Hatch Asiatic breeds in March.

Hatch American breeds from March 15th to April 30th.

Hatch Mediterranean breeds from April 1st to May 15th.

Hatch the year's crop as quickly as possible.

For two or three weeks keep the hen confined; let the chicks run.

Early hatching means broilers at a high price.

Early hatching means early laying pullets.

As the chick grows after broiler size the price declines.

Molting is a natural function. Do not overfeed a molting hen; make her hustle for her living.

Furnish variety for the fowls; every farm has it.

Lice on the chicks means no chicks.

Cold feet require fuel; feed is the fuel.

Milk—sour milk, buttermilk, sweet milk; nothing better.

Chilling, lice, mites—the chick's greatest enemies.

Market prices for good poultry products are good; keep down cost of production.

Count the loss as well as the profit. What is the non-producer costing you?

Do not forget water, lots of it, fresh.

When eggs come soft shelled, furnish lime.

If you like the flavor, eat the dirty eggs, but don't sell them.

Kill the weaklings.

Use the "chow-heads" for fertilizer.

Keep afther the lice.

Mate pens at least a week before using eggs for hatching.

On the average:

A hen will eat in one year..60 lbs. grain
A hen will loaf in one year.....120 days
A hen will lay in one year.....110 eggs
A hen will cost in one year for shelter .....10 cents
A hen will cost in one year for labor .....25 cents

Rooster Goes Blind

I have a rooster that is blind in one eye. For six weeks he seemed to have a slight cold, and the next thing we knew he was blind, for we noticed he carried his head to one side so he could see. There appears to be a thick scum over the eyeball and wonder if you could tell us what to do for same, if not too late.—P. V. B., Morgan county, Colo.

It is impossible to even guess what is ailing your rooster. It is more than likely that he is suffering from some form of roup but whether or not the injury to the eyes is permanent we have no means of knowing. Should there be any swelling about the eyes, or any cancerous growths in the mouth, we would be inclined to treat with disinfectants and if he does not respond quickly to the treatment would destroy him. The swellings about the head can be cut open and washed out with disinfectants.

Mild Form of Roup

We live in town, have a nice flock of R. I. Red chickens. The last of October they all began to wheeze and run at nose; a few, their heads swelled. We gave a few drops of kerosene and rubbed a little on the nose; also put in the drinking water some permanganate of potash. Now they are apparently well except some. The ones that still have it seem to be well and eat good. We thought that the cause was leaky roof hen house. Can you enlighten us in the way of cure, etc? Also send me copy of your Farmers Bulletin No. 957. The hens are well fed and in good condition and are commencing to lay.—Mrs. A. L. S., Routt county, Colo.

We are sending you under separate cover a bulletin on poultry diseases. Your fowls probably are affected with bad colds and in some cases have a mild form of roup. You will find on page 11 of the bulletin several methods of treatment. We have found that disinfecting the drinking water and also injecting into the nostrils of affected birds is about as effective a treatment as we can give. We have never found that it pays to bother with very bad cases, as the disease is infectious and the loss that affected birds may cause in the flock is too much of a risk. We would suggest that you isolate all birds with swellings about the eyes and if they do not quickly respond to the treatment but get worse, destroy them. We would suggest that birds be examined for body lice, as lousy birds will not quickly respond to treatment.

Pinto Bean Situation

The following letter has been sent out to all county agents in pinto bean territory by the Bean Division of the U. S. Food Administration:

This is to advise you that all government orders for pinto beans have been filled. The total orders to date amount to 37,600,000 pounds. Shippers have until the first of February to make shipment of the last 15,000,000 pounds.

We have no further government orders in sight at present. The U. S. Food Administration, Grain Corporation, advises us that the government is not in the market for more beans at the present time; that they have their requirements filled for the next thirty days at least.

About sixty per cent of the 1918 crop has been marketed to date. The government has taken practically 38,000,000 pounds, the commercial trade has taken from 15,000,000 to 20,000,000 pounds, which makes a total of between fifty and sixty million pounds that have been marketed.

The total production has been estimated to be about 100,000,000 pounds for the entire area, which would leave about 40,000,000 pounds still to be marketed.

It is necessary that our office be closely advised of the exact status of the bean situation throughout the territory. We would appreciate to receive further reports from you from time to time.—United States Food Administration, Bean Division, O. H. Liebers.

Nebraska Shorthorn Event

Frank A. Carver, secretary of the Southwest Shorthorn Breeders' Association, located at Cambridge in Furnas county, Nebraska, writes that they will hold their big annual two days' sale at the sale pavilion March 5-6. On these dates the association will sell 56 head of mature cows, many of them with calves at foot, 38 yearling and two-year-old heifers, and 27 bulls. This great collection of Scotch and Scotch topped cattle have been raised by the breeders that compose this association. There are in the neighborhood of twenty members and the best sires obtainable are bought and kept at the head of the different herds. W. E. McKillip, also of Cambridge, is sales manager. An application for catalog may be filed any time by writing him or Mr. Carver. This sale will be advertised in a later issue of Western Farm Life.

"The first farmer was the first man, and all historic nobility rests on possession and use of the land."—Ralph Waldo Emerson.

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Steamboat Gold

Continued from Page 15

in a breeches-buoy. Captain Gregg always trussed himself up in his trousers that way in moments of mental activity. It was a habit that had come down to him from his pilot days, when he used to claw his boat off bars and snags by a hairbreadth, signaling the engineer by rapid jerks on the bell-ropes.

Randolph was speaking.

"It's down there yet in that safe where my father put it that night, waiting, as it has waited without a claimant for fifty years, as much my money as any man's—and more. It's been waiting for me to come after it—it was waiting before I was born. Time has given me a title to it, Captain Gregg. Father was the last man that knew of it; he passed it on to me. I've come to find that safe."

Captain Gregg grew sober in a moment, so sober and so grave that it was as if a cold wind had found a chink in the infernal heat and struck him, driving his spirits down.

"Yes, I reckon it's there, Jonathan," he said in a manner of speculative abstraction, "I reckon it's right there where it was."

He sat down again, a fog of self-concentration around him like a barrier, his thoughtful eyes on the river. Randolph regarded him curiously, perhaps not altogether surprised that the uncovering of this secret of the wreck's wealth should jar the senses of the old pilot and leave them in a whirl.

"Yes, and if I was you, John," counseled the captain solemnly, "I'd leave it there till doomsday morning and let the devil take care of it in his own way, like he has done in the past."

"I don't know what you're driving at, captain," said Randolph, surprised in his turn. "What's the devil got to do with the treasure of the Morning Star, any more than with money, good or bad, anywhere?"

Captain Gregg turned his gaze away from the river, shaking his head in solemn reproof.

"You're wrong about no claimants appearin', John, you're wrong on that. They've come, and they've gone, but I didn't understand their game till now."

"But they didn't find it?" Randolph started to his feet in alarm that was evident in his eyes, although his strangely severe face did not show a flicker of change—"you said—"

"No, they never even struck a shovel in the ground, not one of 'em."

Randolph drew a deep breath in his relief. "Then what do you mean by your advice to leave it alone?"

"I mean the Morning Star's a grave in more ways than one," said Gregg. "More than one man's stubbed his toe over her, deep down as she's sunk in Caleb Moore's field. Things is plain to me now that was clouded before you told me about the money the old man brought abroad in his chist. Things that troubled me's beginnin' to show a streak of clue at the start, but the end—the end jumps off in the dark just the same as ever."

"How long since anybody was here looking up the wreck—what did any of them do?"

"Four of 'em," said the old man, solemnly, "come in hopes like you, and disappeared off of the face of the earth like the tomb had gapped under their feet and swallered 'm. Where they went, I don't know. No man knows. But they went. Every man that ever come here to hunt that wreck went that way, quick as a lamp carried to the door in a windy night, leavin' everything dark and troubled after them, just that way. Every damn one of them, I tell you, John! It's the mystery, it's the cuss, that hangs over the Narris like a cloud of smoke from hell!"

"I never heard of it before, of course," said Randolph, a little staggered by the suddenness of the captain's revelation, "but I don't understand how men could disappear, one after another, in a civilized community and leave no trace be hind them."

"You're as wise as anybody here on that."

"When did the first man come?"

"Well, I disremember the exact year, but it must 'a' been all of thirty years after she went down. I never could understand why they waited that long, but I begin to see into it now. They had to wait for a generation to grow up—the war, maybe, didn't leave no man to take a hold and run down the track of the fam'ly secret. Them fellers was all young men, every Sam Saplin of 'em—the last one wasn't much more than a boy—and every durn one of them lied to me!"

"Lied?"

"They told me, and they told old man Moore, they wanted to sound for that whiskey. They didn't; it was that money they was after. There's either some guilt follerin' that gold, Jonathan, that lies like a blight on that fam'ly's name and they dasn't speak of it for fear of the shame and disgrace, or else they was comin' after something they didn't have no right to, maybe in the line on down from that old rascal that stole it, or branchin' from the feller that tried to take it from him that night."

"Maybe they thought that Moore would claim it himself if they uncovered their hands. It looks like their intention was to work under a false pretense and sneak the money out."

"It might 'a' been that way, too."

"But what became of them? You said they—"

"Dropped out of sight and sound right here in the Narris, and no man ever saw hide nor hair of any of 'em agin—but the last."

"Didn't anybody ever come to trace them, and try to uncover the mystery?"

"Yes, the one behind the other always come to look and inquire about the one ahead, at the same time he specalated around me and Moore. That was the way we come to know how they dropped out. I think them fellers was all one string of kin, come to figger it out now—not brothers, for they all had different names, or let on to have—but cousins, or some such, scattered here and there where it took word some time to reach 'em and round 'em up."

"But maybe they didn't drop out—maybe they just picked up and went off on some other scent without going to the trouble of telling where they'd gone."

"No," Gregg shook his head sadly, "they come here and walked off the edge. Dee-tectives hunted 'em, but no track ever was picked up. It was as plain as day till they got here—well, it's all done and over with, and no use to stir up old troubles now."

"You said the last man—you spoke of something different happening to him?"

"He was the only one that was ever found. They found him in the river road between the head of the Narris and Moore's one morning bit like a painter might 'a' killed him. But, shucks, ain't been a painter in here since the Indian days."

"A man sometimes drops dead without any apparent cause," said Randolph, rather pitying the backwoods credulity that made a mystery of that. "Maybe a wolf or something mangled him after he was dead."

"Well, that could 'a' happened," Gregg admitted. "But you don't reckon all of them fellers dropped dead without any apparent cause, do you, John?"

"It surely is a mysterious case, captain." He sat thinking it over, wondering what there was to the horror of the Narris beyond this one death, which might be accounted for in fifty natural ways. Presently he looked up, with such suddenness that it startled Gregg. "Who would have any interest in protecting the wreck from exploration but this man Caleb Moore?" he asked.

"Who knows?" the old man returned.

Randolph could see that there was the neutral cautiousness in his attitude of one who fears that his discussion of other people's feuds may involve him in them against his will.

"He wouldn't have been obliged to go to that length to protect it, lying under his land as it does."

"No, he wouldn't," the old man agreed, "and more than that, he ain't that kind of a man. He says and does in the open what he's got to say and do." He fell silent, staring thoughtfully at the ground. After a little while he roused, with a sigh as if these old recollections lay upon him heavily. "I remember that last man well," he said, "he set and talked to me right here under this tree like you're a talkin' to me now the evening before that happened to him."

"Well, because a catamount or something jumped on him, and more than likely scared him to death, it's no argument that the men ahead of him were made away with." Randolph argued stubbornly, with the hopefulness of a man laboring to convince himself.

"Maybe not," the captain sighed.

"What is the general opinion, what do people say?"

"Oh, some say ha'ants, some say—well, one thing and another, like folks do everywheres."

"What do you think about it? How do you explain the last man's death?"

"Well, danged if there don't come Joel Langworthy!" the captain said, looking up the road.

(To be continued)

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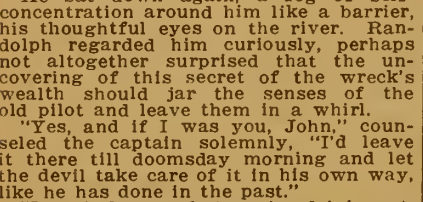

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Do you notice the Majesty's are "going over the top" in all departments? I have recently added "Majesty's Feather Lad" to my herd. He is out of a daughter of old Royal Majesty, with a test of 712 lbs. butter, and a show cow, and sired by a grandson of Royal Majesty. He is fine individually, too. Where can you beat this breeding? I have one or two splendid bull calves of Majesty breeding, and can spare a few heifers.

In Durocs, am all out of fall boars, but have a few splendid spring boars, by an Albian Chieftain boar, and out of Critic-bred sows. Sold out of spring gilts. Have a yearling bred sow to sell.

A. M. McCLENAHAN, Greeley, Colorado

Farmers' and Stockmen's Exchange

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

GOOD DRY LAND FOR SALE. Address Box 172, Sedgwick, Colo.

WANT TO HEAR FROM OWNER OF FARM or fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

WANTED—TO HEAR FROM OWNER OF FARM or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

WANTED TO HEAR FROM OWNER OF GOOD farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

BARGAIN—120 ACRES IMPROVED, PART bottom, lays good, $12.50 per acre. Many others. Latona Land Co., Latona, Ark.

WANTED TO RENT—TWO OR THREE HUNdred acres, Montezuma county. Hay and general farming. Write Walter C. Wallen, Box 14, Coaldale, Colo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

I OWN AND HAVE FOR SALE ONE OF THE best ten-acre tracts, located close in, improved with five-room house, all kinds of chicken houses three chicken yards, well set to alfalfa, incubator cellar 30x60 feet plastered. Over four hundred dollars of alfalfa sold off place this year, well windmill and supply tank, water piped to yard and garden. Price $4,500, $1,500 cash balance three years at six per cent; no trades. Wright J. R. Anderson, Fort Morgan, Colo.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

THOROUGHBRED LIGHT BRAHMA COCKerels. E. Grosser, 2240 Perry St., Denver, Colo.

BUFF LEGHORNS—BEST LAYERS ON EARTH. Breeding cockerels. Champney, 25 S. Logan, Denver, Colo.

FOR SALE—ONE HUNDRED S. C. WHITE Leghorn hens of the Ferris trapnested strain. Also a few cockerels. L. E. Larson, R. R. No. 1, Fort Morgan, Colo.

ROSE COMB WHITE LEGHORN COCKERELS —Years of breeding for winter layers, $3.00 and $4.00 each. Eggs in season. Chas. Householder, Winfield, Kans.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

BARRED PLYMOUTH ROCKS—A CHOICE LOT of cockerels of both the light and dark lines. Bradley and Latham strains—none better. Price $3 and up. Chester Blunt, Route 1, Greeley, Colo.

SHANK'S WINTER LAYING ORPINGTON'S— One pen of pullets averaged 110 eggs per pullet in 150 days. Get your future breeders from a strain with the egg habit and standard qualities bred into them. Cocks, cockerels, hens and pullets at hargain prices "quality considered." Breed the best, it pays. F. M. Shank, Route 2 A, La Junta, Colo.

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

100,000 BARRED ROCK AND RHODE ISLAND Red eggs wanted for hatching, also other breeds. Farmers please answer. Our cash price, $2 to $3 per case more than Denver commission houses. The Denver Incubator Co. and Hatchery, 175 S. Broadway, Denver, Colo.

FOR SALE—ONE HUNDRED BARRED ROCK cockerels. Our barred rock cockerels are raised not only from prize winners but the best of layers; breeding stock at $5 each; prize winners at $10 to $15 each. Write J. R. Anderson & Son, Fort Morgan, Colo.

TURKEYS

MAMMOTH BRONZE TURKEYS FROM 40 lb. toms and 22-lb. hens. Young toms, $10.00; pullets, $7.00; yearling toms, $15.00. Laura Ullom, Lamar, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

POLLED JERSEY CATTLE—BREEDERS names, sale dates, etc., of. Chas. S. Hatfield Sec'y, Springfield, Ohio.

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemont Farm, Littleton, Colo. Caldwell Martin, Owner.

VERY GOOD BIG TYPE POLAND-CHINA PIGS, both sexes, September farrow, pedigrees furnished. Gad Barney, successor to Barney Bros., Haswell, Colo.

FOR SALE—THREE REGISTERED JERSEY cows and one eight-months-old Jersey bull calf, of the Hood Farm breeding. O. S. Larson, R. R. No. 1, Fort Morgan, Colo.

35 SHORTHORN BULLS FOR SALE, FROM herd established 35 years. Breeding sires at head are Choice Goods, Avondale, Cumberland—all champions. Write for price and particulars. Samuel Ball, Wray, Colo.

WE ARE IN THE MARKET FOR WHITE BLOSsom sweet clover. State lowest price on lot (any size) in first letter; send sample. Cash in advance. Any not threshed yet? Western Seed Market, Box 12, Virgil, Kan.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St Louis, Mo.

WHITE SWEET CLOVER REASONABLE—SOW on snow, wheat or corn stubble. John Lewis, Madison, Kan.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

POSTS — LUMBER — SHINGLES. LOWEST prices, delivered your station. Send lumber list for estimate. Pay after unloading. Kirk Co., Box 1138-S, Tacoma, Washington.

IF YOU WANT TO MAKE A SURE SHOT FOR an orchard, order your trees from Plainview Nursery. Hardy varieties that seldom get killed by late frosts and stand dry weather well. Plainview, Texas.

MEN, WOMEN, GIRLS, WANTED BY U. S Government. Clerks at Washington. Railway mail clerks, city postal clerks and carriers $1,100 year. List positions free. Write immediately. Franklin Institute, Dept. A-172, Rochester, N. Y.

FORD—FORDS START EASY IN COLD weather with our new 1919 carburetors; 34 miles per gallons. Use cheapest gasoline or half kerosene. Increased power. Styles for any motor. Very slow on high. Attach it yourself. Big profits to agents. Money back guarantee; 30 days' trial. Air-Friction Carburetor Co., 469 Madison, Dayton, Ohio.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also buy Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

DELICIOUS, PURE HONEY, ALFALFA-CLOVER extracted. Two 60-pound cans, $35.00; sample, 15c. Reference: First National Bank, Boulder. Wesley Foster, Producer, Boulder, Colo.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES— Ford's the best kodak store, 1029 16th St. opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies develop any size roll films, 10c; print pictures 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

There is one food policy that cannot change, and that is the vital necessity of simple living.

S. L. W.

HARDY HEREFORDS

WHY? WHEN?

A Letter to Cattlemen and Hereford Breeders

You hear so much about the Beau Mischief's Perfection, Fairfaxes, Prince Rupert 8ths, Repeaters, etc., that for a change you may be interested in knowing WHY and WHEN we started breeding HARDY HEREFORDS, and why the names S. L. W.

About thirty years ago the late J. M. Studebaker, one of the founders of The Studebaker Manufacturing Company of South Bend, Indiana; N. W. Dunham, Wayne, Illinois; Lafayette Lamb, Clinton, Iowa; Franklin Murphy and Fred S. Fish of Newark, New Jersey, and their associates who owned The Percheron Norman Horse Company, purchased from Lord Ogilvy the Ogilvy ranch and canal located east of Greeley, Colorado. They used this ranch for many years to fit horses for the city market. After the death of N. W. Dunham, Studebaker and Lamb acquired full ownership of the property and during the year 1898, there being very little open range, the horse market in a demoralized condition and with the automobile considered as a possible competitor to the horse, they decided to largely discontinue the breeding of horses and use their ranch and range for breeding cattle.

In the early seventies Mr. Studebaker purchased some registered Herefords from the pioneer importer, W. H. Sotham, now deceased, and for many years he and his brother, Clem Studebaker, were the prominent Hereford breeders of northern Indiana. About 1882 Mr. Studebaker's herd was sold to northwest Missouri breeders.

His experience with Herefords had been so satisfactory that he decided to breed Herefords on the Colorado ranch. In the fall of 1898 Studebaker and Lamb purchased forty head of purebred non-registered heifers from George Adams, Crestone, Colorado, and the herd bull, Whistler 75021. Mr. Adams was one of the pioneer breeders in the west and his HARDY HEREFORDS were very popular.

The Studebaker-Lamb herd was later increased to about 1,500 head of high grade cattle. In 1899 Mr. Studebaker's nephew, Harvey E. Witwer, took charge of the ranch and the name of the ranch and the firm name was changd to Studebaker, Lamb and Witwer; hence the name The S. L. W. Ranch.

Mr. Witwer and his Scotch foreman made trips to the east and they purchased select registered bulls for the ranch herd from Missouri, Kansas and Iowa breeders. They soon noticed, however, that the eastern bulls were like the imported Percheron stallions used on the ranch, in that IT TOOK ABOUT A YEAR TO GET THE BULLS ACCLIMATED, and in the fall the eastern bulls would come in off the range in a MUCH POORER CONDITION than the Colorado bulls grown in a high altitude, or the eastern bulls that had become acclimated.

To get the best results we were convinced that we must buy bulls in advance of our needs and get them acclimated, or start a registered herd and breed our own HARDY HEREFORDS. We did both.

In 1901 we selected five registered heifers from H. Kirtley's herd at Savannah, Missouri. Two of these heifers were sired by Mariner 71749, one by Daniel 71690, both Gudgell and Simpson Anxiety 4th bred sires, and two were sired by the Champion Sweepstakes 59281, and for a herd bull we purchased Gozzoli 04846, sire Sweepstakes 59281, dam the great cow, Gem Anxiety 4th 67143. A great foundation, you will say. It surely was. Mr. Studebaker believed it paid to start right. We not only started with fashionably bred, select individually of Gudgell and Simpson, Van Natta, Armour, Kirtley and similar lines of breeding, but we have kept it up and after seventeen years of breeding Herefords for our own use and local demand we have developed some HARDY HEREFORDS, the kind that will go out and stand up under strenuous range conditions and of the line of breeding and type that herd headers.

Our 8,500-acre ranch is now devoted almost entirely to registered HARDY HEREFORDS. Our neighbors and customers as far distant as California still buy our HARDY HEREFORDS; they seem to want the hardy kind grown at an altitude of 4,500 feet.

We have told you WHY AND WHEN we started breeding HARDY HEREFORDS, of our foundation herd and the origin of the name S. L. W. If the HARDY kind appeals to you and if you are in attendance at the National Western Stock Show in Denver, look for the sign S. L. W. HARDY HEREFORDS in the stockyards and in the show stables. We will have about twenty head of HARDY young bulls sired by our great herd bulls Wilbur Mischief, a full brother to the $5,000 Cecil Mischief, and Lord Oswald, a worthy son of the great perfect make herd headers.

We will be glad to meet you, Neighbor, so kindly look for the sign, "S. L. W. HARDY HEREFORDS."

We would be pleased to have you visit our up-to-date ranch, the home of S. L. W. HARDY HEREFORDS. We meet trains at Kersey or Greeley on the Union Pacific.

Yours, for Better Beef Cattle,

The S. L. W. Ranch Co.

HARVEY E. WITWER, President
ARCHIE KENNEDY, Herdsman

P. O. KERSEY, COLORADO

Telephone Greeley, Colorado

160 HENS—1500 EGGS

AS AMERICA'S foremost poultry expert I predict that eggs are going to retail for a dollar a dozen this winter. Right now the retail price is from 50c to 75c per dozen in some of the large cities. At a dollar a dozen poultry raisers are going to make tremendous egg profits. You, too, can make sure of a big egg yield by feeding your hens a few cents worth of "More Eggs" tonic.

This product has been tried, tested and proven. It is acknowledged the best and most successful egg producer on the market today. Every day that you don't use it means that you are losing money. Don't delay. Start with a few cents worth of "More Eggs" tonic now.

Got 117 Eggs Instead of 3

That's the experience of one poultry raiser who wrote me. A. P. Woodard of St. Cloud, Fla., writes: "I get from 40 to 50 eggs a day now. Before using 'More Eggs' I was getting only 8 or 9 eggs a day." Here are the experiences of a few others of the hundreds who write me:

"160 Hens—125 Dozen Eggs"

E. J. Reefer: Waverly, Mo.
I have fed two boxes of More Eggs Tonic to my hens and I think my hens have broken the record for eggs. I have 160 White Leghorns and from March 25 to April 15 I sold 125 dozen eggs. MRS. H. M. PATTON.

"15 Hens—310 Eggs"

E. J. Reefer: Turner Falls, Mass.
I nsed yonr More Egg Tonic and from December 1 to Febrnary 1, from 15 hens, I got 310 eggs. Your remedies are just what yon claim them to be
MRS. C. R. STOUGHTON.

"More Than Doubled In Eggs"

E. J. Reefer: Mendon, Ill.
I am very mnch pleased with your "More Eggs" Tonic. My hens have more than doubled up in their eggs. L. D. NICHOLS.

126 Eggs In 5 Days

E. J. Reefer: Salina, Okla.
I wonldn't try to raise chickens without "More Eggs," which means more money. I use it right along. I have 83 hens and in 5 days have gotten 10½ dozen eggs or 126. MRS. J. O. OAKES.

Well Pleased With "More Eggs"

E. J. Reefer: Rochelle, Va.
I received my "More Eggs" Tonic abont the 8th of January and am so well pleased with it I am mailing yon $1.00 for another box. I have about 150 hens and get anywhere from 80 to 100 eggs daily, and one day over 100.
MISS VERA BOWMAN.

"Selling Eggs Now"

E. J. Reefer: Hebo, Oregon
I was not getting an egg when I began the use of the "More Eggs" Tonic. Now I am selling eggs. MRS. J. F. BRINK.

"Gets Winter Eggs"

E. J. Reefer: Wilburton, Kan.
It is the first time I got so many eggs in winter. When I began using "More Eggs" I was only getting from 1 to 3 eggs per day and now I am getting 11 to 13 eggs per day. MRS. JULIA GOODEN.

18 Hens—12 Eggs a Day

E. J. Reefer: Luray, Va.
Six weeks ago I began giving "More Eggs" Tonic and I was not getting an egg from 18 hens, and now I am getting 10 to 12 every day. You can quote me as saying that it is the best chicken tonic in the world. R. L. REYNOLDS

"Layed All Winter"

Dear Mr. Reefer: Lockawana, N. Y.
I gave the tablets to my hens and in three weeks they began laying and layed all winter. I never saw anything like them in the world.
Yours truly, MRS. ALBERT SMITH,
Penna R. R. Ore Docke

"37 Eggs a Day"

E. J. Reefer: Elwood, Indiana
That More Eggs Tonic is simply grand. When I started using it they did not lay at all, now I get 37 eggs a day.
Yours truly, EDGAR E. J. LINNIGER

"Increase from 2 to 45 Eggs a Day"

Reefer's Hatchery: Derby, Iowa
Since I began the use of your More Eggs Tonic 2 weeks ago I am getting 45 eggs a day, and before I was only getting 2 or 3 a day.
Yours truly, DORA PHILLIPS.

"Doubles Egg Production"

E. J. Reefer: Paradise, Texas.
I have been using More Eggs Tonic 3 or 4 weeks and must say it is fine. My egg production bee been doubled. J. C. KOENINGER.

"48 Dozen In One Week"

Dear Mr. Reefer: Woodbury, Tenn.
I can't express how much I have been benefitted by answering your ads. I've got more eggs than I ever did. I sold 42 1/2 dozen eggs last week, set 4 dozen, ate some and had 1 1/2 dozen left. From your friend, MRS. LENA McBROON

"Increase From 8 to 36 Eggs a Day"

E. J. Reefer: Shady Bend, Kansas.
I am well pleased with your More Eggs Tonic. I was only getting 8 or 9 eggs, now I am getting 3 dozen a day. Yours truly, WM. SCHMIDT.

A Million Dollar Guarantee

Absolnte Satisfaction or Money Back

National Bank of the Republic

KANSAS CITY, MO.

TO WHOM IT MAY CONCERN:
I hereby guarantee that Mr. Reefer will carry out his agreement ★ ★ ★ and this bank further agrees to return to the customer the total amount of his remittance, if Mr. Reefer fails to do as he agrees.

Very truly yours,
W. Huntley
President.

More Eggs Makes Layers Out of Loafers

This is a concentrated tonic, not a food. It consists of every element that goes toward the making of more eggs. A perfect regulator, aids digestion, stimulates egg production and builds firm bones and strong muscles. The foremost authorities in America and poultry raisers from every state endorse Reefer's "More Eggs" tonic.

Results Guaranteed!

Here is the facsimile of the guarantee of a million dollar bank that "More Eggs" will produce results. This million dollar bank guarantees to refund your money if you are not satisfied. You run no risk. So don't delay. Every day you wait you are losing money.

E. J. REEFER, 4161 Reefer Bldg., **Kansas City, Mo.**

Enclosed find **$1.00** for one full size package of "More Eggs" Tonic. ☐
$2.25 for three full size $1.00 packages of "More Eggs" on special discount. ☐

(Mark X in the square opposite order you want.)

Send this with an absolute Bank Guarantee that you will refund my money if this tonic is not satisfactory to me in *every* way.

Name .....

Address .....

Poultry Book Free If you don't want to try this Bank Guaranteed Tonic at least mark X in the square for me to send yon my valuable poultry book Free ☐

Order Today

Send a dollar today for a full-sized package of "More Eggs" tonic; or better yet send $2.25 at extra special discount and get three packages. Three packages is a full season's supply. Don't put it off. Order now and start your hens making money for you. Remember, you run no risk. A Million-Dollar Bank will refund instantly if you are not satisfied. [*Whether you order "More Eggs" now or not, at least mark the coupon for Mr. Reefer to send you absolutely free his valuable Poultry Book that tells the experience of a man who himself has made a fortune and is helping others to make money out of poultry.*] Act NOW. Don't wait. Pin a dollar bill to the coupon. Or send $2.25 which will guarantee your winter's egg supply. Send for this bank-guaranteed egg producer NOW. Today! It has helped thousands of others and will help you, too.

E. J. Reefer 4161 Reefer Bldg., **Kansas City, Mo.**

FEB 17 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, February 1, 1919 Semi-Monthly

SILOING SUGAR BEETS AT THE RECEIVING STATION

(See Article on Cost of Beet Production, Page 4)

lalley light

IS AN ACTUAL FARM ECONOMY

It saves time and labor and provides city conveniences to country homes. Lalley Light is ready at the twist of a switch to make your home brighter and labors lighter. Eight years continuous use proves the superiority of Lalley Light. Write or call for literature and demonstration.

The LALLEY WESTERN ELECTRIC COMPANY
25 Colfax Denver, Colorado

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WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, FEBRUARY 1, 1919 | Number 3

Story of Lars Carlson's Flock of White Rocks

FARMER'S WIFE CAN MAKE MONEY BY ADOPTING THESE IDEAS

W. E. VAPLON

To the Editor:

SOME TIME ago you requested me to call on Mr. Lars Carlson of this place to learn more about his methods of poultry raising. I made the call, and although the gentleman was very busy I had a nice visit and heard and observed some interesting things. In this letter I shall tell you of only one of them, and I think I shall write what I have for you in the form of questions and answers, just as they were given and received. Later I want to tell you about his methods of breeding, feeding, hatching, etc., but in this letter I shall only speak of his way of selection and elimination.

This should be of some interest to your readers just at this season as hens are all on a strike and pullets too generally have not been convinced of their duty to mankind.

First, a few words for the information of the Western Farm Life family —Mr. Carlson lives near Fort Collins. He has a very small acreage; makes his living outside of his place. Keeps fowls because he likes them and enjoys fresh eggs and chicken meat. Has kept chickens and has made a study of the business for twenty-five years. Breeds White Plymouth Rocks, raises about a hundred each year, has about 40 or 50 at the beginning of the year, January 1st.

I was fortunate in finding Mr. Carlson at home Thanksgiving morning, and as soon as I told him my particular reason for calling we went out to the poultry building, where everything is kept together at this time of year—hens, pullets and males. Then I started on my questions:

Mr. Carlson, how long have you kept White Plymouth Rocks?

"Fifteen years."

Do you think they are better than the Barred, or the Wyandottes or Reds?

"No, I do not; but under my conditions they are as good as any; I like the color; I have a flock of carefully selected layers and I would lose more than I would gain by a change, even if I were convinced that others were better."

Then you think there is no best breed?

"There are some breeds or classes better for certain purposes than others, undoubtedly, but confining my statement to the breeds mentioned above, I am convinced that any of these become what they are by reason of selection and management. To explain: after having given up my flock a few years ago, on account of my health, later I took them up again, starting with a pen of five birds, four hens and a cockerel The birds I bought were from a well-known flock of standard-bred fowls; the owner had been one of our leading exhibitors for many years and had never paid any attention to early or heavy laying; in fact, he did not want his pullets to lay early, as it spoiled them for showing and anyway, he said he wanted eggs in the spring to sell for hatching. Consequently he never had winter eggs, always mated up his largest, slowest growing, biggest bone hens. The hens I got from this man were large, fine specimens but only fair layers; one of them was decidedly poor. Now for five years I have kept over only those hens which during their pullet year were consistent layers."

What do you mean by consistent layers?

"Those that do not clamor for a vacation in the mountains as soon as warm weather strikes us; those that keep the wheels moving as long as material is being run into the machine. When I was a boy and even until a few years ago, I never knew what a vacation was; we were hired at so much a month or week, and every day counted; now the first thing an applicant asks is, 'How much vacation do I get'? I think this is fine, I'm not saying a thing against it, but it is demoralizing our hens, and they are demanding, not the ninety days for the molt they are entitled to, but sixty additional, and they want this extra sixty days in the busy season. I take great pains to weed out these early molters and now have my flock where nearly 70 per cent continue laying into October and about 40 per cent reach November before quitting. Those hens you see daubed with red paint laid up to or after November 1st."

I was going to ask you about the paint. I see some are daubed with green and some green and red. What does it mean?

"As you know, my business takes me away from home a great deal, so of course trap nests are out of the question. Anyway, trap nests as now constructed, are not possible on a large commercial scale or on the farm. The little things I am doing in an experimental way I intend should be so practical and reasonable that they can be profitably done by anyone; therefore I have adopted the paint method of determining my best layers. I am eliminating, weeding out every hen that lays down on the job before October. I have a can of paint handy; all the nests can be reached without going into the hen house, from within the garage; if I am away, one of the children is instructed to visit the nests two or three times during the morning, at noon, and if convenient once during the afternoon. Every hen found on the nest gets a daub of paint, and there you are. In the course of the first week of October all the hens laying are marked with green; in November the same thing is done with a different color of paint, and do you know, they are foolishly vain because of their decorations and seem to look with contempt on those unadorned."

What do you do with those unpainted?

"No matter how pretty they look they go to the butcher or we eat them. Let me give you an object lesson. Look first at those hens without paint. I have four or five left. Notice how full and glossy is their plumage; their condition alone tells the story and condemns them; so proud of their beauty, so careful to preserve their youth and good looks, so careful of their own comfort, valuing the salary and vacation more than the service they can render their country, they have been spending the past three months pluming themselves, resting up, loafing. Separate them all from the painted ones and the difference in their appearance is most striking. Now I think we can almost distinguish two more classes in those remaining; it seems to me, at least, that I can see a difference in the appear ance and condition of those painted green only and those having the red and green. The latter are even more bare and ragged than the former, though altogether they are so much more disreputable looking than the first class that one not knowing the story would be inclined to get rid of them all. The truth is that these ragged hens have been so busy hustling something to eat from which to make eggs and have been so everlastingly on the job to help feed the world, they have had no time to devote to primping up."

When will these ragged hens be on the job again?

"February, almost without exception, so you see they will have lost not over three months, while those quitting business in September and earlier will lose five months, as they will hardly begin any sooner than the others."

Why do you have the hens banded?

"Those painted green have green celluloid leg bands placed on them; those painted red, red ones to distinguish them when the painted feathers molt out."

What about those with white leg bands?

"Those are hens two years old in the spring of 1918. They were considered exceptionally good and worth keeping over into their third year of laying. I generally sell everything after the second laying season."

But if you do not use trap nests, how do you know your exceptionally good layers?

"My dear man, do you think I need to paint my hens or mark them in any way to know what they are doing? Does the man who employs a large number of people need to be told which of his employees are accomplishing the most? Just because all his people hustle around to beat the band just as soon as he appears doesn't deceive him, and he knows those who are earning more than their salary and those who are earning their salary or less. The old saying, 'Actions speak louder than words' may be safely applied to people, but with the hen actions and words and appearance all say the same thing. I never LOOK FOR sickness in my flock, but if there were a fowl out of sorts, ailing in any way, I would know it at my first glance, even though I had been away from them for some time; the same is true as to their performances; the comb, the expression, the air of alertness, the movements, the song, the evidence of happiness, the appetite, the deference paid to her by the others, all point out the laying hen. The layer is never humped up on the roost during working hours; she is always on the go, she is always hungry, she goes right through the flock and all get out of her way; her eye is always bright and snappy, she is first one up in the morning and is the one to go around at night to see that the cat is put out and that all the doors are locked. The man who cannot see these things, after due time and experience, never will succeed with poultry. A man must get acquainted with his hens, individually, if you please, even as an employer must know his people to get the best out of them. No two hens are alike or look alike and every hen has a peculiar personality. I paint them to prove what I already know by observation to be true and because I cannot be at home enough to trust to observation entirely."

This is the Farm Flock of Lars Carlson, of Larimer County

How about selection of

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Data on Cost of Beet Production in Colorado

FACTORS THAT INFLUENCE PROFIT AND LOSS FOR THE GROWER

L. F. GAREY

MANY people do not appreciate the importance of the sugar industry in Colorado and the rank the state holds in the nation in the production of one of the most staple articles. Beet sugar is the thing which in Colorado last year alone would make a freight train over ninety-three miles long; the thing in which Colorado ranks above every other state in the Union; the thing which caused land in Colorado to go to $300 per acre, and the thing which we could not do without.

In the United States there were in operation during 1917 ninety-one sugar factories of which fifteen or over 16 per cent, were in Colorado. These fifteen factories operated on an average of ninety-one days and turned out 468,606,000 pounds, enough to supply over five and a half million Americans, or over one-sixth of all the people in the 228 leading cities in the United States; enough to feed over eleven and a half million Frenchmen, or over four cities the size of Paris. Is not the cost of producing so important an article worthy of careful and accurate investigation?

An effort was made during the summer of 1918 by the Colorado Agricultural college to determine as closely as possible the actual cost of producing beets in the Arkansas Valley and in northern Colorado, the study being centered around Rocky Ford and Brighton, respectively. The cost of production was based largely on the number of man and horse hours required and the prices used for everything involved were prices in vogue in 1917 in those respective areas.

In determining the costs, the operations in the order in which they were performed will be studied.

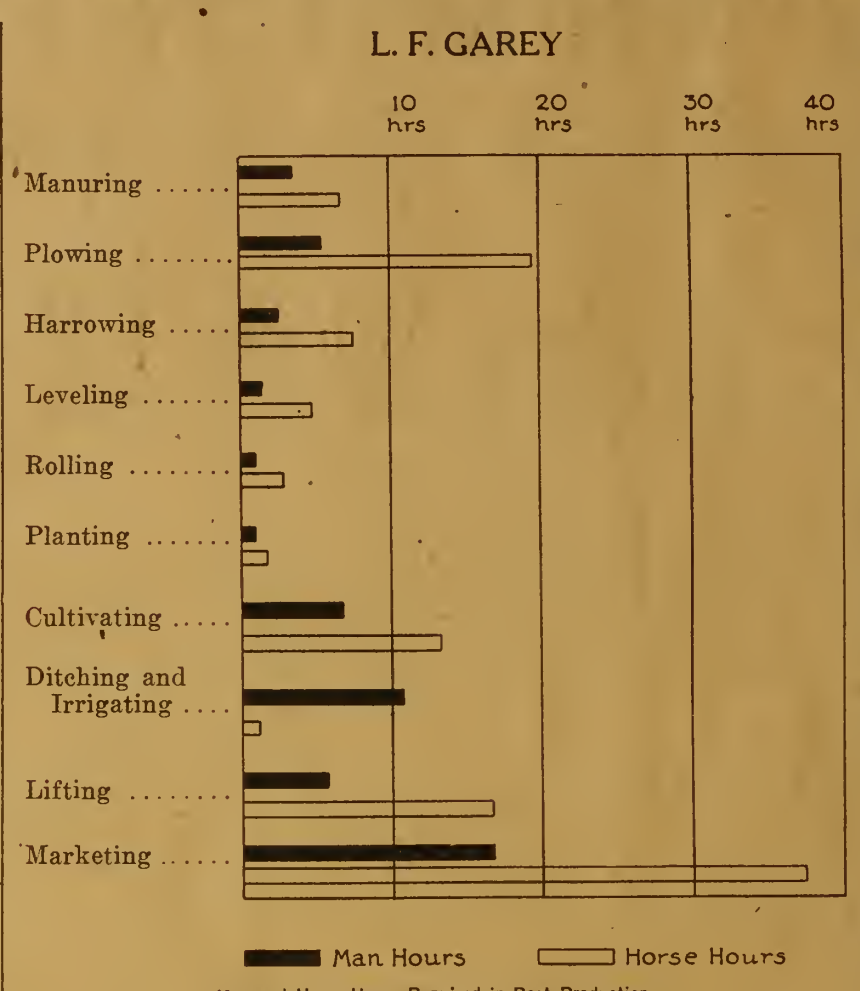
The ground is usually manured in the spring just as early as it is safe to get into the field. In northern Colorade this operation usually begins about April 5th and in the Arkansas Valley about two weeks earlier. The majority of farmers use the manure spreader and three horses, while a few still use the old method of spreading with a fork. The amount of manure put on the field varies from one-fourth of a ton to as much as nine tons per acre in the Arkansas Valley and from one-half to as much as eleven in the northern district. The average value of this manure, excluding labor of putting it on the field, was estimated at $1.00 per load by the farmers. It is estimated that approximately 40 per cent of the manurial value is obtained by the first crop of beets, hence only 40 per cent of the value of the manure and the labor of putting it on is figured in the cost of producing the 1917 beet crop.

For the plowing operation the two-way plow was almost universally used. This required from three to four horses and about two acres per day were plowed. In a few instances the ground was disked before plowing but not enough followed this practice to give us any definite information as to the value of the disking. On an average the depth of plowing was eight inches.

The ground is immediately harrowed from two to six times and then followed by the leveler. In each operation three or four horses were used.

The planting begins about April 10th in the Brighton district and about ten days earlier in the Rocky Ford district. A little more seed per acre was planted in the Brighton district, being a little over fifteen pounds per acre, while in the Rocky Ford district the farmers on the average planted exactly fifteen pounds. This seed was figured at 10 cents per pound, the price made the growers by the sugar companies. Nothing more is done to the beets until they come up, when the hand labor goes in and does the thinning.

The cultivation begins the last of May and continues until the beet tops cover the ground to the extent that they would be damaged by horses walking through the field. The number of cultivations varies from two to eight, the last being the deepest. Duck feet shovels are used in cultivations, which are to be immediately followed by irrigation and the water runs down the furrows made by these shovels. This takes the place of an extra operation to provide ditches and at the same time provides a cultivation for the beets. Four rows are cultivated at a time and only two horses are used. As the beets get older the operation can be done much faster. The beets are hoed between some of the cultivations.



Man and Horse Hours Required in Beet Production

The beets are irrigated from two to six times, depending upon the water available and the dryness of the ground. One man irrigates from five to six acres per day. The usual practice is to turn the water on and irrigate both day and night. One man will spend nearly eight hours a season irrigating one acre.

From two to four horses are used in lifting the beets and lift on an average of tbout two acres per day. Few beets are in the ground by November 10th. Hand or contract labor comes in here to perform the third part of their contract—that of topping the beets.

Then follows the slowest and most expensive operation in the production of beets, that of marketing or hauling to the dump. This covers a period of nearly two months, chiefly because the beets are not taken care of as fast as they are hauled in. They are quite often piled along the railroad track, which, of course, necessitates additional labor later in loading into cars to send to the factory. Practically one-third of all the labor required to produce sugar beets is consumed in this one operation of marketing.

The accompanying graph shows the number of men and horse hours required for each operation in the production of an acre of beets in the two districts studied.

The average wages paid per day for labor in 1917 in these sections was $3.43 without board and $2.33 with board. An average of ten hours a day was spent in the field. Man labor was figured at 35 cents per hour and horse labor at 12.5 cents per hour. The land and water tax was exactly what the farmer gave in. The use of the land was figured at 5 per cent. It was figured at 5 per cent because no other investments with equally as safe security pay more. As a matter of fact, they pay less. Machinery expense was figured on the basis of the amount of work an implement actually did toward the production of beets. The cost included depreciation, repairs and interest on investment. It does not include the taxes on the implements because it would be very difficult to apportion such an item accurately and allowance was made for this item in the overhead expense.

Contract labor was $21 per acre in the Brighton district and $18.94 in the Rocky Ford district. The number of hours of contract labor is not shown in the graph representing labor for the various operations because this work is done by men, women and children of all ages, so an accurate figure as to the number of man hours put in on hand labor would be indefinite at best. Manure was figured for this crop at 40 per cent of its actual value. The majority of farms did not manure every year, chiefly because they did not have the manure, so it was thought best to figure only 40 per cent of the cost for this crop. Had the ground been manured every year and the same amount applied each year, it would have been proper to charge this crop with the full amount. Ten per cent has been allowed to cover any item of expense which has been omitted.

Below is given the actual costs per acre for the two areas in 1917:

Item—	Brighton District	Arkansas Valley
Man labor	$17.41	$18.36
Horse labor	12.81	15.94
Seed	1.52	1.50
Land and water tax	2.60	2.62
Use of land	11.99	11.40
Machinery expense	3.78	2.30
Contract labor	21.00	18.94
Manure	3.07	2.19
Overhead	7.36	7.38
Total	$81.54	$80.63

These figures represent cost figures for the owner. The only changes necessary to make in case of tenant would be rental, instead of use of land, plus land and water tax. The customary rental for tenants to pay is one-fourth of the beets, which means 3.49 tons in the Brighton district and 3.65 tons in the Rocky Ford district. The average price received in the Brighton district was $7.28 per ton, making the rental $25.48 per acre, and the price received in the Rocky Ford district was $6.47 per ton, making the rental $23.62 per acre.

The average farm in the Brighton district sold from this beet land $106.11 worth of products and the Rocky Ford district $99.89 per acre. Estimated value of tops was $4.33 at Brighton and $7.43 per acre at Rocky Ford. The tenant who does not have a greater gross income per acre from beets than the average beet grower is not likely to make money.

It is evident from the above figures that there are three vital factors entering into profitable production of sugar beets, namely, labor, yield and soil. The first is a local problem on every farm and is one that can be solved when plenty of labor is available, only by the proper application of farm management principles. I do not refer here to the contract labor, I will speak of this later, but rather to the right amount of labor to use for the various operations. It is possible to put too much or too little labor on a crop to be profitable, the former applying more especially to small acreages and the latter to large. The law of "diminishing returns" comes in here to determine this point. There are several factors which affect the yield of beets, but it is universally accepted that stand is the most important of any single factor. Several things affect the stand in a field of beets, such as poor preparation of soil, unfertile soil, low seed vitality and careless hand labor, which is the most vital factor of all. The question then arises, can we manage the hand labor problem in such a way as to obtain a better stand, obtain a better yield

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Reasons Why Some Farms Lose Money in Beet Production

Farm No.	Cost per A.	Amt. Sold	Loss	Reason
133	$72.40	$70.00	$2.40	Low yield (10-ton); low test.
136	96.87	95.00	1.87	Low test; land too high; too much labor, probably plowing and harrowing.
139	73.97	70.00	3.97	Low yield (10 tons); did not use tops.
141	78.21	64.00	14.21	Low yield (8 tons); soil not well adapted. Insufficient manure; insufficient labor.
242	55.78	52.00	3.78	Low yield (7 tons); lack of manure; insu cient labor.
246	92.85	82.17	10.68	Low yield (11 tons); soil not well adapted; too much labor.
255	76.20	59.08	17.12	Low yield (6.1 tons); insufficient labor.

Reasons Why Some Farms Make Money in Beet Production

Farm No.	Cost per A.	Amt. Sold	Gain	Reason
122	$86.72	$126.00	$39.28	Good yield (18 tons); efficient use of man labor.
125	83.30	173.77	90.47	Good yield (22.96 tons); high test; good tillage practice.
142	66.01	111.25	45.24	Good yield (16.5 tons); efficient use of labor; fertile soil.
241	77.51	140.00	62.49	Good yield (18 tons); high test; fertile soil. Good yield (18 tons); efficient use of man labor. Heavy manuring.
254	70.81	128.56	57.75	Good yield (15 tons); extra high test; efficient use of labor.
258	87.60	142.05	54.45	Good yield (18.3 tons); high test; efficient use of labor.
260	77.56	124.83	47.27	Good yield (17 tons); high test; efficient labor.

Big Losses from Lack of Farm Machinery Sheds

WHAT AN OBSERVER SAW ON 3,000 MILE TRIP IN COLORADO

ROY W. FOARD

ONE needs only to travel over the farming section of Colorado to be impressed with the lack of care given to farm machinery. This fact stands out as a lone mountain of poor management on a plane of good farm practice. During the months of June, July and August the writer traveled over practically all of the irrigated section of Colorado east of the mountains, covering in all about 3,000 miles, and in all this area a machine shed was a rare and unusual sight. The farm machinery, too often, stands in the field all winter where it was used last, or is bunched together on some unused plot.

In many cases valuable machinery, such as headers, binders and tractors, were left to stand, unprotected, through a winter of rain, snow and wind. The effect of weathering with its rust, moisture and dirt can cause no other than rapid depreciation, especially of the more delicate and valuable machines.

Men of other trades, as the carpenter and mechanic, care for and protect their tools with great vigilance because they have learned from long practice that good workmanship and efficiency are the results. Just as truly the farmer, with even more cash investment in tools, should care for the machinery with which he tills the soil.

The accompanying photographs, both taken on Colorado farms, illustrate inefficient and efficient methods of caring for farm machinery. The machine shed is one of two large sheds on the ranch of the American Beet Sugar company at Rocky Ford, Colo. It is an example of an inexpensive yet efficient shed for protecting machinery from the rain and snow.

In the other picture may be seen a considerable quantity of high priced machinery scattered about in a haphazard manner and subject to the exposure of the elements.

Listed below are the machines which may be located in the picture with their value, when new, based on figures obtained from the local dealer in the neighborhood.

Machine Shed on Farm of American Beet Sugar Company, Rocky Ford.

Disc	$ 75
Beet cultivator	115
2 riding cultivators @ $107.50	215
Walking cultivator	92
Drill	130
Grain binder	270
2 mowers @ $95	190
2 sweeps @ $65	130
Header	400
Total	$1,617

The writer saw on the same farm the following additional machinery unprotected:

2 wagons @ $155	$ 310
Beet drill	105
Beet puller	110
Tractor	1,200
Manure spreader	235
Total	$1,960

Sixteen Hnudred Dollars worth of Machinery Going to Ruin

This amount added to the list above, makes a total valuation—if new—of $3,577.

If we accept 10 per cent as the annual depreciation of this exposed machinery, the total annual depreciation would amount to $355.70. This is an annual loss of sufficient magnitude to demand the attention of farmers who wish to cut down their overhead operating expenses.

Suppose the average life of a farm machine is ten years. But by proper protection in a machine shed the life can be prolonged to fourteen years—which seems a very conservative estimate. Then the annual depreciation becomes 7.1 per cent instead of 10 per cent, or applied to above figures; there would be an annual depreciation of $252.54 instead of $355.70. This would be a saving of $103.16 per year. Suppose we throw the tail in with the hide and call it $100 even money. Of course these figures are hypothetical, but it is believed they are very conservative.

A machine shed, of the type shown in the accompanying photograph, 100 feet long and 20 feet wide, would cost about $500 including labor.

The saving of depreciation alone does not represent the total saving that would come from proper care of farm machinery. The extra time required to put a machine in condition when its use is demanded must be taken into account. Consider the difference in preparing for the harvest season with machinery that has been sheltered during the winter and that which has been permitted to decay rand rust. Also the danger of expensive break-downs during the busy season is far less with well kept machinery than with that which is ill kept and rusty.

Neither have we considered the advantage of having the farmstead in order. When machinery is scattered all over the farm during the winter season, or even bunched in a weed patch, the passer-by is likely to falsely—or truly—assume that the farmer is as careless about his other farm business as he is about his machinery.

Parsons Gives Definition of Dry Farming Terms

SOME WORDS HAVE NEW MEANING AS NOW USED BY EXPERTS

E. R. PARSONS

IN ANSWER to a subscriber I will endeavor in this article to give the meaning of the principal terms and words, technical and otherwise, used by myself and others in writing on dry farming subjects. Dry farming as regards this country is a new industry, and having no vocabulary of its own we have had to borrow largely from the older agriculture, but we have been obliged to attach to many words a much wider significance than that found in the dictionary.

The word fallow, for instance, originally meant nothing more than land which was allowed to lie idle without being cropped. In dry farming parlance it means this and more. We have the three fallows, spring, summer and winter. The first of these, the spring fallow, means land which is plowed in February or March for planting to corn or sorghum, and other late crops in May or June. The land lies idle for several months, but during this time it is worked with disk and harrow to keep the weeds out, secure some compaction and conserve all moisture that penetrates the soil. After deep plowing it will be noted that considerable time must be allowed for the soil to settle, or compact, in order to secure the optimum density for the raising of crops. The fallow does all this and more.

Next comes the summer fallow. This is land which is plowed in May or June, but not planted until August or September. It is recommended in heavy land to work this with the disk, lengthwise and then across without lapping, in order to make the ridges and checks which catch the heaviest rains with the least run off. The summer fallowed land is used principally for winter wheat, or rye, planted in August or later, and produces the heaviest crops of these that can be obtained. Summer fallowing is sometimes called summer tilling, because the land is worked, or tilled, during the summer months.

The third and last is the winter fallow, which is to plow in the fall for spring planting of small grain. It is also very successfully used for potatoes, corn and almost any crop, but it should be noted that after very wet weather it may become too compact for anything but small grain, and if used for other crops fresh plowing or listing may be needed in the spring; but this second plowing need not be deep. It will be recognized that every crop can be planted on one of these fallows and should be so planted, for only small crops are ever obtained on the dry farm on land just plowed. The winter fallow is usually left in the rough to prevent its blowing and to catch snow, but should be worked over with the harrow or disk as soon as the frost gets out of the ground. It may be interesting to know that the earliest mention of the word fallow is to be found in Jeremiah, who tells the Israelites to keep the thorns out of their fallows. What is meant is probably Russian thistles which still grow in Palestine.

Subsoil—This is another word not always used according to the exact dictionary definition. We use it to denote the solid dirt, or soil, underneath the plowed land or seed bed. It may be soil—it should be, but in some cases it is only gopher clay or gypsum, or shale, or some lime magnesia mixture, which is not of much value for roots to feed on. When the land is plowed deep and the subsoil moist, the roots of crops will go into it several feet; therefore, if it is composed of good rich dirt so much the better for the crops. It is impossible to raise the maximum crops over a poor subsoil.

Topsoil—This word is sometimes used to denote the seedbed, or plowed land above the subsoil.

Humus—This is found chiefly in the topsoil. A subscriber asks us to define it. Every living thing, animal or vegetable, is of the earth, and when it dies it goes back to earth again. In process of decay it becomes humus. Leaf mold is nearly all humus. The black dirt in a corral is also mostly humus. All manure, leaves, wood, stalks, stubble, grain, fruit, animals, insects, fishes, everything organic some day becomes humus. The humus of our prairie soils is derived chiefly from the grass which has been growing and dying down in winter, and growing again for thousands of years. It is naturally found more plentifully in the top foot.

Mulch—Means a covering to protect the topsoil from drying out. In dry farming, a soil blanket made by the harrow, disk or cultivator to conserve accumulated moisture. A mulch is not only soil, however, it may be made of straw, manure, leaves or anything which will cover the ground. Mulching the corn means to give it a working over with the cultivator.

Root hairs. The root system of plants consists of the main roots, the fibrous, and the root hairs. These root hairs are found on the fibrous roots, and there are thousands of them to every inch or so. They are so fine that they can be counted only with the microscope. Professor Bergen, the botanist, found on a piece of corn root about the size of sewing thread, 480 root hairs to each 1-100 of an inch. The question naturally arises, why so many? The answer to this probably is on account of the number of the soil granules. There is evidently a root hair for every grain of dirt, so that the moisture on them may be absorbed.

Film moisture. The films are the moisture around the earth granules which the root hairs absorb. If you dip your finger in a bucket of water.

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STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "The Bondboy," "The Crucible of Courage," "Cowardice," Etc.

A TALE OF LOVE AND LOST TREASURE, AND AN ABSORBINGLY UNCANNY MYSTERY IN THE HUNT FOR A WRECK BURIED IN QUICKSAND

(Copyright by the Frank A. Munsey Company)

Mystery Gregg, the Heroine of the Treasure Hunt

THE OPENING CHAPTERS

"It was early in the morning," Captain Gregg resumed, "and I'd just relieved the other pilot. The river was rippin' through the Narris that morning thirty-five feet above low water, full of sawyers and logs, haystacks and hencoops, she'd swep' up out of fields and farm yards in the night like the danged old easy-footed thief she is. I thought I knew that reach of the river, and I reckon I did know it, as well as any mortal man ever knew the Missouri, and I judged I could draw under the south shore, out of that hell-snortin' current and coax her along in easy water and make time. I was holdin' her on a big cottonwood that was the main mark of that crossin', and she was just walkin' into easy water when she struck a snag! But you know how it was—you must 'a' heard your daddy tell it a thousand times."

The Pilot was telling the story of the wreck of the Morning Star to Jonathan Randolph, globe-trotter, adventurer and son of the man who had been captain of the steamer when she sank in nine fathoms of muddy water fifty years before. Moss Gregg had gone to farming near the scene of the wreck, dreaming that some day her cargo of nine hundred barrels of whisky would be raised out of the sand in the old channel. When the river forsook the old channel and cut a new one a mile away, Caleb Moore, who kept store at the landing, locked up his establishment with all its goods and swore he would not re-open until the river returned.

"Do you mean for me to believe, Captain Gregg"—Randolph is speaking—"that any man is fool enough to sit by a dry river bed and keep his business house locked up for fifty years in the hope that a shift of the current will bring his trade back?"

"Fool or no fool, I'll leave you to judge him yourself when you meet him. But that's pre-cisely what Caleb Moore's done. He's more than a mile from the river now and his store ain't been opened for forty-eight years. Trade went with the river when she cut him off and he was too stubborn to foller it. Everybody else in Price City went, but Moore told 'em they wouldn't any more than get settled over there till the river'd come back to the Narris. He believed it, too, firm as salvation."

"* * * So you aim to salvage the cargo of the old boat, John, well, well, well!"

"I'm going to try for part of it, Coptain, if I can get permission to explore from that old savage, Moore."

"Yes, part of it's worth lookin' for. Her main cargo was whisky—you know it though I reckon?"

Jonathan Randolph did know it; he knew, too, and the secret had been his alone until that moment when he revealed to the old pilot what his father had told him concerning a mysterious passenger who came on board at the last minute, preceded by a rough box, like a carpenter's tool chest which had been carried by four truckmen. He told Captain Gregg what his father had many times told him; how the strange passenger, boarding the boat under great excitement, never left the chest out of his sight; how during that last night on the Morning Star a commotion and cry for help from the stranger's cabin had drawn the boat's officers there, to find the passenger senseless, the chest broken open and bags of money in plain sight, the assailant having escaped. The mate saw a man dive overboard. The money was carried to the clerk's safe and locked up. It all happened while Gregg was off watch, asleep, and the next morning the Morning Star struck a snag and went down, the mysterious passenger and his treasure disappearing with her.

If this bit of history about the wreck astonished Captain Gregg, his visitor in turn was astonished at the revelation made by the pilot in answer to the question: "How long since anybody was here looking up the wreck—what did any of them do?"

Four of them disappeared off the face of the earth—so Gregg related. Where they went no one knew, and so it had been with all who had ever tried to uncover the wreck; they went "quick as a lamp carried to the door on a windy night," the old pilot said. That was the mystery; the curse that hung over the Narris "like a cloud of smoke from hell."

Randolph was puzzled, but he continued questioning and learned—absolutely nothing as to the fate of his predecessors in the search, except that they always came, "one behind the other, and inquired about the one ahead." Only the last man did not disappear from the face of the earth, but his fate was nevertheless a mystery. He was found dead in the river road between the head of the Narris and Moore's one morning, bitten as though by a panther—and there hadn't been a dangerous wild animal in those bottoms since Indian days!

And what was the general opinion of the people of the Narris about the mysterious disappearance? Some said the wreck was haunted, "some say one thing and another, like folks do everywheres," vouchsafed Captain Gregg.

And while they were speaking Joel Langworthy appeared, coming down the road.

CHAPTER IV
THE BLASTED CHEEK

Joel Langworthy drove into the shade of the elm, now long across the road, his fagged horses jolting along in heavy trot with hanging heads. Langworthy rode in an open buggy, his coat on the seat beside him, his white shirt gleaming in the sun, the shadow of his broad black hat slantwise across his face.

Randolph looked at him casually for his mind was full of things more important to him than the passing of a local genius of no matter what magnitude. He saw that Langworthy was straight and tall, and bore himself with a conscious bracing of superiority. He was a handsome dark man of thirty-five or forty, with a collar to his white shirt in defiance of rustic Missouri fashion, and a senatorial string necktie done in a precise and carefully balanced bow. His big hat was gray with dust, but there was no trace of discomfort in his seasoned face, the profile of which was singularly regular and strong.

Indeed it was a profile of such uncommon quality that Randolph quickened out of his wandering and centered upon the man, now come to a stand near the well and exchanging greetings with Moss Gregg. A large nose, firm, tight lips, strong, clean chin. Truly a man of character, thought Randolph, and one with a purpose in him, as faces tell such things, when men meet and pass upon the way.

It was plain that Langworthy, having scented a stranger at Gregg's well from the bend in the road, was playing already above the rustic limits of the old pilot, perhaps in the intention of creating an impression of his own consequence beyond his merits and his fame. As he talked with Gregg, disposing of the long preliminaries which preface a Missouri conversation, he cast about him with quick, watchful little turnings of the head, as if studying the effect of his arrival and the refinement of his speech in contrast with the rude contractions and galloping trespasses of Moss Gregg.

"Ye-a, it's been a right smart time since I seen you, Joel," said Gregg, repeating the observation for the third or fourth time in less than two minutes, as Langworthy sat with one foot on the step of his vehicle as if only waiting the termination of formalities to alight and wash the dust out of his gullet at the well.

"Yes, it has been considerable of a spell, Moss," Langworthy returned, a smile moving his close lips, "I guess it's been a month since I was past here."

"Well, I didn't see you that time then, for it's been longer than that. How's your paw and maw, and all the folks down in the Narris, Joel?"

"Very well, thank you, Moss, right well and hearty."

"Ye-a-a,"—Gregg gave the word an elongation of reflectiveness that was peculiarly expressive and eloquent of his wonder, his foot on the visitor's hub, his whiskers in his palm. "it HAS been a considerable spell since I seen you, Joel. How's old man Moore?"

"Hearty as ever, and up and a comin', Moss."

"Ye-a-a, they tell me old man Hickman died a couple of weeks ago and was buried over at Greenwood in the Mormon cemetery. I never knowed he was a saint."

"Oh, yes, all of the Hickman's are, from the early days."

"Well, well! the longer a man lives, sometimes, the less he knows. Ye-es, it's been a right smart while since I seen you, Joel, it shore has. Well, light and look at your saddle, as the feller said. I want to interduce you to a son of Captain Randolph, a man I used to pilot for away back in the days before you was borned."

Randolph went forward as Langworthy sprang from the buggy with a light suppleness in his long body admirable for its quickness and grace. Langworthy gripped his hand fervently, and clung to it with little squeezes and relaxations, like a politician who is uncertain of a man's party alignment, or a professional lodge-joiner who is considering what grip to try.

"I took you to be a stranger here," he said, in a voice soft and winning, "the minute I saw your head above the curb when I made the turn."

He laughed over his confession of his sharp scrutiny, and Randolph had no choice but to laugh with him, there was something so persuasive and appealing in the manner of the man.

"I suppose you know them all here, front and rear elevation, like you do the houses along the road," Randolph said, vainly trying to fix Langworthy's eyes for that brief, deep reading that a man who knows life and the men who live it can take of another's soul at a first meeting, while its waters are still unruffled by any new drifts of subterfuge or deceit.

Langworthy laughed again, but kept his eyes roving between Gregg and Randolph, holding his side-face to the stranger like a woman vain of some peculiar charm.

"There are not so many of them around here that we don't know every man's stoop and swing of the arms," said he. "So your father was captain of the Morning Star? Well, well! I've heard so much about him and that boat all my life—I was born within a hop, skip and jump of her—that it's like meeting an old friend, Mr. Randolph. Will you be here long with us?"

It was a polite way, not confined to Missouri alone, of asking the stranger's business, as Randolph very well knew. As Langworthy talked, even when he asked that pointed question, he kept his eyes going in that quick, small alertness, in the way of certain public speakers as they watch for the effect of their delivery.

Gregg was drawing a fresh bucket of water. With Langworthy's question he stopped his overhand hoisting and turned, speaking quickly, as if he feared that Randolph might discover to the visitor the quest that had led him there.

"He stopped off on his way through to pay me a little visit," he said.

"Quite naturally, eminently fitting. I was in the hope that you'd come to settle amongst us, Mr. Randolph, and bring new ideas and blood into the county. We always welcome new blood and ideas here, even if we have got the name of being kind of slow."

"I may stop here some little time—if I like the country," Randolph told him, amused over Gregg's haste to protect him against what the old man plainly believed to be the unmatched shrewdness of Joel Langworthy.

Langworthy bent to drink from the fresh bucket that Gregg had drawn. As he refreshed himself, Randolph stepped away a few feet into the road, attracted by the ill-humored looking river with a feeling of trepidation and shuddering distrust such as no river that ran to sea in any clime that he had visited ever had exercised over him before. He watched it shining by in the sun, its breadth and volume seeming to grow as he stood gazing on its muddy current. It seemed a most uncommunicative river, with no friendliness in it at a first meeting. Perhaps a man would learn to read it in time, he thought, and wondered if it told anything to Moss Gregg, living there so near its brink that its silent waters were in view from his doorstep.

"If you're down our way, stop in," said Langworthy.

Randolph turned to thank him for the invitation; started, stammered, his words dying on his tongue. It was as if he had confronted one whom he had not seen before; as if, by some necromany, or biological secret of his own, Joel Langworthy had transformed himself into another man. Randolph was ashamed for his poorly hidden surprise, for there was neither credit nor fault to give nor charge to Langworthy. He was as nature had made him, or misfortune had distorted him, giving him the cast of symmetry and beauty on one cheek, the mold of repulsiveness on the other.

"Thank you. If I stay here any length of time I'll be glad to stop in on you," Randolph returned, trying to make amends by speaking frankly, and meeting Langworthy with a look in which his deformity was ignored.

But there was a pang of disappointment, a feeling of sharpness as for a personal loss, in the discovery of the man's infirmity, which he had concealed so skilfully until that moment. It was as if Langworthy had imposed his good parts on him to win a charitable acceptation of his almost hideous fault. It was the left side of Langworthy's face that was withered so, and blasted, as if a branding-iron had been laid to it, searing it and killing its beauty.

There was a grayness over the scarred cheek, and it was drawn and thin. The eye was marred also, smaller than the other, and leering of brow. It was as if nature had branded him so and stood him forth to walk the world, a cruel exemplification of the disparity between a man's body and his soul. But which side of him represented body, which cheek soul? Randolph felt a chill sweep him as he turned that question, Joel Langworthy's shadow falling across the road at his feet.

CHAPTER V
THE NARRIS GOLD-DIGGERS

Gregg stood looking after Langworthy as he drove away, sitting straight and consequential in his high-backed buggy, his whip held over his sweating, spiritless horses in suspended threat.

"Yes, I reckon Joel he'd 'a' been in Congress a good while ago if both sides of his face looked alike," he said.

"It's a terrible deformity!" said Randolph.

"Yes, I reckon he must look kind of hell-awful to strangers," Gregg admitted, "but we're used to him here. We've seen Joel grow up that way.

"He was always like that, was he?"

"Borned that way."

"It seems a pity, a cruel infliction upon him."

"It is a pity, for Joel he's as sharp as a pitchfork. That's kep' him down, and I'm not sayin' he ain't gone up, considerin', the start he had and all. But he'd 'a' gone higher if he'd 'a' looked alike on both sides, even the bad side."

"What business is he in—or what does he do?"

"Well, Joel he lawyers around a little, and runs for office and buys up feeders and fattens for the market."

"Oh, he just RUNS for office, does he?"

"Mainly. Once in a while we elect him justice of the peace, and one time he was a judge on the county court. That ain't a law judge in Missouri, you know, only a county commissioner that spends the tax money on roads and offices and the porehouse."

"I see."

"Yes. But Joel aims mostly at goin' down to Jeff' City in the legislat're. He runs for that more than anything."

"But he never has made it yet?"

"No, Joel ain't got up to it. It's all right here in this part of the deestrict where we was brought up with him, but

(Turn to Page 21)

This Is Twelve-Inch Plowing

This illustration shows a Spalding Deep Tilling machine on the farm of Ross E. Kenyon, Barnesville, Colo., plowing under Russian thistles, sandburs, barley stubble and volunteer oats and barley. The plow is going ten to twelve inches deep. Mr. Kenyon sends us the picture with the comment: "Parsons' article on deep tillage in December 15th was a good one. Have him send more of the same kind."

Deep Plowing on the Kenyon Ranch

"Dry farming is essentially farming for the future. The plowing we do today may bring us no returns for six months or a year. Furthermore, every year's good plowing improves the condition of the sub-soil and conserves more and more moisture over and above what the crops use up, and the longer the good work is kept up, the easier it becomes to raise almost anything the farmer desires." So says Mr. Parsons.

Made $3,000 from One Sow

Hogs can be raised as cheaply and with as little care in the West as anywhere. Here where we have 300 days of sunshine as sure as the year comes around, and very little rain to make the fields and lots muddy, and where alfalfa, the greatest of all forage crops, is grown.

The beet grower can run brood sows on alfalfa pasture during the summer months, and by feeding them a little corn can raise two litters of pigs each year. The increase is from 600 to 1,000 per cent and the labor required is very small. The beet tops then can be fed at a large profit in the fall and winter, with a little corn and tankage, while the eastern farmer has to feed all corn and tankage in his fattening rations. The gains may not be so fast when beet tops are fed, yet the consumption of corn is so little that the profits are much greater per pound of pork.

Hogs are the best rustlers for their feed of any of the farm animals. They do not require, therefore, any of the farmer's time to haul feed to them while turned out, and the fertilizer is also distributed, another great saving to the farmer.

All experiment stations claim that a hog will produce more pounds of gain for pounds of feed consumed than any other marketable animal.

I started in the hog business on the dry land, trading a Jersey calf for a sow pig, then bought a mate to her, and from these two sows' first litters, I made $185 clear. Then I went to Iowa and bought a pure-bred sow. That was four years ago. I sold this sow a year ago and in the three years that I owned her she made me over $3,000 and I still have two of her pigs left.

I believe that in the near future farmers will feed hogs more extensively than cattle or sheep, and I thoroughly believe that the sooner they do it, the better it will be for them and their pocketbooks.

Now, why the Poland China? Before I decided which breed to specialize in, I studied the hog market closely and found that Poland Chinas topped more markets than all other breeds combined. I also found that they made faster gains than any other breeds. It was about this time that the objection was pointed out that they were not prolific. I'll admit that the little, chunky, old-fashioned "hot bloods" were not very prolific, as they generally only had twins or triplets, but the Big Type Poland Chinas are very good breeders and average from six to ten pigs to the litter, and raise on the average seven pigs. I would much prefer seven good pigs to eleven with two-thirds of them runts. The objection was made, too, that the Polands were not good rustlers, but we are not in Arkansas, where the hog has to get most of his feed from acorns and nuts, but in the grand and glorious West, where we have the pastoral advantages and where prosperity greets the farmer.—Geo. R. Gilmore, Ft. Morgan, Colorado, in "Through the Leaves."

"My estimate is that for a single year if all of the farmers in the United States had used the Oliver chilled plows instead of the regular steel or iron plows, the saving in labor would have totalled the sum of forty-five million dollars."

—From Report in Congressional Record by Senate Statistician, 45th Congress (1877-1879).

The Statement of Yesterday -the Answer Today

The answer to the statement recorded by the Senate Statistican of the 45th Congress that a saving in labor of forty-five million dollars would result to American farmers through the use of Oliver plows is found today in the universal demand for Oliver products.

Even as early as the 45th Congress (1877-1879) Oliver quality had been proven in actual practice and Oliver leadership in providing plows that assured better seed beds already established.

The agricultural history of the years that have followed has borne out the correctness of this statement.

Oliver predominance has kept pace with the remarkable progress of American agriculture in the past half-century—with its doubling of farm area, its tripling of production, its tremendous reduction of cost and human labor.

Today, as we stand just on the threshold of modern power farming, Oliver leadership and progressiveness are signallized as emphatically as in the early days. A large majority of tractor manufacturers have openly declared their preference for Oliver plows and tractor implements to be used in connection with their tractors.

This preference is based on sheer merit. It has been earned by Oliver's thorough knowledge of soil conditions, plow design, plow hitches, tractor construction and operation. It has been held and cemented by Oliver's country-wide service organization.

In the "Statement of Yesterday—proved by the experience of a generation—holding promise of greater achievements in this new era of American agriculture—you will find ample justification for Oliver's slogan: "Plow Makers for the World."

Oliver Chilled Plow Works

South Bend, Indiana

"Oliver Plowed Fields Bring Greatest Yie'

A Lawyer's Venture in Hogs

HOW TWO LITTLE RED PIGS STARTED SOMETHING

A CORPORATION lawyer is presumed to know a lot about the law, but what he might know about hogs you could, ordinarily, put into a thimble. Purebred livestock is sometimes the hobby of a gentleman farmer, serving him for diversion, just as golf or the hunt might serve those of other inclinations, as a tonic for tired nerves. Those are the thoughts that suggested themselves when the writer was invited to spend an afternoon at Edgemoor farm. Once inside the arched gateway, the first picture vanished and it became quite evident that here was an exception to the rule; here a real breeding place for real hogs, and no gentleman's week-end diversion.

Caldwell Martin, general attorney for the Great Western Sugar company, is proprietor of Edgemoor, which is a little alfalfa farm and not a country estate. This little farm has just one specialty, and that is the breeding of the finest Duroc Jersey hogs that blood, care, feeding and glorious Colorado climate can produce.

Edgemoor is within easy walking distance of the Littleton interurban, just at the edge of the country, not more than seven miles from the state capitol. It comprises only 25 acres, but these acres are intensively used to produce alfalfa, corn and pumpkins, providing bulk feeds for the hogs and keeping up a few good milk cows. There is no waste land; no idle corners; plenty of manure is provided to keep up fertility and there is a good water supply.

But why should a lawyer go to raising hogs, and why did he choose Durocs?

Before we answer let us look into Duroc history for a moment. The Duroc Jersey breed is generally thought to be strictly an American breed, but many stick to the story that is given in the Record book, that in 1832 a pair of red pigs were shipped from England to New Jersey. "Their unique color," so history has it, "rendered them objects of special interest in a locality long noted for successful swine breeders and feeders, among whom had long existed a great spirit of rivalry as to who should annually win the honor of raising the best lot of hogs, making the greatest average weight at different ages for which prominent Philadelphia butchers paid advance prices."

Now, it wasn't the same pair of red pigs, but another pair of the same color and breed that induced this lawyer to adopt breeding as a hobby—no, that is doing him an injustice. It is not a hobby with Mr. Martin; breeding is a profession with him that, unless the writer is much mistaken, will some day supersede in his attention the profession to which he was educated. Breeders are born. Sometimes the talent is accidentally discovered, like in the case of Mr. Martin and the two little red pigs. They were given him as a wedding gift by friends in Ohio. Somebody back in the Buckeye state had a hunch that the gift would be appreciated and it was, because Mr. Martin's love for farm animals is natural, and long antedated the receipt of the unique wedding gift.

What was there to do about it? One cannot ruthlessly slaughter two purebred, registered piggies, of such evident class as these that came in a crate so many hundreds of miles, so the next move was to get a farm for the piggies. And they lived happily ever after!

Then came trips to the International and to the Iowa State fair, and then Edgemoor farm Durocs began to make an impression on the judges at the National Western, and at the Colorado State fair. Nothing less than the best blood appeals to Mr. Martin, consequently he was able to show his visitors such individuals as Cherry Chief of Edgemoor, who at ten months was grand champion at the National Western in 1918, and grand champion also at the State fair last fall. This boar is a grandson of the famous Cherry Chief, and first cousin of the great boars Orion Cherry King and Pathfinder. The other herd boar is Edgemoore Defender, who hails from Kentucky and is grandson of Old Defender.

The sows that were inspected by the visitors included Miss Crimson 2nd, who was first prize junior yearling at the Iowa State fair in 1916 (she is a grand-daughter of Defender), The Principal's Helen, by The Principal, Orion's Colorado Lady by Orion Cherry King, the latter being closely related to Jack's Orion King, that sold to Longview farm at Kansas City last summer for $10,000.

Now for that other question: why did he choose Durocs? The first reason was that Durocs were thrust upon him; the other reason was that they proved to be just what is claimed for the breed—very prolific, good milkers and mothers; good grazers; quick maturing, and they are popular in Colorado, outnumbering all other breeds at the present time.

The ribbons won in the last few seasons by Edgemoor farm show that Mr. Martin exercised shrewd judgment in selecting foundation stock. He likes the stretchy, long-bodied kind, that will carry size and weight; a good commercial type of hog that will fit into Western feeding plans and make the farmer money.—A. T. S.

Bulletin on Alfalfa Dodder

Alfalfa dodder, a plant parasite which is an annoying and expensive pest to growers of alfalfa in Colorado, is the subject of a bulletin published by the Experiment Station and just off the press. Descriptions and illustrations enable the layman to identify the plant in his field, means by which the plant is spread are explained, and the eradication of dodder in the field in both large and small areas is discussed.

Considerable emphasis is laid upon the importance of cleaning all alfalfa seed and various methods of accomplishing this are described, including the hand sieve, and a description of how this device may be made.

The bulletin is No. 248, subject "Alfalfa Dodder in Colorado." It is written by W. W. Robbins and G. E. Eggington, and may be obtained by addressing the Experiment Station, Fort Collins, Colorado.

ALFALFA

The most valuable and most profitable crop on any farm
Its uses are innumerable:
Permanent, nutritive pasture
Abundant, fattening, green fodder
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Three to five crops per season;
Unexcelled as a soil builder
Excellent for hogs, rabbits, chickens
No farm should be without a stand of alfalfa

Our alfalfa seed is grown in three distinct regions—Northern Latitudes—High Altitudes and Dry Land Areas. From such districts we selected seed produced by the best and most vigorous types. Then cleaned, recleaned it and had it all thoroughly and reliably tested. Germination and purity tests are attached to each lot of field seeds shipped by us. Ask for samples! See for yourself! Secure your alfalfa seed from the West, direct from where it is originally produced.

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SATISFIED USERS wrote this Ad for Us—

Their Experience is worth real Money to YOU!

I have owned three spreaders in my time. The first two I didn't think much of. Then I got one of yours and now I am more than pleased with the spreader proposition. I find by hauling manure in the winter time on clover sod and letting the rains leach it down before plowing it under will oftimes double the corn yield or even wheat. Where I used commercial fertilizer and barnyard manure together on 12 acres of wheat last year I got 600 bushels of wheat, an average of 50 bushels per acre. A farmer that owns ten acres can't afford to be without a spreader.
WILL HENSIL, Ohio.

I have had several spreaders on my farm, but there are none like yours. I could not farm without it. Last fall I put six acres to wheat, first putting on 30 loads of manure. This spring I put on 20 loads more. You just ought to see that wheat. The manure made it stool out very good, and it will give 35 bushels per acre. If I had not used the Spreader this spring I am sure I would not have gotten over 15 bushels. Your spreader is one of the best investments you can put on the farm.
C. E. HUPRICH, Ohio.

I would not be without your Spreader, because it saves so much labor, puts the manure on the ground evenly, and I can spread any kind of straw or cornstalks. I believe my spreader will pay for itself in two seasons. With the proper use of manure on my place and using lime, I have increased the yield of my farm 25% in six years.
E. M. PHILLIPPE, Virginia.

Have been using your spreader on two different farms for a year and find them lightest in draft of any I have ever used. Two horses will pull them anywhere when the ground is not too soft. The straw attachment is ideal for top dressing wheat ground or any kind of small grain. It gets rid of a great deal of straw which goes to waste and this alone will pay for the spreader in a year's time.
J. D. BLACKWELL, Sec'y.
Missouri Angus Assoc.

THESE letters answer every question you may have about the Nisco Spreader. We will gladly send you the writers' addresses and copies of similar letters from many others, if you want further proof. These letters, like the Nisco itself, stand every test. They prove that you yourself should have a

NISCO
The New Idea

THE ORIGINAL wide spreading spreader that revolutionized old-fashioned methods—that has always been the leader. Has solid bottom with chain conveyors. Pulverizes thoroughly and spreads evenly. Drives with heavy sprockets and chain—no gears. Low down, light draft. Loads and pulls without undue strain on man or team.

When you buy insist on the "Nisco"—the machine you are sure of. If you don't know our dealer, we'll send you his name and a copy of a splendid book on soil fertility. Send your name today.

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"NISCO" One-Man Straw Spreader Attachment.

(8)

THE FAMOUS "101 RANCH" ENDORSES THE NISCO

Gentlemen: Bliss, Okla., December 15th, 1918.

We are very much pleased with the three NISCO Spreaders. We have used several other makes, but seeing your advertisement, decided to investigate your spreader. After looking them over, we ordered three of them and have them working every day along with three others.

Yours pulls much easier and does much better work than the others. We are pleased to recommend your NISCO Spreaders, as we are convinced that they are the best we have ever used. Yours truly

MILLER BROS., "101 RANCH."

The largest diversified Farm and Ranch in the United States.

Easy Ditching

THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with THE Martin

DITCHER, Grader and Terracer

Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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CHILDS' GIANT KOCHIA, our 1918 novelty, has taken its place everywhere as the greatest floral favorite. It rivals the best Ferns or Palms in decorative effects and is equally valuable for garden or pots, a pyramid of dense feathery green foliage all summer, in fall, a dark claret red till Christmas. Easiest of all plants to grow anywhere. Pkt. 20c.

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SPECIAL OFFER

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BIG CATALOGUE free. All flower and vegetable seeds, bulbs, plants, and berries. We grow the finest Gladioli, Dahlias, Cannas, Irises, Peonies, Perennials, Shrubs, Vines, Ferns, Roses, Sweet Peas, Asters, Pansies, Beets, Beans, Cabbage, Onions, Tomatoes, Seed Corn, Potatoes, etc. Prize strains and sterling novelties.

JOHN LEWIS CHILDS, INC., Floral Park, N. Y.

Reflections on Farm Management

THIS IS WORTH TEN DOLLARS A MINUTE

GORDON KENT, The Mountain Farmer

A MAN might have five thousand acres of the finest land that ever laid outdoors, but if he plowed it at the wrong time of the year, or planted weed seeds, or forgot to plant it altogether, or let the crop spoil, or neglected to harvest it, or harvested it but neither fed it to stock nor marketed it in any other way, or having fed it to stock didn't take care of the stock but let them run wild and get away from him—he wouldn't be a howling success as a farmer.

And he wouldn't make a dollar in a thousand years.

Neither soil, climate nor capital make a successful farmer. It takes management. To manage means to handle—to handle land so as to produce crops, to feed crops so as to produce beef or milk. In the wind-up to produce results in dollars and cents, SOMEHOW.

A pure-bred herd in the hands of a novice would go down hill faster than anyone ever built up such a herd. Stock-raising, fruit-growing, grain-raising, dairying, poultry-keeping, and every other kind and complexion of farming takes management from "a" to izzard. Managing, handling things so as to get results in cash, is the life and soul of farming.

This ought to be as obvious as a black eye, but where is the man who studies night and day incessantly to handle everything to the best advantage? Who is there that never travels in the rut? Who is there that is practicing the best he knows how in all the details of his farming; that never lets things just slide at times, and does things because they are easier or customary when all the time he knows they are not the best farming practice?

The aim of the farmer is the DOLLAR. Not for its own sake, but for the things that it can buy. Every comfort and convenience that comes under the head of civilization has to be paid for, from a marriage license to a phonograph needle. The implements used in the field, and the cabinet, washing-machine, sewing-machine, water and lighting system that the wife needs in the house, the warm clothing, and the education that makes citizens out of the children—all have to be paid for. And fifty thousand readers of Western Farm Life know that for a positive fact.

Let us frankly say, then, that we are aiming point-blank at the coin. What difference will it make?

The farmer's business is handling things. Let him drop anything that is not making him money, or else change his methods so that it will make him money. And if there is a way of handling some particular crop or stock that will make him more money, let him find out what it is, and adopt it, pronto.

To get right down to cases. When you sell beef on foot at eight cents you do not make as much money as you do if you take it to the butcher dressed at sixteen cents. You get still more if you sell it by the quarter at eighteen and twenty cents. But why don't you cut it up and peddle it, and make twenty-four and twenty-eight cents? I was offered twenty-five dollars for a yearling on foot this fall. Then the butcher offered forty odd dollars for him dressed. By peddling him out, I realized about seventy. How much did I make for the three hours' cutting, and the three hours extra it took to sell him?

You can't always sell beeves at retail that way. It doesn't always work. No, but it will work a lot oftener than it is worked. Work it every time you can. Don't overlook any bets. Remember you are handling beeves for the sake of what there is in it for you, and what there is in it depends on how you handle them.

Take your work team. Are they busy twelve months in the year? No, you say. There are months in winter when you keep them on a maintenance ration, and they are an expense, and scarcely bring in a dollar from the time snow flies till the frost goes out of the ground in the spring. Most of the teams on ranches around me do just that, wait from fall to spring. There is a way to break even, at least, with your idle team. Do your work with brood mares. They are better workers than geldings, anyway, nicer to handle, last longer, and a mare will hand over a colt in the spring and square up all arrears in her board bill. I don't feel a bit uneasy about the hay or grain I am feeding now, for I have two colts coming that will pay for it and my trouble, too.

This is personal, and some people will say, sordid. But they don't make me my living or provide me with any of the things I want. I want a typewriter and a camera, and a flivver and a woodsaw, and some books and all kinds of machinery, and more cows and more land. And I want my wife to have everything she wants. And I've got to get the things I want by so managing and handling the things I've already got as to make enough money to buy all these things, and every farmer that reads this article is in exactly the same fix.

Labor is no better than idleness if it does not bring the things that should reward labor. Unproductive cows will eat a farmer's life. They are murderers. Horses that eat their heads off are also eating up their owners and their owners' families. Shiftless farmers that allow such goings on on their farms certainly deserve their fate. There are hundreds of thousands of shiftless farmers, and Nature is using their scrubs and skates to wipe them and their progeny off the face of the earth.

The difference between the five-thousand-acre man we started out with and the best farmer on earth is just management. And the rest of us are strung along between these two extremes. Lots of us are working to the limit of our strength. So far as industry is concerned there is nothing more to be asked. What might be asked is this, that we pause a while and desist from our efforts long enough to find out why they are not bringing us a greater reward. If you do this and find some leaks to stop, and some new methods to adopt that will bring speedy cash profits, why then the time you have spent reading this article will be worth to you at least ten dollars a minute.

Used By Three Generations of American Farmers

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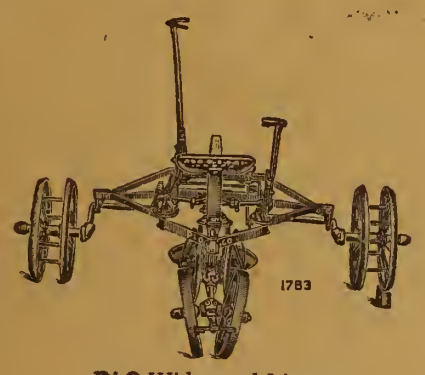

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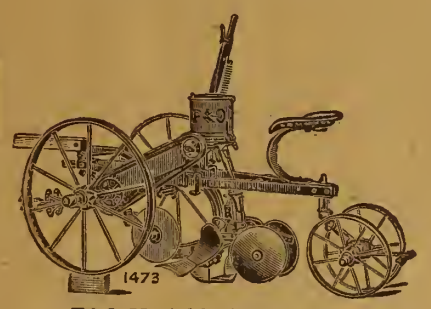

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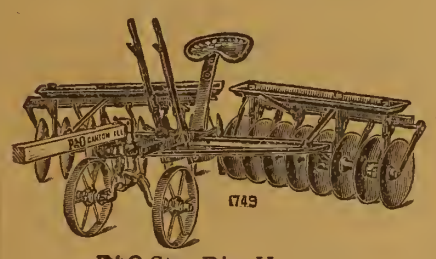

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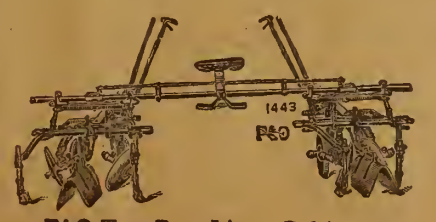

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3 P&O Features { Simplicity Strength Ease of Operation

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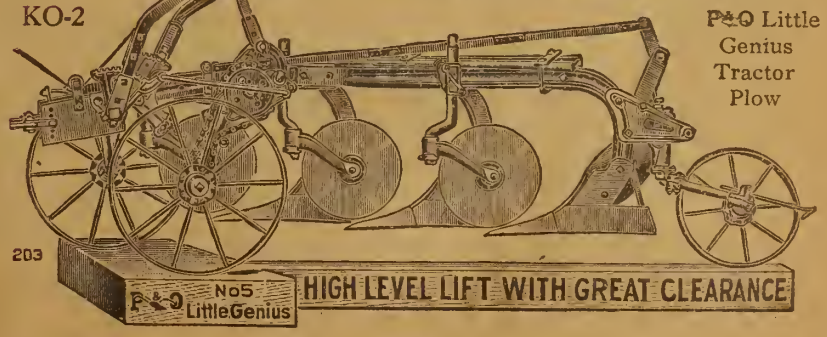

P&O Little Genius Tractor Plow

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Shall We Vote Bonds?

In another column will be found a communication from a stock raiser who is doubtful about the advisability of a $20,000,000 bond issue in Colorado for good roads. There is pending in the legislature a bill which provides for the submission to the people at the next state election of a constitutional amendment enabling the state to issue bonds in the sum named for road purposes. Legislators are eager to have the sentiment of the people on this question and they want it from taxpayers, especially those who own and operate the farms, and who use the roads to haul their produce to market. The time to thrash this thing out is now, before the measure becomes a law and saddles upon the state the expenditure of another amendment vote. It costs money, and a lot of it, to adopt or reject an amendment to the constitution, and there is nothing to be gained by submitting it, if the sentiment of the people can be obtained in advance of the preliminary legislation. Farmers' organizations have been asked to express themselves and these expressions should be forthcoming within the next thirty days.

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The Curl in a Pig's Tail

The champion pig club boy of the United States, Elton Sartor of Texas, is quoted by the Department of Agriculture News Letter as follows: "Whole milk will certainly make a pig's tail curl."

The News Letter adds: "Of just what practical utility is the corkscrew effect of a porker's caudal appendage Sartor doesn't say. It must mean something very desirable though; otherwise it would not figure in championship pronouncements."

Of course it means something desirable. Ask any hog man, or any good pig club boy or girl about that curl. Professor Cottrell used to say: "If a pig's tail hangs down straight, sort of listless and lifeless, that pig is drooping; something is wrong. If it has a good curl in it, why, he's doing fine, thank you, and he grunts contentedly when you come near him. A curled tail is a sure sign of hog contentment, and it takes a contented hog to grow fat fast."

There we have it on good authority. Professor Cottrell has raised hogs by the thousand in the corn belt. The tail is the hog's barometer. If it wasn't made to show just how the hog feels "on the inside," what is the tail for? Answer that, you department experts!

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U. S. Pig Club Champion

Out of Bartlett, Williamson county, Texas, comes the pig-club champion not only of Texas but of the United States; that's what Owen W. Sherrill, the county agent says, at any rate. The name of the claimant is Elton Sartor, and here's the record on which the challenge is based:

His 68-pound registered big type Poland China sow pig, selected fifteen months ago from a famous herd in Kansas, cost him $25. The first litter from this sow was eleven pigs. The price he got for them when they were six months and four days old and weighed 2,233 pounds was $527.85. For nine pigs out of the second litter of twelve he received $225. Adding $500, the amount refused for the sow, and deducting the feed bill of $172, the gain was $1,052.85. This means a net profit of $1.052.85 in fifteen months on an initial $25 investment. Pretty hard to beat, isn't it?—Weekly News Letter.

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Giving the Boys a Chance

Considerable is being said regarding what should be done for the "boys over there" when they return. These boys went freely to war, they did not have to be coaxed, and did not even have to be requested. The occasion arose and they offered their all. Among them are the finest men who ever lived, and thousands of them sacrificed their business and profession. They sold their farms, and livestock, stores and elevators and gave up their positions and professions. Thousands of them lie sleeping never to return, but those who do return according to the ideas of some people, will be given a job working on the roads or given a swampy, stumpy, stony farm to reclaim, that has been rejected time and again as worthless.

Probably someone will find a little water somewhere in the hills, build a reservoir or two and supply a little stream to this piece of land, to that piece of land, and on the strength of it sell thousands of acres of dry land for some New York capitalist at unheard of prices, as irrigated farms. Our mountain sides, our greasewood, alkali deserts, and our barren pine lands of the South offer little encouragement as farming propositions. If the good lands we read about do exist, and some undoubtedly do, let the boys have them and pay them a wage upon which they can live comfortably while they "hew out" and establish their homes. Make them feel that their services in defense of our country are appreciated, by restoring to them "the aqual opportunity." The idea that "our boys over there" when they return will be given a chance to retrieve their fortunes and rebuild their professions by digging out stumps, by putting in drains, and by working on the roads is ridiculous. The reflection is not good; our boys deserve the best. Equity and justice between man and man, and partiality to no one, is what our boys fought for and most desire. For love of country, let us read the hand-writing on the wall in Europe, and let no man take the advantage of our soldiers. This is the most critical period our country has ever experienced, and justice must prevail. Whatever policy is adopted must in the end be to our soldiers' interest.—R. W. CLARK.

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The Good Roads Question

More than a score of measures have been introduced into the Colorado legislature for the promotion of good roads. One of these, which has strong backing, is a constitutional amendment for $20,000,000 in state bonds. It is figured that these could be floated for 5 per cent. It is very doubtful whether this is the best plan. The present levy for road purposes is one-half mill, which produces approximately $750,000 a year. The interest on $20,000,000 at 5 per cent would be one million a year; we would, therefore, in order to meet the interest charge alone, be obliged to increase our present taxes one-third. It is argued by many that a million dollars a year in addition to the federal and other funds provided by counties is as much as can be economically expended in the construction of highways.

If this be true, and the bonds should be voted and sold, at the end of twenty years we would have expended twenty million dollars and still owe the bonds, because our taxes would be eaten up in interest. It is a very serious question whether the state had not better increase its tax levy sufficiently to create a million dollars a year and spend that in highway construction and not burden itself with $20,000,000 of bonds.

So far, Colorado has very little indebtedness and most of that has been incurred by industrial disturbances. During the war we have gone through a period of very high federal and state taxes. Many of the commonwealths of the country have bonded themselves very heavily for one cause or another. In the period of reconstruction to come, low rates of taxes and economy in public expenditures will constitute a very attractive feature to new settlers and capital seeking a location.

Roads, of course, are a prime necessity; they are, however, developed as the country grows. In our soldier settlement campaign just beginning, wouldn't it be a better scheme for the Rocky Mountain states to unitedly request the federal government to contribute its public lands to a road building fund? We are furnishing the public summer play-grounds for the country; good roads to these are essential; the government can never make any money out of these lands; states are better able and more interested in their settlement and development than is even the federal government. Colorado has complete machinery for handling the lands; if placed upon a similar basis to the state lands, they could be sold on easy terms of payment for the construction of roads while the increased taxes derived from them would furnish material aid in keeping them up.—A STOCKMAN.

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National Tractor Show

The 1919 Tractor Show at Kansas City February 24 to March 1, will be truly representative of the bigness and greatness of the tractor industry. The tractor building is being erected on the Union Station Plaza convenient to the station. This building will be steam heated and lighted by electricity, with unusual accommodations for both exhibitors and the visiting public. Throughout the great West and Southwest, the tractor country of America of which Kansas City is the commercial metropolis, farmers are waiting for the Fourth Annual National Tractor Show before deciding just which tractor they will buy.

The tractor today is recognized as of fundamental importance in motorizing the farm. The methods of the past are unsatisfactory in these days of progress when the farmer must face radical changes in the supply of labor. The tractor has no rival when it comes to intensive cultivation. It is a portable power plant, moving quickly and easily to any spot on the farm. The adaptability of the tractor is one of the big reasons why it is popular.

The great amount of work it can do, aside from plowing, discing and harrowing—such as threshing, corn husking, filling silos, baling hay, sawing wood or digging ditches, make it the greatest farm machine of all time.

The growth of the tractor industry has been remarkable. In 1912 there were only 11,000 tractors manufactured in the United States. By 1918 the total output approximates 100,000. It is predicted that in 1920 over 300,000 tractors will be in use in America. The potential market in this country exceeds 1,250,000 tractors. By this is meant that there are farms in the United States which can be far better and more quickly worked, with less labor and greater returns, with tractors than without. The number of tractors to meet this demand would total one and one-quarter million, not including replacements. Of course this staggering figure does not include the demands of Europe, of Asia, of Africa or of South America.

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Stock Show Review

A full review of the National Western Stock Show will appear in the issue of February 15th. The thirteenth annual show proved to be the greatest in the history of the industry, with more entries in practically every class than ever before, and an attendance record fully up to the highest of previous years. Price records were broken in the carlot sales of fat and feeder cattle, while breeding cattle sold at high levels. It was a history making exhibition, the results of which will be reflected in every department of livestock production throughout the mountain states.

This region would today still be in a backward condition had not a few farseeing men, interested in livestock, organized the National Western Stock Show Association, some fifteen years ago. This association has given the West a foundation of purebred cattle, both beef and dairy types, and of hogs, sheep and horses. The annual show is the clearing house where new herds are founded and better livestock starts out on its mission of prosperity. It is hard to estimate the good accomplished. May the show continue to prosper.

In order to get the magazine into the mails on the first and fifteenth of the month it is necessary to close the forms a week prior to date of publication, consequently no adequate review of the stock show, which did not end until January 25th, could be given in the present issue.

The Branding Iron

Applied by Elias M. Ammons

The people of the San Luis valley are making a very strong appeal for federal aid in the drainage of their water logged lands. There are probably 600,000 acres of lands in the valley that are so seeped as to be wholly or very largely withdrawn from production. There can be no adequate drainage except by the construction of canals, and the situation is such that the discharge from these canals cannot be utilized in Colorado. From investigation already made, it appears that a large volume of water would be released to supply a steady, increased flow into the Rio Grande for repeated use in New Mexico and Texas. The benefit to other states would, probably, be as great as to Colorado. If this supposition should prove true, the San Luis project is more important than any other that has been constructed by the Reclamation Service. The San Luis valley people, therefore, are asking the federal government to take up this drainage matter, as it would not be fair for the people of Colorado to effect the drainage when there would be even more benefit, perhaps, to other states. While this is the most important of similar interstate problems affecting Colorado, adjacent states and even federal bureaus have been very slow to recognize the fact that the use of water in all of the streams arising in Colorado has had a beneficial effect along the entire length of the streams, for the reason that the flood waters of the spring have been stored and utilized to a great extent, evening up the flow of all such streams. Floods in the early season have been diminished and stream flow in dry periods has greatly increased.

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Having greatly enhanced farm production, the next thing we need is to improve our marketing facilities. The best method of securing increased production is to insure good markets.

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At a recent meeting in Baltimore, Dr. Chas. A. Lory, president of the Agricultural college, was elected president of the Association of Agricultural Colleges and Experiment Stations. This is a very signal honor for Colorado. The association has a reputation for exercising great care in the selection of its chief officer and only those who have been for a long period in the work and who have achieved notable success have been chosen. Dr. Lory has been vice-president the past year and his advance to the presidency will be learned with pleasure by all Colorado and Western people.

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A very carefully prepared bill has been introduced into the legislature to secure co-operation between the federal and state government in providing lands for soldiers, sailors and marines. All the nations engaged in the war are furnishing lands for returning soldiers on, more or less, favorable terms. Colorado is better situated, perhaps, than any other portion of this country for such work, and it is believed the legislature will forward this movement in every way possible.

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Experience at the stock show has proven the truth of the adage that "blood will tell." Joseph M. Carey, ex-congressman, prominent on the bench, U. S. senator and governor of Wyoming, has a national reputation as one of the best livestock men in the West. His son, Robert D., has grown up in the business in Wyoming and has just been elected governor of that state. No one will be prouder than the father if the son shall excel his record.

Comment by Farmer Putnam

DISCUSSES STATE HAIL INSURANCE AND THE PROPOSED ROAD BOND ISSUE

DID you folks ever hear of Weld county, Colorado? I reckon everybody nods their heads, because Weld county has been purty well advertised over this here United States, on account of it beln' a place fur Greeley to act as county seat and general supervisor of. Greeley was thar ahead of the county, I think; anyhow Greeley was heard of before anybody cared much about what the name of the county was that it was the seat of. I was talking that way to a feller in Greeley, when I was up to the farmer's institute not long ago and he sez: "Farmer Putnam, we appreciates all the kind words you has to say about us folks in Greeley, but would you just as soon not say we're the county seat of Weld county, but say Greeley is the head of Weld county?"

Anyhow I had a fine time visitin' with my farmer friends, and what struck me most was the way them irrigation fellers and the dry landers mixed without gittin' riled over each other. I kin recolleck when a dry land farmer comin' into a audience of them thar rich irrigation fellers was looked on like a poor fool that was tryin' to make the dessert blossom without applyin' the rose water, but it's different nowadays. I seen where them dry landers got a respectful hearin when they told about the way they're a growin' crops on stored moister by deep plowin, and careful tillage. A feller by name of Horn from Briggsdale put it about right when they was discussin' hail insurance. One of the irrigation farmers sez he didn't think it was quite fair to the dry landers to assess them as much per acre as they assessed the irrigation fellers fur the same kind of protection ag'in hail. Mr. Horn spoke up and told him not to worry; the dry land farmers was ready to take their chances on the same basis right now, and that the time would come when the difference in revenue per acre wouldn't amount to practically nuthin'.

This here hail insurance was a good point fur other farmers to think about. Them Weld county fellers resoluted in favor of state hail insurance. Now lissen, don't let that name scare you out of a year's growth by thinkin' it's rank socialism. It ain't nuthin, more nor less than co-operation, because who pays the hail damage, not the state but the farmers collectively. So let's not go off half cocked on this and walk around it, because it happens to be called state hail insurance. It'll work out somethin' like this: Every farmer in counties that wants to adopt the plan—and no county kin be forced into it onless the majority of the farmers wants it—contribute six cents per acre per year into a hail insurance fund on all agricultural land. Now what struck me was that this wasn't a-goin' to exclude any land owned by them non-residenters and speculators; no sir, it all comes under the law, whether you raise crops on it or just use it fur paster; if it's plowable the six cents tax goes. Now this here fund, collected like county taxes, is handled by a hail insurance commission, appointed by the governor, but he has to name them commissioners from a list of actual boney fido farmers, submitted by farmer's organizations, and them fellers don't git pay only when they're on the job assessin' hail damage.

Of course, them commissioners has got to be good judges of hail damage, but I reckon it won't be no trouble fur the governor to find experienced men, if the law passes Billy Adams and the legislature. I kin think of two dozen right now out on the plains that knows what hail damage is, and so kin you. Of course, them commissioners won't have no easy job in adjustin' losses, because hail damage is a funny thing. When a hail hits, why the hull durn farm is wiped out; the profits of ten years is gone, but usually a day or two follerin' the storm, things begins to kind-a clear up, and, by and by, the crop comes on a little and in the end the damage hain't been quite so much as we figgered.

This here hail insurance has just got one weak point—it don't make no legal provision fur stoppin hail storms. In this here day and age of regulatin' everythin' by law I don't see why we caln't devise some way of lawin' the hail outen the country and lettin' it drop only on the unjust which lives in the cities and towns.

They was a coupla statesmen come up from Denver to the institute to see what the home folks wanted 'em to do on the good roads bond issue. It was Senator Colvin and Representative T. T. Wilson. They said they come to git the sentiments of the farmers and the farmers wasn't slow in tellin' them what they thought about bondin' the state fur good roads. Most of 'em was ag'in a big bond issue. They said the Greeley court house was built without a dollar of debt on future generations and they didn't see why it wouldn't be a good plan to raise our money by direct taxes, instead of payin' out so much interest on bonds. Another thing they said was that the farmer's needs fur good roads fur haulin' his crops to market ought to be took care of first, and then the next thing would be to build more auto roads through the mountains fur tourists.

I'm kind-a on the fence on this road proposition. I got a lot of good friends livin' in the hills that wouldn't mind a bit—in fact I'm one of 'em myself—if the state paved their roads with bonds and then, on the other hand, I'm figgerin' that somebody's goin' to buy them bonds and clip coupons at my expens and th children's fur a long time after most of them roads will be wore out.

Another thing strikes me: how is this here airship development goin' to affect road buildin? Will it come a time when, in goin' over Rabbit Ear pass we won't need to touch the ground, but will float along in the air, some little distance up so's the vehickle won't cut its bottom on the peaks? Wouldn't it be kind of a joke on them people—maybe some of us will live long enough to see it—to have to pay the principal on a twenty million dollar bond issue fur roads when everybody is flyin through the air?

Considerin' all them facts and near facts, let's go a little slow about tyin' this state up to a constitutional amendment vote because the bond issue habit is a dangerous one. It's too durned easy to spend the money fur the kids that ain't born; it don't look altogether fair to me, specially because I'm expected to pay the interest.

I hope the editor will write more about that Weld County Institute in the next number, because them two questions above is only a part of the program. I reckon some of you is wonderin' why I don't say somethin' about Mason Knapp, the county agent. Shucks, why should I allus be jumpin' on them poor devils that does the county agentin'; it's hard enough fur 'em to git along without me a-roastin' 'em. And then Knapp has promised me another ride in his jitney, in the south part of the county, where the roads is level, so I feel I owe it to him to make this piece as pleasant as possible. Now don't furgit that ride, Mase, just as soon as the weather warms up.

THOMAS JEFFERSON PUTNAM.

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Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE. Denver, Colorado.

Planting on Listed Land

Answer to W. I. S., New Mexico:
In planting fall listed land to corn you will obtain the best crop by breaking out the middles and planting with the lister-drill at one and the same time. The new furrows will start the corn nicely and by the time the roots require some compaction they will be reaching out for the old furrows that you plowed last fall and which have caught plenty of snow by this time. One of the best corns for New Mexico reddish loams and of very short season is the Swadley, a soft dent. White Australian and Parsons' High Altitude corn are also good croppers. You will find it good economy to plant this way because in breaking out the middles and planting at the same time you are using no more man power than if you were planting in the old furrows.—E. R. Parsons.

No Additional Entry

Answer to L. M., Morgan county, Colo.:
Your letter stating that you have proved up on 320 acres of agricultural land and wanted to make an additional filing on 320 acres of grazing was submitted to the Register of the U. S. Land Office in Denver who has made the following reply:
"An additional entry of grazing land can only be made on land within 20 miles of the original entry."
You will note from this that if there is no open land designated as grazing homestead in your vicinity you will be unable to make an additional entry.

Dispute Over Strip of Land

A has deed to strip of land. B bas farmed the land for about 22 years, then sells it to C. Can A take the land from C who has built a home on it and lived on it 5 years? B had the land fenced and supposed that his deed covered the strip.—H. B., Idaho.

The question involves mutual mistake of fact on a boundary line, the erection of improvements under a mistaken idea of the facts and possibly a proscriptive right. I cannot undertake to say what the rules on these matters are in Idaho, and the questioner should take the matter to an Idaho lawyer. On the face of the question I feel sure that C would be protected in some fashion for his loss.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

About Line Fence

A's and B's land joins for half a mile, east and west. A owns on the south side, B on the north side. Is there a law in Colorado determining which end A is to fence and which B?—Reader.

The state law provides that each party to adjoining lands used either for farming or pasture purposes, shall provide one-half the fencing on the line and that where one party has already built such fence, the other party shall pay him one-half its cost. Nothing is said in the law as to which end of the fence the adjoining parties, respectively, shall build.

Brome Grass vs. Sudan

Answer to R. L. C., New Mexico.:
Brome grass cannot be recommended for straight dry farming plains conditions. It does well in some dry farming localities, for example, in the foothills or higher valleys, where summer showers are frequent, or on some highland mesas where the winter snows lay long, and the moisture soaks down. Where there is sufficient moisture to start brome grass it will form a good turf and stand a lot of trampling. It takes well to sandy soil, making good pasture. The best use found for it so far in the west is in mixtures for irrigated pastures. On dry lands it has not been a success. As a hay crop it does not compare with either Sudan grass or Johnson grass. Without doubt the heaviest yielding and most drouth-resistant dry land hay crop that has even been discovered is Sudan grass.

Soy Beans Not Recommended

New Mexico subscriber at 6,000 feet:
We are sending you copy of an article on soy beans which appeared in our paper some time ago. We would not recommend this crop for your conditions. It has been tried on both dry land and under irrigation at 5,000 feet, with but partial success. We do not consider it suitable for dry land planting at 6,000 feet in your part of New Mexico. One of the best leguminous crops for dry land planting is white sweet clover. This crop has about the same feeding value as alfalfa and furnishes a hay crop and pasture, after a stand is secured. Further information on this crop will appear in early numbers of our magazine.

Mortgaging a Homestead

Can a man legally mortgage the homestead taken after they were married, without his wife's signature to the mortgage and without her knowledge or consent? Also can he sell his homestead that they have both lived on continually since taken without the wife signing the deed?—A. B. G., Colorado.

If the property has been homesteaded on the margin of the records by either wife or husband and continues to be occupied as a homestead, both must join in the conveyance to pass the title.—Hamlet J. Barry, Attorney. 726 Equitable bldg., Denver, Colo.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the veterinary department, Colorado Agricultural College.

Horses Have Warts

Ans. to J. F., Weld county, Colo.:
Warts are usually an accumulation of epithelial cells in tumor like masses and are more commonly found about the nose and lips. Larger warts frequently require surgical interference. The smaller ones, if kept soft with oil of some kind, will usually disappear after a few weeks. Castor oil applied twice a day is usually successful.—G. H. G.

Saddle Mare Went Lame

I have a saddle mare that went lame in hind foot June, 1917. She was trotting in the yard and stepped over a pole on the ground. She was shod with shoes that had small heel corks and no toe cork. She was only slightly lame at first but a week after could not put her foot on the ground and continued so for two months. It broke and run matter in the back at the top of the frog for a month or so. She grew a new hoof or a new shell last summer, but it is still a little lame and the hoof seems narrower than the other. I poulticed the foot and had a veterinary look at it last summer. He blistered it right above the boof, said it was the cofman joint and that she would be all right in a short

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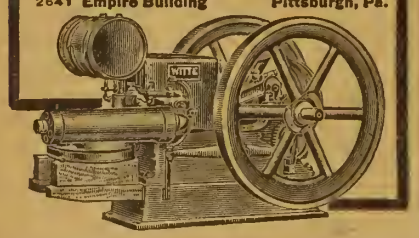

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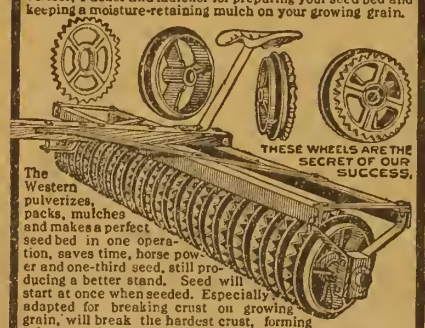

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time. Will you kindly tell me what to do for her if there is anything. Would it hurt to use her?—F. F., Chaffee county, Colo.

The mare probably stepped on a nail, and as usual in such cases suppuration followed. There must have been a wound to account for the pus which was discharged near the frog and caused separation of the hoof wall. The first condition might have been caused by a bruise of the sole or frog, but the extensive suppuration indicated in this instance must have been induced by a punctured wound or possibly a gravel. The diseased hoof will never be as well developed as its mate. Serviceableness at any time in the future is, to say the least, problematical. It will be well to leave the mare barefoot this winter and keep the heel lowered to secure frog pressure. She should not be used on the hard roads for several months. An occasional blister of the coronet will be helpful. She must have time to insure perfect restoration of the tissues in the foot and work should begin by easy stages.—G. H. G.

Udder Is Infected

I bought a cow that was supposed to be a good dairy cow. She appeared to be all right to me except she was thin, and I knew she was quite an old cow. The people told me she had just been dried up and I might need to milk her a few times. I afterwards learned that they had been milking her right along and she was giving a good lot of milk at each milking, then they neglected milking her for a time or two and her milk went thick and bloody. I was told they thought she had milk fever and that is the reason why they sold her. She seems to be thriving now and doing well. I milk her ocrasionally just to relieve her. The milk is thick and sort of a very light gray color and sometimes contains blood. One teat is full but I have never been able to get anything from it. Her entire udder is scaling off as if from fever. I do not suppose anything can be done now for her, but what effect will this have on her when she comes fresh again and what can I do for her and especially the teat that I can get nothing from now? She is a very good milk cow and if I can bring her back to what she has been will have nothing to regret from buying her.—W. A. F., Utah.

There is evidently infection of the udder. The milk having been retained in the udder provided a splendid media for bacterial growth. The germs with their acid secretions have caused the milk to curdle and the irritation from the same has caused hemorrhage (bloody milk). One teat is apparently occluded, either from coagulated milk, products of inflammation, or connective tissue proliferation. If it chances to be the latter, that quarter of the udder is ruined. The hope of saving her as a milch cow depends largely upon restoring the udder before she again becomes fresh. The acute inflammation has apparently subsided. Dry the milk flow and allow the udder to rest in the hope that conditions will become normal, and the udder heal, before it again becomes congested incident to calving. Hot applications to the udder, stimulating liniments, hand rubbing, and a laxative diet will help to restore the udder.—G. H. G.

Why Cattle Go Lame

We are having some trouble in our bunch of young cattle. Hoof and ankle swells up and causes them to become very lame. It is nothing serious, as it only lasts ten days or two weeks. No corruption seems to be in affected parts, but it seems to spread. Never saw the like before. Can you tell me what it is and a remedy?—K. P., Montezuma, county, Colo.

After a storm, mud dries between the claws of cattle, and before it is kicked out, becomes about as hard as brick. The soil and other conditions must be right to bring this about, but it frequently happens. Cattle walking on the bricks wedged between their claws are sure to become lame, with swelling of the legs. If along with these conditions, we have associated certain bacteria, foot-rot will appear and spread rapidly in the herd. There are several things that might easily cause swelling of the legs, but in which recovery would not be expected in ten days to two weeks. If there are open lesions, local treatment with astringents, disinfectants, or even caustics, is to be considered. In looking for the cause, keep in mind the condition of muddy yards or fields, alkali, cacti, or other things that may irritate the legs.—G. H. G.

This Is What Ailed the Bull

Answer to J. P., Idaho:

Necrobacillosis is a disease caused by the Bacillus Necrophorus. It is time now for the reader to suggest that if this is what ailed the bull, it is no wonder that he died! I would not use these terms outside of a classroom or medical society if I knew of any others that would convey the correct meaning.. The diseases caused by this micro-organism are as follows: "Bull-nose" or "sore-mouth" in pigs, "lip and leg" disease of sheep, calf diphtheria, contagious foot-rot of sheep, etc. In pigs the infection is usually localized in the mouth, or somewhere on the head, on the feet, on the udder of the sow and on the inside of the sheath of males. In both cattle and hogs the inside of the sheath is a common seat of infection. I think it very likely that both of the bulls mentioned were injured by barbed wire or something of that kind, but it also seems reasonable that it might have been a condition of necrobacillosis. A 3 per cent solution of boric acid injected twice a day would have been appropriate. In such cases the animal should be cast and restrained, and then a most careful examination made; the treatment of course will depend upon the conditions found, and may be surgical. It will pay to watch this condition in both cattle and hogs. Necrobacillosis has probably killed more hogs in Colorado than has hog cholera and is far more difficult to control. Keep your eye on it, especially in hogs.—G. H. G.

Black Walnut for Aeroplanes

A campaign has been started in the United States for the increased planting of black walnut trees. This tree grows very well here in Colorado and there is no reason why large numbers should not be planted throughout the state. In some portions of the state weather conditions are too severe for satisfactory growth, but on the western slope and near the foothills on the eastern slope they grow very well indeed. In fact, they make a more rapid growth there than in their natural habitat throughout the middle west. Trees planted some years ago in Fort Collins, Boulder and other localities along the eastern slope have made fine growth and are growing nuts to maturity.

The war is over but the use of aeroplanes is just beginning, and the use of this wood is most essential for making propellers. It is also very valuable for the manufacture of gunstocks and furniture.

There is much waste land in Colorado in the localities where this tree will thrive that is at present unused for any profitable purpose. Along our streams there are a few cottonwoods but as soon as these are removed nothing is put in their place. There are waste corners on almost every form where a few trees of this character could be grown. Furthermore, the trees are good for shade purposes and could be placed along the city streets, county roads and on the lots of the city dwellers. Nuts should be planted this winter and the trees will come on next spring. They may be planted in the location where it is desirable for them to grow permanently, or they may be planted in a nursery and transplanted to the desired location at the age of one or two years.

Nuts gathered from trees in Colorado or northern Iowa are the best to plant. The tree is not as hardy here as in the middle west and, therefore, nuts from the trees growing in most hardy locations should be used. Why not start a real campaign for growing this most valuable tree in Colorado?—H. N. Wheeler, Forest Supervisor.

That it would not trade with Germans for five years was the decision reached by the Agricultural Seed Trade association of the United Kingdom at its annual meeting held in London, December 9. The possibilities of growing in Great Britain seeds of grasses hitherto imported—chiefly from Germany—also were discussed.

Stock fed on silage have no dry coats in winter.

Italy has published a decree requisitioning 1918 crops of wheat, barley and rye.

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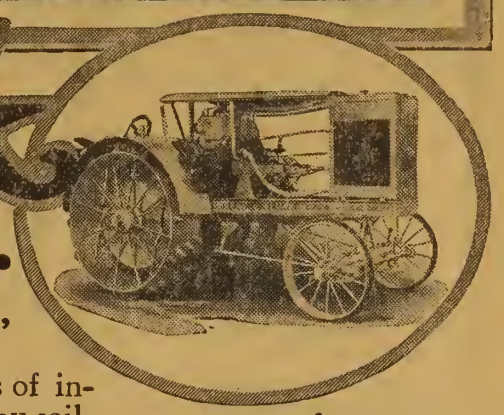

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Marketing Fruit in War Times

PROBLEMS MET BY WESTERN SLOPE GROWERS

ALFRED M. WILSON

THE past two fruit seasons fell within the period during which we were at war with Germany. No sooner had the Congress of the United States recognized that a state of war existed between this country and the Imperial German government than the fruit growers in the Grand Valley began to ask questions: What would be the effect of the war upon the demand for, and the price of, fruit? What upon the labor problem? What upon the price of spray material? What upon the transportation problem?

About the first of August of that first season the government ruled that fruit was a food product. That ruling removed the apprehensions of the growers as to the transportation problem. They argued that the government, having ruled that fruit was a food product, would of course provide the growers with adequate car service. What were the facts for the two seasons? During the season of 1917 enough cars were ultimately provided to move the fruit; but at times the car situation was serious. At times cars could not be had. Apples and pears would be stacked up on the platforms for days waiting for empties to be shunted in. The conditions were bad enough, but they might have been worse. At any rate, in the final wind-up, no fruit remained in the Valley because there were no cars to move the same. During the season of 1918, there was no car shortage. A shipper could get a car whenever he needed one.

At the height of the peach season, however, there was, unfortunately, a shortage of iced cars, a situation due to the poor management of the railroad official responsible for the icing of the cars. The demand for iced cars was greater than the force in his employ could meet. Some of the peach growers in the Palisade district rushed their pickers down to Grand Junction and set them to icing cars. The shortage was relieved in two or three days; but the shortage, while it lasted, was for the growers a serious matter, entailing upon them a loss of several thousands of dollars.

The Labor Problem

Every season there is the possibility that, in connection with the labor problem, difficulties may arise. No section in the fruit belt is able to harvest all its fruit without the assistance of outside labor. There has, therefore, sprung up a sort of dependence upon transient labor. Among these are frequently to be found mischief-makers, men who will not work unless they are paid "their" price, whether the growers can afford to pay the same or not. When the peach rush is on and when the apple season is drawing to a close are times when they especially try to get in their hold-up work. The Palisade peach growers will stand no nonsense from such mischief-makers. The apple growers, being less united, have more than once been forced to capitulate and to pay a price for the picking of their apples which they could not, in justice to themselves and their families, afford to pay. During the past two seasons the number of transient laborers was not large. The apple growers helped out the peach growers and some peach growers helped out the apple growers. Some apple growers had no apples. All such were only too glad to help those who had. But while there was no acute shortage of labor, yet the price of labor advanced, a fact easy to understand.

A few years ago 25 cents an hour was the customary price for pickers. In 1916 the price advanced to 30 cents an hour. In 1917 the price ranged from 30 to 50 cents an hour; in 1918 60 cents and up. A few years ago the customary price for a man and his team was 50 cents. an hour. In 1917 the price went to 60 cents, and in 1918 to 75 cents. One result due to the high price of labor was that the growers hired no more outside labor than was absolutely necessary. In other words, the growers themselves did more of their own work than they had been accustomed to do, which, by the way, was not a bad thing. Another result also due to the high price paid to pickers manifested itself in another direction. Prior to 1917 men were the pickers and women the packers. But especially during the season of 1918 the women donned overalls and went into the orchards to pick peaches, or apples, or pears, as the case might be. In other words, the price paid to packers did not keep pace with the price paid to pickers.

An advance in the price of spray

Regarding Price Advances

material and box shooks was, of course, to be expected. The following data furnished by the manager of one of the associations will show how the price of these two items was advanced over that of 1916.

1. Price of arsenate of lead per pound.

	Paste	Dry
In 1916	9c	19c
In 1917	10½c	23c
In 1918	14c	32½c

2. Price of box shooks per box.

In 1916	13c
In 1917	14½c
In 1918	22c

The advance in price in these two items had an effect which I shall point out in a moment, that at the time the price was advanced by the associations was probably not anticipated.

During the past two seasons there was no slowing down in the demand for fruit. The people were hard put to meet the demands made upon them in connection with the many war drives, but they did not cut out fruit. The demand for peaches, apples and pears was as great as ever. The price was, in the main, satisfactory. The Palisade peach growers had a bumper

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1527 Market Street DENVER, COLO.

crop in 1917, also in 1918. And for the crops in these two seasons they received bumper prices. There were at least a dozen peach growers at Palisade on five-acre orchards who had to pay income taxes. No wonder the Palisade peach growers are still wearing the smile that won't come off.

The pear crop for the two seasons was good, but the apple yield in the Valley was far below normal. The prices received for apples and pears were good, and yet below the market price. Even so, those growers who had anything like a fair crop of apples or pears made money. The smile which the apple and pear growers are wearing may not be as pronounced as the smile which the Palisade peach growers are wearing, but they are at least satisfied and contented, perhaps too much so for their own good.

Apples Shipped in Bulk

Some orchards were not cared for as carefully as they should have been, due possibly to the high cost of spray material. However that may be, more apples went out in bulk during 1918 than ever before. Three causes acted to produce this result: (1) the fact that so many apples were so badly stung that they could not with profit to the grower be boxed; (2) the high cost of labor and the high cost of box material (nearly 90 per cent over the price of 1916), which served as a bar against the boxing of apples even when they were in prime condition; and (3) the presence in the Valley of independent buyers from the outside, prepared to pay cash for apples in the bulk.

Cider apples, during the season of 1918, commanded a price for the first time which made it an object to the growers to market them, i. e., 60 cents a hundred.

What Boys' and Girls' Clubs Do for a County

The results of club work will not show up in a few days or weeks, but it is something that will take a few years to develop. It takes a few people in a community or county that have a vision to see that it is worth while. To begin with, the club work seems almost a waste of money, everything going out and nothing coming in, as the saying is. But that is the way with all school work. When a child starts to school it is not what he will learn in one day, or the income that he will bring to his parents from one or two years of school that causes people to want better schools for their children, but it is the result that will come to the man or woman that the child grows into, and the good that it will be able to do to a community. If the only result was the dollars and cents that we would bring into the treasury of the county in which we were educated, very few of us would ever pay for the trouble, as most of us strike out and look for a new roost as soon as we are able to shift for ourselves.

Boys' and girls' club work is a problem of the future when we try to figure up the results. We can see what the children are doing along the lines of work that they have taken up, but no one can look into their minds, or the future of their lives, and see what it will do for them. We do not hold back on spending a few dollars to give our children a good education along other lines; why should we hold back when it comes to the farming and home making parts of the education; which is the most useful part of it?

The whole life and education of the country boy and girl points and calls to the bright lights of the city and away from the farm. The boy grows up to be a farmer as good as his father and no better. The girl learns the arts of homemaking the same as her mother, with no outside influences to change the monotony or drudgery of it. When manhood or womanhood is reached their one desire is to go to town. What have they found when the city and the bright lights are reached? The lights grow dimmer and dimmer and at last fade away into a constant wish and desire to get back to mother earth and be young again.

The club work helps the boys and girls, who are the future generation and rulers of the land, to see the good side to the life they are being raised in and shows them more of the worth-while things of life. Things beside the drudgery of farming or the housework are brought out; a wider view is being given to the child mind and they are better able to see the value of the country before they get to the city and have to look back on their past with regret.

The people of a community can either sit still or go ahead, and when they sit still they are as a rule going back, so we might say they can either go ahead or go back. It is very easy to look at the dollar that is going out so closely that we cannot see the returns that will come back to the treasury in future. The way to be in the "get ahead club" is to look into the future and see what interest a little spent now will return in a few years. Look at the great sum the war has cost. It will not be repaid in a year, or for a good many years to come, but some day we will be repaid with large interest and the profit will still be coming in with ever increasing amount. So with the education of the child. One year does not give a child much to stand on in the world, neither does it bring very big returns to the ones that educated them, but several years add to the character of the child so that it will begin to develop and the returns will begin to come in.

The returns from club work will not show up in the county treasury the coming spring, nor perhaps the next spring, but the farming in the county will be on the improvement and the class of people that come in will be better than to a poorly farmed county. With the better class of people will come better homes, a better class of livestock, more of it, more of the land will be farmed, and as a result the total valuation will be greatly increased, and with this increase will come more money in the treasury, a lower mill levy and a better group of taxpayers than there is in a county or state that has stood still, or perhaps has gone back a little.

Let us use every effort to make our county and our state keep in the lead and forge ahead as has our great nation. Let us not be the slacker when we are dealing with the future of our boys and girls.—A COLORADO FARMER.

Cold Weather Tractor Tips

Don't let your motor freeze! As cold weather approaches one cannot be too careful about letting a motor freeze up. Hundreds of motors are frozen up every year by the first cold weather that comes, because the owners neglect to drain them out and think, "Oh, well, it won't freeze hard enough tonight to do any harm."

If a tractor must be run after freezing weather sets in, it must be drained every night immediately upon stopping the motor, or an anti-freezing solution used in the radiator.

In very cold weather we find that the kerosene can be used very successfully as a cooling agent, also a solution of 33½ per cent of denatured alcohol and water. If about 10 per cent of glycerine is used in this solution, it will prevent the alcohol from evaporating so fast.

Use lighter oil.

Also as cold weather comes on, it is generally necessary to use a lighter oil in your motor, as instructed in the instruction book; otherwise, the motor will get so stiff nights that it will be practically impossible to start in the morning.

Prime heavier!

It is also necessary to prime heavier, and in some cases use a higher test gasoline for priming than in warm weather. Keep your spark plugs clean. It is also necessary to keep the plugs perfectly clean for starting, as moisture is much more apt to form on the plug and short circuit it in cold weather than in warm weather.

If you are going to lay the tractor away for a while, you should, when stopping the tractor on its last run, pour a pint or more of oil into each priming cup and then shut the motor down immediately afterward. This oil will be drawn into the cylinders and will coat the valves and valve stems with an oil film which will protect them from rust.

In putting a tractor away, it should be looked over very carefully to see that all parts of the cooling system are drained thoroughly. If the tractor sits high at one end or the other, water may lodge in certain places and if freezing does not damage, it will rust the parts and in time cause trouble.

The user of a tractor will find it a paying proposition to house the tractor at all times when it is not in service. However, if it is not housed there should be something placed over the stack of the radiator which will prevent snow and rain getting in and a tarpaulin or canvas large enough to cover the motor complete used, as the motor should not stand out and take the weather.

The fuel tanks should be drained and protected, so that it will be impossible for water to get into them. If the last time the tanks are filled with fuel, a pint of cylinder oil to each five gallons of fuel is put into the fuel tanks, it will leave an oil film on the inside of the tanks which will be very beneficial in prolonging the life of same.—Avery Tractor Service.

One of the Family

Mayfield, Utah, Jan. 2, 1919.

Western Farm Life:

So far as the Western Farm Life goes I like it. I want to be one of the big family of it. I have had it coming to me for three or four years. I don't want to miss it now, just for the good stories it has.—James M. Thompson.

Twice The Work-Half The Expense

MOLINE UNIVERSAL TRACTOR

"One man and a Moline-Universal Tractor will do about the same work (taking a season through) as two men with four horse teams."— *Crumbaugh Bros., Vandalia, Illinois.*

Statements such as this from Moline-Universal owners—and we have many of them—support our claim that the Moline-Universal enables one man to do twice as much work at about half the expense as is possible with horses.

With a Moline-Universal you can plow 9 acres a day, double disc 27 acres, drill 35 acres, cultivate 15 to 20 acres, mow 25 to 35 acres, and harvest 30 to 35 acres. Figure out for yourself how long this would take you with horses. Then keep in mind that in case of necessity you can work night as well as day, because the Moline-Universal has complete electrical equipment, including electric lights and self-starter.

As for expense it runs about half what the same work with horses would cost.

Charles J. Deck of McArthur, N. D., says: "I plowed 60 acres—fuel amounted to $32.94. It would have cost me $82.40 to plow this with 6 horses, not figuring feed for Sunday, or rainy days. I did not have to get up at 5 o'clock every morning either." Mr. Beck did not consider the saving of his own time.

"If I hadn't had the Moline-Universal I would have kept 4 more horses, which are a bigger expense than the tractor," says J. E. Carey of Wilmington, Ohio.

Many other statements similar to this prove that the cost of operating a Moline-Universal Tractor is no greater than maintaining three or four horses, while it will do twice as much work. Then there is another big advantage—belt work. The Moline-Universal has enough power for all ordinary belt power requirements.

"I purchased a 20 x 36 separator and then threshed my grain, pulling it with the Moline Model D. The tractor handled this separator very easily and did fine work. After I had threshed my own grain, I threshed for four of my neighbors, about 350 acres in all."—G. C. Appenzeller, Bouton, Ia.

Considered from every angle the Moline-Universal is the best tractor for you. It does all farm work, including cultivating. One man operates both tractor and implement from the seat of the implement. It will make you money. See your Moline dealer now or write us for full information. Address Dept. 107.

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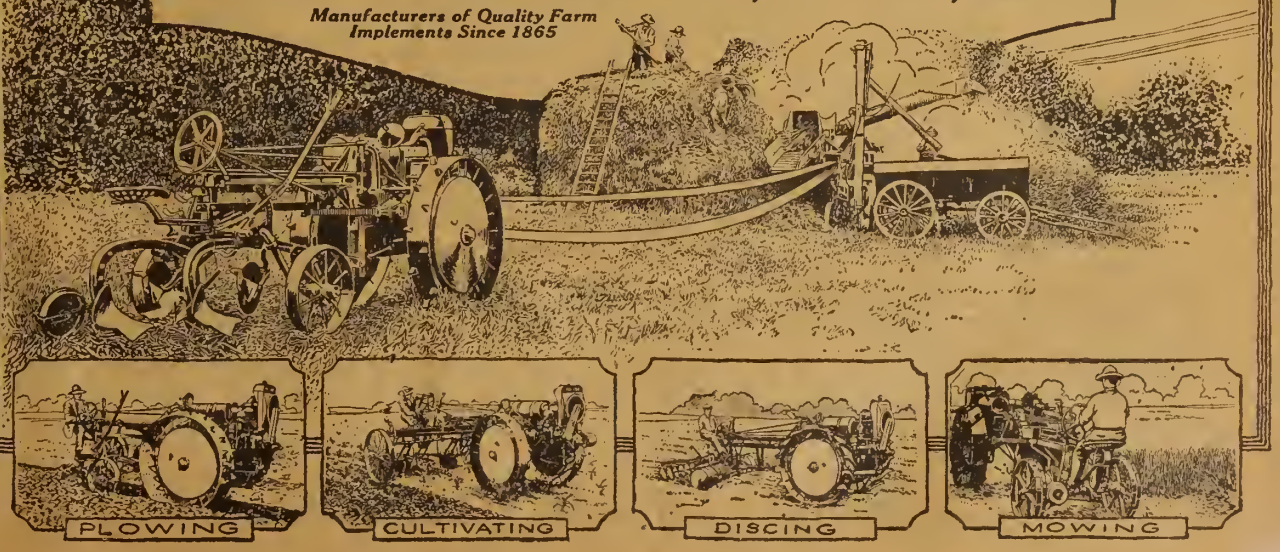

Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

Milking Machines

The first question in every man's mind when he considers purchasing a milking machine is: will it work? and the next, does it save any time or labor? As to whether milking machines work, the best evidence is experience. In the early years of the milking machine, many of them were failures one way or another. A number of them were put in different localities here in Colorado as well as in other states and they were soon discarded. More recently, quite a number of machines have gone in in different parts of Colorado and in one section in particular, the Johnstown dairy district, machines are making good and giving satisfaction. In some other districts quite a percentage have again been abandoned. As nearly as I can get at the facts, the difference seems to be this: In the Johnstown district herds are comparatively small and machines are operated by owners of the herds. The man about the place who is most vitally interested in making the machines work and who has the ripest experience and best judgment, is the one operating the machine.

In many cases where machines have been abandoned after a trial, they have been operated by milkers of a transient class. These men naturally take the same attitude towards the machine displacing hand milking that other laborers have taken towards improved machinery replacing hand labor in other lines. In some cases they have deliberately gone to work to make the machine a failure.

In other cases the machine has been abandoned, not from any fault of its own, but because of power troubles. The man running the machine was expected to look after the gasoline engine that furnished the power and did not understand gasoline engines. If electric power was used, the power going off occasionally at milking time meant that a few men had to jump in to milk a large number of cows with their wrist muscles soft because they were not in practice on large strings.

In the early days, an additional reason for discarding the machines was the fact that frequently udders were ruined from garget in the herd. Men running the machines milked the cows too close with them, continuing the suction upon the teats to a point where the small blood vessels would burst. This was aggravated by the fact that the early type of machine had no reverse pressure or massage of the udder to offset the constant suction. Then, if contagious garget appeared in one cow, instead of finding this out by examination of the udder before milking, the teat cups would be put on and become infected and carry the infection to the entire herd.

All of these difficulties have been overcome with the new type of machines in the hands of intelligent men who are interested in making them work. We have been using a milking machine for nearly three years at the College and have had no more cases of garget than are normal to a herd of any size. We have had no ruined udders and the condition of the udder and teats on the cows that have been milked by the machine for this length of time are apparently as good as at the beginning. Five different makes of milking machines have been in use around the Johnstown condensery for over two years, and not one has been discarded. I believe the question as to whether milking machines work may be answered fairly in the affirmative where an intelligent man is handling them.

The next question is how much of a labor-saving device they really are. I have not had opportunity to check closely on them from personal experience, because our herd is small and we keep nearly all of our cows on yearly tests for Advanced Registry, milking the cows in single units, so that we have not been able to save in the barn force required to handle the herd. Reports from different experiment stations with regard to the milking machine show a saving of labor in large herds, and machines are not generally advocated for herds of less than twenty cows. With a herd of twenty cows, the chief saving will undoubtedly be, not in time of getting the milking done, but in relieving the burden of the work, making an easier and more pleasant job of it, particularly on farms where the milking of a herd of 15 to 20 cows comes at the end of a hard day's work in the field and the milking of the string is onerous. Where the machine is used and the only hand milking is the stripping, the job is relieved somewhat. With larger herds of 40, 60 or 100 cows, there is a real saving in labor hours, due to the fact that one man or boy can change the units from cow to cow, using two or three units, and another man can follow along stripping the cows.

Still another question at issue is whether cows will maintain their milk flow year after year when milked by a milking machine. So far as I know, this has not been answered for a period of years of any length, such as five years or more. Results have shown that for two or three years

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All over the world creamerymen, big milk concerns, dairy authorities and cow owners who have special opportunity for judging the worth of cream separators have for years recognized the superior skimming and all-around efficiency of the De Laval.

That's why 98% of the plants throughout the world separating large quantities of milk use the De Laval. It skims so much closer that they can't afford to use any other machine.

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Not only is the De Laval the greatest cream saver, but it turns easier, is easier to wash, has larger capacity and greater durability than any other separator.

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Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or, if you don't know him, write to the nearest De Laval office as below

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OVER 2,325,000 DE LAVALS IN DAILY USE THE WORLD OVER

Healthier Stock, Quicker Growth
Guaranteed with
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STOCK TONIC BRICK OR BLOCK

Our guarantee to you is based on scientific knowledge of what live stock needs and what Carey-ized Stock Tonic is, and upon the testimony of practical stock raisers who have fed it for years.

Prevents and destroys worms, whets the appetite; aids the digestion, enables animals to thrive better on less feed; keeps bowels, kidneys, liver in healthy activity; supplies necessary mineral matter; tones up the entire system to resist all disease.

NO BOTHER TO YOU—no dosing or drenching. Just place Carey-ized Stock Tonic Brick or Block where animals can have access to it all the time. They partake of it as instinct demands—supplies the medicines they need, also salts them regularly, without waste.

Try It 60 Days at Our Risk

Carey-ized Stock Tonic Brick or Block is sold by General Stores, Feed and Hardware Stores, Druggists and Grocers. If your dealer can not supply you write us his name and we will send him for you 12 bricks (35 lbs.) for $2.50 f.o.b. Hutchinson, or a 50-lb. block $3. Or if you prefer send us the amounts and we will ship you direct. *If you are not entirely satisfied with results in 60 days' feeding according to directions, we will refund all your money, including carrying charges both ways.* We are responsible.

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Your Veterinarian can stamp them out with Cutter's Anti-Calf Scour Serum and Cutter's Germ Free Blackleg Filtrate and Aggressin, or Cutter's Blackleg Pills.

Ask him about them. If he hasn't our literature, write to us for information on these products.

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You wouldn't allow 15% of any crop to go unharvested. So why stick to old-time methods of sheep and goat shearing? Shear the modern way, with a Stewart Machine. There are hand-operated models for small flocks and engine-operated machines for larger ones. Write for catalog No. 66.

CHICAGO FLEXIBLE SHAFT COMPANY
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$22.00 Sweep Feed Grinder | $28.00 Galvanized Steel Wind Mill.

We manufacture all sizes and styles. It will pay you to investigate. Write for catalog and price list.

CURRIE WIND MILL CO.,
610 E. Seventh Street, Topeka, Kansas.

there is no dimunition in the milk flow. Good Advanced Registry records have been made with milking machines. We are milking several cows producing from five to six hundred pounds of butter in a year, and a good many more producing 10,000 pounds of milk and above.

We have not conducted strict experimental work with the machines because there were other problems more pressing, but so far as we can tell from observation, the effect of the machine on the cow is negligible. My own personal opinion of milking machines after ten years of observation is that it is much like a good many of the machines. It works right in the hands of the man who knows how to work it right. Many a man who drives an auto knows nothing at all about taking care of it, and even with garages everywhere, he soon turns his machine into a junk heap. His neighbor, on the other hand, rarely ever puts his car in the garage for repairs, and yet has a smooth-running machine. It is not right to condemn the discarded machine without knowing the conditions under which it was operated, nor is it right to advocate the milking machine as a cure-all for the great labor of milking, because undoubtedly it will not make a success on some farms. On the whole, it is a well-established machine, being improved as the years go on and put out by reputable firms that are interested in making it a success. One is therefore justified in the belief that it is as much a permanent feature of the dairy industry with a great future before it as one had to think of a cream separator or the Babcock tester years ago.—G. E. M.

Concerning Production Tests

The Iowana Farms of Davenport, Ia., make this statement in their catalogue:

"Although we recognize the great value to the breed and to the individual animal of the official record, yet we most emphatically do not believe in the policy of the long-time preparation and the short time test. The type and physiological condition of many dairy cows is such that a large amount of fat can be stored within their bodily tissues and then be transformed into milk fat, during the early part of the lactation period, so rapidly as to produce milk containing an abnormal percentage of butterfat, and by so doing produce in the first few days after freshening abnormally large butter records. Since this method of making large seven-day fat records has been known and practiced, few indeed are the cows making world's records in the seven-day division that have been able to maintain their lead through the year. Though we are carrying on official test work practically all the time, yet it is doubtful if we ever make phenomenally large seven-day records. We do, however, demand a high average yearly production for the entire herd, working under normal conditions."

Milking Shorthorn Records

The Canadian Record of Performance was opened to Shorthorns only a few years ago, the first certificate issued bearing the date of April 11, 1914. Owing to the fact that most Shorthorn breeders allow the cows to nurse their calves, it could not be expected that the number of cows entered for the Record of Performance would compare with the numbers entered from a strictly dairy breed. A few breeders, however, have interested themselves in testing the milking qualities of their cows, and up to the present date 195 certificates of performance have been issued to Shorthorns.

An analysis of the results shows the following: In all, 92 certificates have been issued for mature cows, 24 for four-year-olds, 42 for three-year-olds, and 37 for two-year-olds.

Mature records average 8,251 pounds milk and 327 pounds fat.

Four-year-olds average 8,004 pounds milk and 320 pounds fat.

Three-year-olds average 6,649 pounds milk and 266 pounds fat.

Two-year-olds average 6,272 pounds milk and 258 pounds fat.

Fifty-three mature records, 11 four-year-old records, 13 three-year-old records, and 9 two-year-old records have an average annual production of over 300 pounds fat, and 15 mature records, two four-year-old records, and two three-year-old records average over 400 pounds fat.

The highest Canadian record is held by the cow Coquette, 2d 107052, who produced 17,723 pounds milk and 636 pounds fat, a very creditable record for a dairy cow of any breed.

Taking into consideration the fact that the Shorthorn is primarily a beef breed, and that the breeders of dairy Shorthorns must keep in view their dual purpose character and not sacrifice their value as beef producers in order to obtain milking records, the showing made by the breed is certainly a very creditable one, and proves beyond a doubt that the dual-purpose animal is a possibility.—Shorthorn World.

Feeds Lacking in Protein

I have a bunch of last spring calves shut up in a corral and am feeding them cane for roughness and also feed them about two quarts of corn each day. But they nibble the boards on the wooden corn troughs. Please let me know why they eat the boards and if there is anything I can feed them to stop it.—W. F., Yuma county.

You are not giving your calves anything like the proper proportion of nutrients for growing stock in feeding them cane fodder and corn. Both of these feeds are lacking in protein, the nutrient necessary for growth of muscular tissue. You should feed some high protein feed such as linseed cake, alfalfa hay or bran along with the feed stuffs you are using. Do not use heavy quantities of cottonseed cake. If you feed more than about half a pound of cotton-cake per day, you are likely to have blind staggers in the calves as a result of a poisonous principle in the cake.—G. E. M.

Self-Feeders for Hogs

Answer to G. B.:

I will discuss soon in Western Farm Life the question of self-feeders and points to be observed in their construction. It is difficult to protect against some loss of grain when they are put out in the open. The best way to do this, I think, is to build the ends quite wide so that the trough is in quite a ways from the edge of the ends; the wind then cannot get a sweep, which will suck out the grain.

With regard to feeds to use in a self-feeder so as to grow bone and flesh and not be too fattening, I would advise the use of whole oats in the largest compartment of the feeder, and tankage mixed with bran or gluten feed in another small compartment. The reason I advocate mixing the bran or gluten with the tankage is that the tankage packs and does not feed down well.—G. E. M.

Tuberculosis Among Hogs

Hogs are very susceptible to tuberculosis and the prevalence of the disease seems to be increasing. During 1916 nine per cent of all the hogs slaughtered in the United States under federal supervision were found to be affected with tuberculosis in some degree. Wm. H. Feldman of the Colorado Agricultural College, has the following to say in regard to this:

"Careful research has shown that tuberculous cattle are the chief source of this disease in swine. Hogs become affected by being allowed to follow adult tuberculous cattle in the feed lot and by being fed upon the raw milk from creameries. Other sources of infection are uncooked garbage and slaughter house offal. Such material should be sterilized under steam pressure before feeding. Only tuberculous-free cattle (determined by the tuberculin test) should be allowed to run with hogs in the feed lot."

Buy a Pure-Bred Bull

No dairy farmer should hesitate now to purchase a pure-bred dairy bull. Improved blood has always been a splendid investment, but the world's shortage of dairy products and the increasing demand for good dairy cows makes the investment more inviting than ever. Hoover informs us there is a world shortage of fats and milk. The shortage of fats amounts to three billion pounds and it would require 1,500,000 cows with a production of 200 pounds of fat per cow a year to produce that amount of fat.

There is no question but that the demand for improved cows—cows capable of producing 250 to 300 pounds of fat in a year, will be in larger demand in the future than they ever have been in the past. Cow-testing associations are increasing rapidly and these organizations are revealing to the farmer the fallacy of keeping poor cows. The farmer who is raising high grade cows will find a ready market for them and at good prices. Good grades now are selling for $150 to $225 apiece. Further, the grade herd is returning a larger profit at the pail. A farmer who has not purchased a pure-bred bull to head his herd is losing money and will never be in position to take advantage of a grade cow market. Nondescript cows will not sell within $50 to $100 of as much as the grade. For an absolute, sure investment and a large rate of interest, nothing can beat a pure-bred dairy bull.—Hoard's Dairyman.

A preliminary statement giving the estimated total production and yield per acre of the potato and root crops in England and Wales in 1918 recently was issued by the Board of Agriculture. It showed that the yield of potatoes in 1918—6.6 tons per acre—is equal to that of last year and one-third of a ton above the average.

Get more milk!

Get more milk from *your* cows. Others have proved by actual record that Dr. LeGear's Stock Powders make cows give from one-half to three-fifths of a gallon more milk per day. I *guarantee* that

All stock do better with Dr. LeGear's Stock Powders (my personal prescription)

They tone up the animal's system wonderfully, produce perfect digestion, increase the productive *value* of the feed, drive out worms, and keep stock strong and healthy. The formula for these powders has been worked out from my twenty-six years' veterinary practice, and *tried out* by thousands of dairymen and stock raisers, with big success.

This time of the year all stock *need* help—cows, horses, hogs, etc. You should get your cows in good condition for the freshening period; tone up your horses for hard spring work; and insure healthy, sturdy spring pigs. Feed your cows and sows Dr. LeGear's Stock Powders—give it to your horses. Besides being a splendid conditioner it is an excellent remedy for coughs, colds, distemper, worms, kidney troubles, loss of appetite, hide-bound, loss of flesh, etc., because it eliminates the *causes* of these ailments.

Get a package today — *at my risk*

Ask your dealer today for Dr. LeGear's Stock Powders. If my Stock Powders fail to do all that I claim for them, your dealer is authorized to refund your money.

Dr. LeGear's Poultry Powder keeps hens healthy, insures winter eggs, and means more profits to you.

Dr. LeGear's Antiseptic Healing Powder cleanses, dries and heals sores and cuts quickly. Handy to use.

Dr. LeGear's Lice Killer (powdered) rids your flock quickly of lice, protects chicks, etc.

Free sample—ask your dealer

Dr. LeGear's Remedies are sold by 40,000 of the best dealers—never by peddlers. Ask your dealer today for liberal *free sample* package of Dr. LeGear's Stock Powders or Dr. LeGear's Poultry Powder, and get a free copy of Dr. LeGear's Stock and Poultry Book. If your dealer hasn't samples and books, ask him to write us. We will supply him promptly.

Dr. L. D. LeGear Medicine Co., 757 Howard Street, St. Louis, Mo.

Dr. L. D. LeGear, V. S. (in Surgeon's Robe), Graduate of Ontario Veterinary College (Toronto, Can.), 1892. Nationally famous specialist in treatment of stock and poultry. 26 years' actual veterinary practice.

Dr. LeGear's Stock Powders

Jarosa Holsteins Sold

The Jarosa ranch at Longmont, noted throughout the Rocky Mountain states for fine horses and cattle, is out of the Holstein game, as a result of the dispersion sale held January 6th. The big dairy barn, with the finest of equipment, will not remain idle long, for it is expected that Holsteins will soon be replaced by milking Shorthorns.

There was a good offering of pure-bred and high grade animals, of all ages and both sexes, seventy-five head being disposed of in record time. Alpheus Bashor cried the sale and it was a whirlwind for action, beginning at 1 o'clock and ending before 4. with not a milk cow, a bull or a calf left in the hands of the ranch owners.

Howard M. Jay has done a wonderful amount of good in this and neighboring states by his sales, which have principally featured horses, for it is in that line that the Jarosa ranch is best known. His sales are always put on the basis of "nothing reserved and no by-bidding," and he sticks to that plan, with the result that buyers know they will never be taken at a disadvantage.

On another page of this issue will be found his announcement of the next great annual horse sale, scheduled for February 24th, in the city of Longmont.

Now as to the Holsteins: these were sold right on the ranch seven miles from town, in a ring composed mainly of dairy farmers from the neighborhood, in Boulder and Weld counties. The first thirty head that went through the ring averaged $152.50, which is a good figure, when it is considered that they were mostly grades and that there was no uniformity in age or class. The total for the sale was $7,204.00.

The Johnstown dairy district, where farmers know cows, was represented by several good judges of dairy stock, who took choice animals home with them. These men are shrewd buyers. Their selections were made with care and they knew just about how high to go in their bidding. The cows got more than a mere "once over" from the Johnstown farmers, and the fact that they took so good a percentage speaks well for the quality of the Jarosa herd, which was made up of foundation stock procured in New York and Wisconsin, and supplemented by good Colorado breeding.

Among the new men at a dairy auction was L. H. Harrison of Platteville, long known as a general livestock farmer with beef feeding as a specialty, now a booster for the silo and the dairy game. He picked up a string of a dozen good ones as a starter for a Holstein herd, which is expected to cut a figure in commercial production.

Following is a list of the registered animals sold:

Registered cow to L. C. Wood	$232
Registered cow to Lee Johnson	191
Registered cow to Geo. Yeager	241
Registered cow to L. C. Wood	108
Registered heifer to S. A. Gray	75
Registered heifer to S. A. Gray	90
Registered heifer to L. C. Wood	86
Prebred heifer eligible to registry, L. H. Harrison	193
Registered bull (Segis de Kol Vale Netherland 198381) to Al Schofield	170
Registered bull to L. H. Harrison	172

Representative sales on the high grade cows included the following: Ten to L. H. Harrison at $162.50, $136, $157, $187, $104, $176, $100, $117, $82 and $75.

Five to Chris Dowell at $135.50, $177, $125, $92 and $90.

Four to W. B. Ramsey at $157, $150, $105 and $81.

Three to L. O. Munson at $135, $120, and $102.50.

Two to J. K. Allen at $164 and $152.

One to L. C. Wood at $161.

One to Lon Pierce at $150.

Three to Jack Hurst at $105, $140, $65 and $70.

The bulk of sales on the young stuff ranged from $70 to $90.

Breeding Power of Twin Calves

Many a time the question about the breeding powers of twin calves has been asked me-and as I visited during my consulship for cattle breeding in Holland yearly hundreds of cattle breeders, I have asked most of them what experience as to this question had taught them. From all the answers I have been able to condense the following report, which may serve perhaps for many a breeder here, who might be in doubt as to the breeding value of twins.

1. There is no infallible rule concerning the breeding powers of twin calves.

2. Some breeders consider twin calves a failure and sell them.

3. About 85 per cent of the breeders had experienced that twin heifers or twin bulls together are as sure to be breeders as are calves which are dropped alone.

4. However, experience taught most of them that when a bull and a heifer are calved together, though the bull is as certain to be a breeder as are other bull calves, the heifer is almost certain to be a non-breeder.

5. The time of birth is of no influence; it has been supposed a long time that the first animal, either male or female, would be a breeder, whereas the following would be a non-breeder.

6. In many cases the birth of twins had to be attributed to an hereditary property.—Dr. L. S. Dijkstra.

Creameries Should Handle Eggs

Why the creameries and cheese factories should handle the eggs of their patrons:

Because they are organized to manufacture and market one daily food product of the farm, and can handle the other without additional equipment.

Because they have better facilities of storage to maintain quality, hasten shipment and save loss than any other marketing agency.

Because they can save their patrons time in marketing and pay a higher cash price for graded eggs by check or due bill.

Because they have an opportunity to develop the poultry business in their locality, as they have the dairy industry, and thus put the community on a cash basis.

Because they can co-operate in purchasing supplies, as cartons, cases and fillers, in large quantities at minimum cost and can co-operate in carload shipments with refrigeration service.

Because buyers of butter and cheese in the markets of state and nation also buy eggs, and these dairy products may be shipped in the same car.

Because they can use the revenue derived from handling eggs for general maintenance, enabling them to pay better salaries, thus procuring more skillful workers.

Because they can aid in the conservation of one of the most popular daily foods, saving the value of two eggs out of each dozen.

Because they can render an economic service to state and nation in reforming the marketing of eggs from producer to consumer.

Because they are the best agencies to help the dairy and food commission to maintain the excellence of dairy products, butter and eggs.—N. E. Chapman, State Poultry Specialist, University Farm. St. Paul, Minn.

In view of the winter shortage in the milk supply in Great Britain, the British food controller has issued an order further restricting the consumption of milk

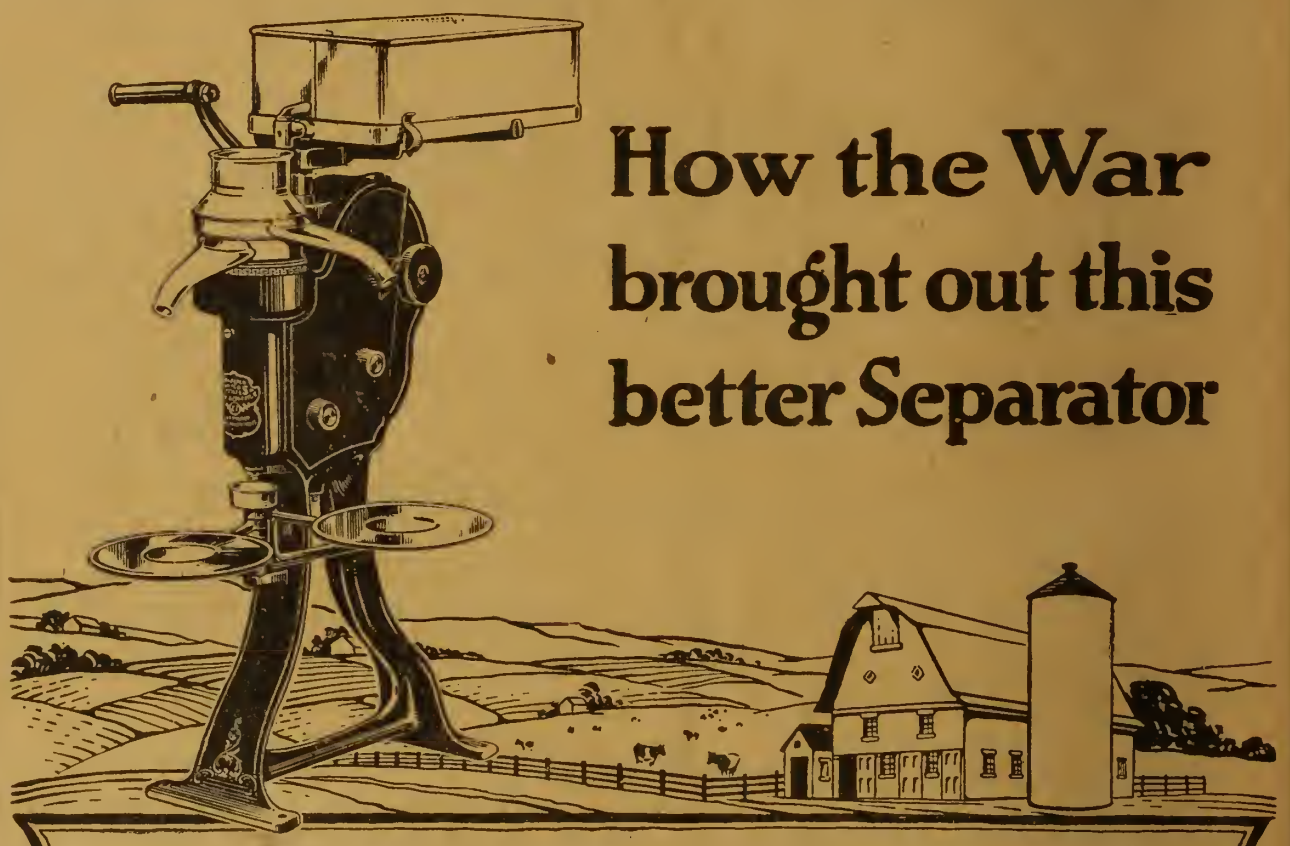
Rearing Dairy Calves

Iowa Circular No. 50

To replace the aged and unproductive dairy cows in this country from five to seven million calves must be raised annually. Of this number, probably more than one-third prove worthless at maturity because of their very limited performance at the pail. These calves are a financial loss both while they are being grown and later when they are milked, because they fail to produce enough for a profit and because the value of their carcasses for beef is below the cost of growing. With the upward trend in the price of feed it behooves the dairyman to consider seriously what heifer calves can be raised with profit.

First and foremost, only those dairy calves by a pure bred dairy sire are worthy of retention, and this does not include all grade calves by purebred bulls. The ability of a good bull to increase the production of his daughters over their scrub dams has been generally accepted and is definitely pointed out in Bulletin No. 165 of the Iowa Agricultural Experiment Station. No progressive dairyman will take chances in raising a heifer calf for milk purposes whose sire is either a beef bull or a mongrel.

Further, only those calves from



How the War brought out this better Separator

Ever since the "United States" won the world's record for close skimming, in the most gruelling and most comprehensive contest ever attempted, its leadership could not be questioned. That point was settled.

Then came the war. It brought to the makers of the "United States" an obligation to place their manufacturing facilities on an 80% war basis.

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good producing cows should be raised. The conservation of dairy stock is a movement worthy of every praise, but no one should be misguided into growing out inferior heifers. Only the best high grades should be retained for dairy purposes.

The use of a well grown, vigorous bull from ancestry of known high production, as evidenced by semi-official tests for yearly periods, upon a grade herd will increase and thereby cheapen the cost of milk and butterfat production of his progeny. Tests illustrating the effect of a purebred sire have been conducted at this station. The results, presented in Table 1, show the average production of daughters and grand-daughters as compared to the original scrub cows upon which purebred sires were used.

TABLE 1

Influence of Purebred Sires Upon the Production of Daughters and Granddaughters of Scrub Cows

DAMS

	Milk, Lbs.	Fat, Lbs.
Guernsey	4,168	186
Holstein	3,255	161
Jersey	3,903	186
Average	3,791	178

DAUGHTERS

	Milk, Lbs.	Fat, Lbs.
Guernsey	4,634	218
Holstein	6,311	261
Jersey	5,400	287
Average	5,507	248

GRANDDAUGHTERS

	Milk, Lbs.	Fat, Lbs.
Guernsey	7,091	355
Holstein	11,295	431
Jersey	5,479	291
Average	7,955	359

If this be calculated on the percentabe basis it gives the per cent increase of the first and second generations over their scrub dams, and granddams.

TABLE II

Percentage Increase in the Production of Daughters and Granddaughters Over Their Scrub Dams

	First Generation		Second Generation	
	Milk	Fat	Milk	Fat
Guernsey	11	17	70	91
Holstein	94	62	245	168
Jersey	39	54	40	56
Average	45	39	110	102

In other words, the production of this herd was doubled in two generations through the use of good dairy sires, such as are not only within the reach of the average dairyman but also so cheap, relatively, that he cannot afford to use a grade bull of any kind.

One of the most important factors affecting the size and strength of the calf at birth is the sire. The sire must not only be of good dairy breeding, but he should be well cared for during the breeding season. Running with the herd, a practice that begets weak calves and wears the bull out prematurely, is too often permitted. To insure strong calves the bull should be kept separate from the cows, given plenty of exercise, fed a balanced ration and used judiciously. Where such methods are followed, large vigorous calves will be the result, and the problem of raising good calves much simplified.

The dairy sire is important, not only in increasing production, but also as a possible disease carrier. The sire should be purchased free from communicable diseases and kept in the same condition. Most important financially in the list of diseases is contagious abortion. To keep the bull free from this disease and thereby prevent his communicating it to the cows in the herd, the plan followed at the Iowa State College dairy farm of disinfecting the bull both before and after service. For this purpose a solution of lyson, carbolic acid or and standard disinfecting medium has proved entirely satisfactory.

The size and strength of the calf is vitally affected by the condition of the dam. The age and size of the dam, together with her feed and management, largely determine the nature of the offspring. Fully grown, mature cows will have larger and more rugged calves than heifers or even older cows that lack the scale and development sought. Although the amount of nutrients required for building a fetus is so small that it cannot be accurately measured, it is equally true that the care and feeding of the mother during this period are of the utmost importance. Unlike the breeder of beef cattle, the dairyman is not likely to have his cows too fat for producing large, healthy calves. This is due to the inborn tendency of a good dairy cow to produce milk rather than body fat, and also to the fact that dairy cows, when exhibited, are shown only in good working condition. An excessively fat cow will ordinarily have a weaker salf than one in only average condition. This indicates the sort of care necessary in the case of the dam, if the calves when dropped are to be large, vigorous and easily grown.

The plan followed of allowing the cow a resting period of from six to eight weeks previous to her freshening date, followed by the most successful dairymen, is commendable. It permits sufficient time to elapse for the cow to build up her own body and the developing fetus without affecting her milk production; in fact, most cows will produce a larger quantity under these conditions than where they are milked continuously. During this period liberal pasture should be provided in the summer, while during the winter, silage and clover hay should be generously supplied. Where cows have milked down, it is desirable to supplement this allowance with a small amount of grain. For this purpose probably no other feed is superior to a mixture of ground oats, old process linseed oil meal and wheat bran. These feeds have a cooling, laxative effect upon the digestive tract and with the clover hay provide the ash and protein required for the growing fetus. The grain allowance should be reduced about ten days or two weeks before freshening, while in the week immediately preceding freshening only a very small amount of grain, if any, should be fed.

If the cow is in a thriving condition and has had time to recuperate after having been dried off, little trouble should be experienced at calving time. A short time before she is due, she should be placed in the quarters she will occupy at parturition, in order that she may become accustomed to her surroundings. A large sized box stall, or a pasture free from other stock, depending on the season, is probably the most suitable place The stall should be comfortable, light, well ventilated and sanitary. A calf dropped in such quarters will be less liable to debility and disease.

If the ration suggested above is still being fed in limited amounts along with silage and alfalfa, there will be much less danger of constipation. If the pregnant cow shows any signs of constipation three-quarters to one pound of Epsom salts, or one quart of raw linseed oil will prove very beneficial. The cow should be kept in a laxative and thriving condition, for she will then be more apt to come through this critical period in condition to produce large quantities of milk. During the calving period the water supplied should be lukewarm. This not only takes part of the strain off the animal body, but also tends to make retention of afterbirth less likely. It also affords the cow opportunity to recuperate quickly and to be placed upon feed in a short time. The only grain recommended at this period is a warm bran mash. After the cow begins to gain, the grain ration may be gradually increased, but it should be composed of the more desirable foods until the cow is in normal thrift. The grain ration for the first week should not be over seven pounds, the usual practice being to increase the grain ration at the rate of half a pound every other day. This increase may continue as long as the cow profitably increases her milk flow. The cow will respond as well to half a pound increase as to a pound, indicating that the smaller increase is preferable. When her maximum flow has been reached, the feed may be lessened in a similar manner until the balance of profit is reached.

Skim Milk for Calves

"Many farmers are not successful in raising calves on skim milk," says R. W. Clark in Colorado Extension Bulletin No. 127. "Whole milk may produce the best calf but not necessarily the best cow. As good an animal can be produced on skim milk as can be produced on whole milk, but greater care and attention is required in producing the former.

"The calf should nurse its mother for the first few days, after which it should be removed and fed by hand. Whole milk, warm and fresh from the mother, should be given for ten days or two weeks at least. Ten to twelve pounds per day in two or three feeds should be given at first, and the length of time that it should be continued depends upon the strength of the calf. Ordinarily ten days to two weeks will be required to make the change from whole milk to skim milk. Gradually substitute skim milk for whole milk, increasing the former until the whole milk is entirely replaced. This may be a week or it may be a month. Skim milk should be warm and sweet when fed, as cold, sour skim milk is the greatest cause of scours. It may be fed for six or seven months, depending mainly upon the supply. It should be given until five months of age at least."

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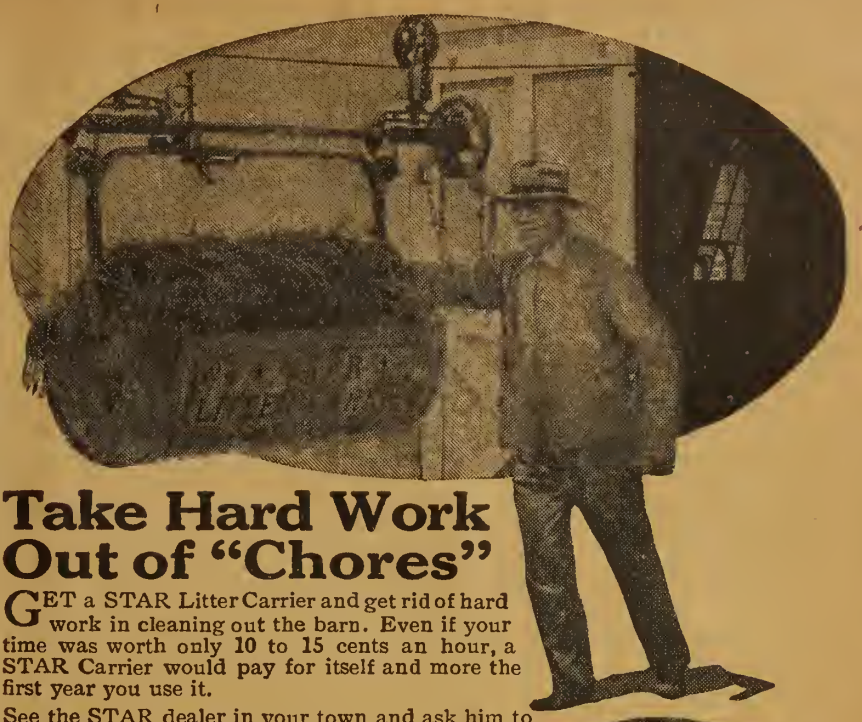

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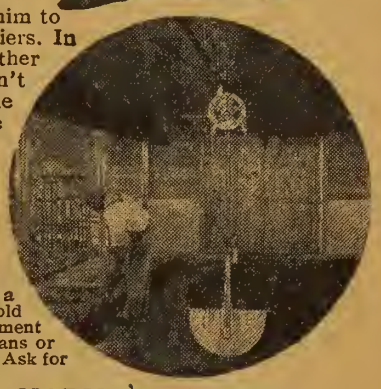

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Corn in Northern Idaho

"That field corn is a successful crop for both grain and silage in Northern Idaho has been demonstrated this season in the University of Idaho experiment work with corn," said H. W. Hulbert, of the Farm Crops Department in discussing the results of the work at Moscow. "This work was started in 1917 when a number of the earliest dent varieties obtainable were tested out both for the production of grain and of silage."

In 1917, one variety stood out above all of the rest in the production of grain. This variety, Rustler's White Dent, came originally from Minnesota and was the only one of the numerous varieties tried out that produced ears fully matured and of good quality. Then, too, its yield of silage compared favorably with any of the others, besides producing a silage of better quality than the later maturing varieties.

This season some 27 acres of this variety were planted on the University farm for silage purposes alone. This area was ready for the silo on September 10. It made an average yield of seven tons per acre and the silage produced was pronounced by Dean E. J. Iddings the best that had ever been ensiled on the college farm.

Besides the field planted for silage a seed plot to furnish the seed for the 1919 planting was grown. This was a plot consisting of nearly a hundred rows, each row being planted from part of the seed from an individual ear. This seed plot was planted in hills three feet each way on May 20, and later it was thinned down to three stalks per hill. The land on which it was grown was that typical of the Palous country. It was fall plowed double disced and harrowed in the spring, and the crop received one cultivation during the growing season.

The average yield of the whole seed plot was 84 bushels of ear corn per acre. The yields on each individual row were also secured, seven different rows giving yields of over 100 bushels per acre and one row yielding 123 bushels per acre. A number of the rows yielded over 90 bushels to the acre.

Next season other ears will be selected from this year's seed for the breeding plot and the remnants of the seven high yielding ears will be planted in a plot for the production of seed for future use. In the selecting of the ears for the seed plot, early maturing, high yielding ears were taken, insofar as they could be determined.

It is unquestionably true that the last two seasons have been especially favorable ones for the production of corn in Northern Idaho, because of the fact that we have had extremely late falls without the usual early killing frosts. Nevertheless, a variety of corn that will ripen early in September should produce a good crop in nearly any season. At least a good quality of silage corn should be obtained and on the higher areas well matured ears should nearly always be secured.—University News Letter.

Story of Lars Carlson's Flock of White Rocks

(Continued from Page 3)

males? Is this important?

"Most important. I never keep a cockerel that is satisfied to be licked by everything on the place; no crowhead has room here. The beak should be short, strong, eyes bright and wide open, head short but broad, comb firm, fleshy, not thin and weak. In fact, a fleshy or meaty comb in both sexes is strong evidence to me of vigor, vitality, abundant circulation of blood. His legs should be set well apart showing good, wide, roomy body. Tail up and coming. When a cockerel gets into the habit of running from everything on the place, his tail gets into the habit of drooping as after a rain. I don't mind a cockerel getting licked but only after he has done his best to hold his own."

What methods have you of selecting pullets?

"Really, my methods of selection are all based on vitality, good health pep, vigor, ambition, or perhaps I should say I practice elimination rather than selection from the day of hatching to about December 1st, when my flock is in working shape for the following season, continually cutting out the unfit. As you see, my young stuff is all vigorous and active; there is not one weakling except that lone cockerel with his tail down; we are going to eat him, though I am almost ashamed to eat anything with so little pride of life. Every pullet is matured enough to lay, and many have already started; not one but will begin, or have no good reason for not beginning, during December."

How do you get them to this state and condition?

"Early hatching, plenty of feed, exercise. I only make two hatches in a small machine, and these hatches are made not later than April, the first in March. Then good care, plenty of feed, practically free range and constant culling—cutting out the unfit. From the first day the weaklings, the unhappy, the slow-growing are allowed to pass out; and they seem to have more gumption than Kaiser Bill has, for when they see they are not wanted, they turn up their toes, and the sooner the better. We give our chicks good care, but never pamper them, giving them a good chance to show their unfitness to exist early in the game."

Then those pullets remaining are kept over?

"Yes—and you see the process of elimination has left nothing undesirable and nothing but profitable pullets."

Thus ended my very pleasant visit with Mr. Carlson, but I promised to interview him again on the other matters mentioned. I am sure Mr. Carlson will be glad to be of help to Western Farm Life readers if he can and should there be any questions on this important subject, let me know and I will submit them to him.

Sincerely yours,
W. E. VAPLON.

Use Care in Removing Silage

Considerable silage is frequently wasted or its feeding value impaired by improperly removing it from the silo. No more silage should be removed from the surface than is required for one feeding or, when weather conditions will permit, for one day at most. In removing silage from the silo, about two inches should be removed on the average from the entire surface, loosening no more silage than is removed. The surface should be kept level and compact at all times.

If unsatisfactory results are obtained from feeding silage, it is usually from improperly feeding a good product or from feeding moldy, sour, or frozen silage.

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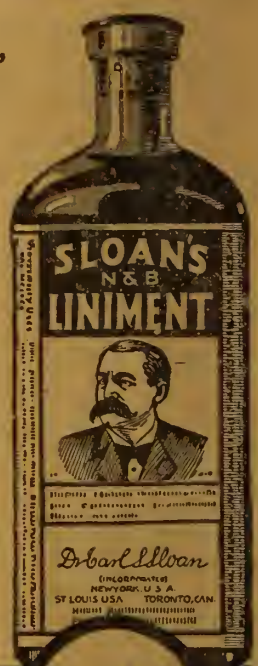

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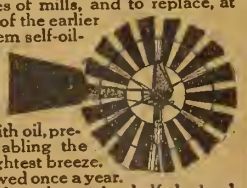

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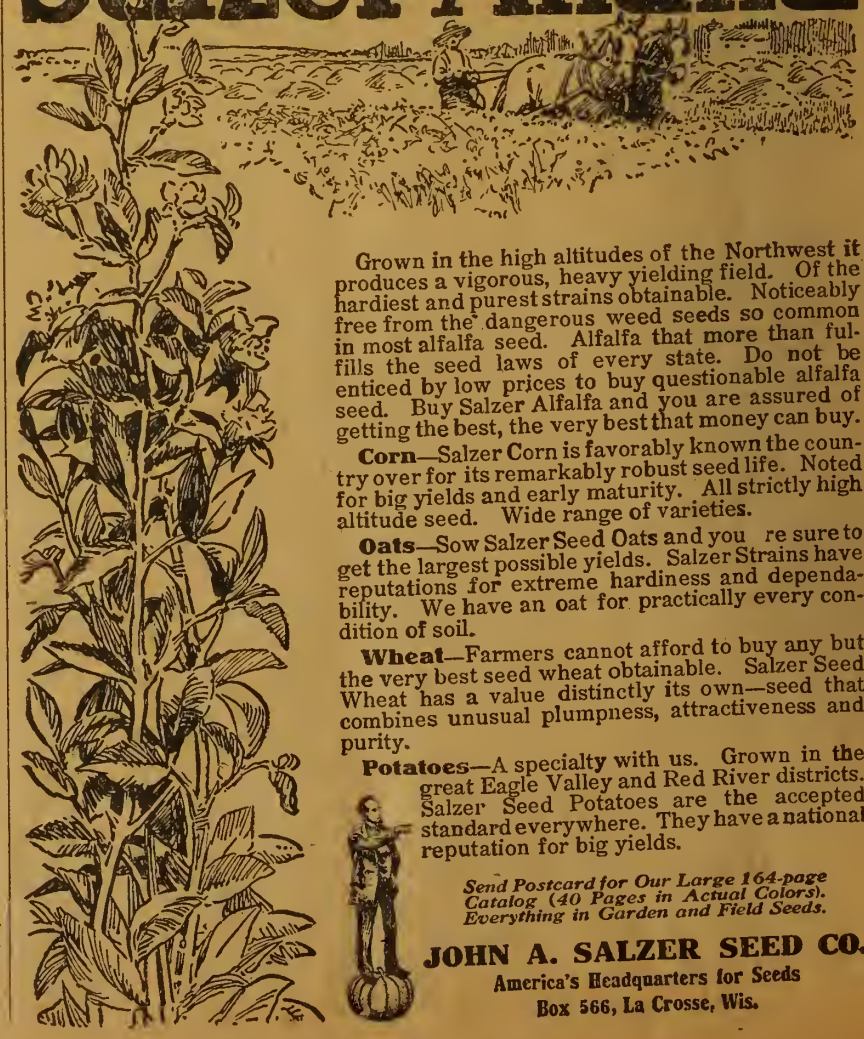

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Steamboat Gold

(Continued from Page 6)

when he goes out campaignin' amongst strangers it's Katy-bar-the-door for Joel. If you see him on the good side first, he spoils it ever' bit the minute he turns his head; and if you see the lightnin'-struck side, as I call it, first, you can't git it out of your mind."

"That's true—I don't believe I'll ever be able to picture him any other way. I'm afraid he hasn't got much of a chance to go down to Jeff' City."

"Oh, I don't know; I kind o' think Joel he'll make it after he runs four or five times more and gits the voters all over the destrict used to his looks."

"Does he live in the Narris? I heard you speak to him about Moore."

"Borned down there. His daddy's old Sam Langworthy—livin' yit, spry as a hornet, near ninety. He come to this country after the war. I ferried him over down at New Bend forty-three years ago last spring."

"So you've got him down from beginning to end."

"Well, mighty nigh the end, I reckon. He can't last more'n another forty years, anyhow." Gregg smiled over his pleasantry, the little wrinkles around his dry eyes multiplying like hairs.

"They live a long time in the Narris, do they?"

"And died hard. Ye-es. Land was mighty cheap in here after the war set the negroes free and nobody was left to tend it, and Sam he bought up a big track of it acrost the Narris from Caleb Moore. It was a place the river had took a big chunk off of the time it cut around out of the Narris, and it had a lake in the front yard, you might say, where the river used to be. That's the Skillet Lake I spoke of a little while ago, but it's nothing like it used to be now, mostly a streak of scum in dry weather, with a deep place now and then. Langworthy and Moore they divided the river bed between 'em there a long time ago. Old Sam he's another queer genius; there's a nest of 'em down there in the Narris."

"And Joel lives down there among them and practises law, does he?"

"Well, he don't cut such a mighty streak practisin' as he might. Now and then he gits a case, all he cares for, I reckon."

"Is he married?"

"No, but he'd like to be, tarnationed well!"

"I suppose it's a hard matter for the girls to come to a decision on him. A woman wouldn't know whether she was marrying one man, or two."

"Precious few men's any wiser when it comes to Joel, 'less it's old man Moore. Moore he kind of took Joel up when he wasn't much more than a boy and helped him git his education. I tell you, if you want to git a fight on your hands any day, just pitch into old man Moore in front of Joel!"

"That's to his credit, anyhow," said Randolph, thinking a great deal better of Joel Langworthy from that moment. "What is there peculiar about his father, Sam? You said he was another 'genius'."

Gregg laughed, a little snorting short noise like a horse.

"Well, sir, for a long time old Sam he had the distinction, you might say, of bein' the only man in the Missouri valley that dug for gold."

Randolph felt a flush of heat in his face. He had trouble to compel the grin with which he met the old man's humorous eyes, for he felt already that he was destined soon to take his place among the geniuses of the Narris in Captain Gregg's classification.

"But another fool has come to beat him at his game," he said.

"Well, Jonathan"—Captain Gregg spoke dellberately, as if he paused mentally between each word to feel it over before letting it go—"I didn't aim for you to take it that way, exac'ly. Sam Langworthy's gold diggin' wasn't the same kind you've got your head set on—he didn't have even a color to toll him. Thought he had. Spent all he'd saved and worked his fool head off and mighty nigh killed his fam'ly drivin' 'em, for a good many years. If Joel hadn't come of age and balked on him, and got named gardeen over him, I reckon he'd 'a' been diggin' yit."

"What made him think he could find gold? Where did he dig?"

"He used to see them iron pyradees glitterin' in the sand around Skillet Lake, and he thought it was gold Fool's gold, you know—that's what they call it. But shucks, you know better'n me, you a minin' man."

"It has fooled many a man and lured him to a gloomy end," Randolph said.

"It fooled Sam, set him plumb crazy. He used to try to wash it out in a pan, and then he got the notion that if he'd tunnel in the bank of the lake he'd strike a pocket of it and git rich all at once, so he went to diggin'. He made the dirt fly for a while, and drove back under his field no tellin' how fur, for he never let anybody but his own family in, guarded it like it was full of minted money. When he didn't strike any gold he kind of sensed down and sobered up. Well, about the time we thought he was cured, he had a dream that he found a quarter of beef in the road, and after that a span of mules couldn't 'a' held that old fool back. His cracked streak seemed to kind of take in the fam'ly, like a ketchin' fever, and they all went to diggin' like a passel of moles."

"He had other children besides Joel?"

"One other boy, that's all. A year or so older than Joel, Homer was his name. Well, them boys and the old man they dug and propped, and wheeled the dirt out in the lake till you'd 'a' thought they was aimin' to fill it up. They got to lookin' so wild-eyed and woolly nobody wouldn't go near 'em, for the old man thought so much of that fool mine he kep' a gun standin' around all the time. A cave-in caught Homer at last, and killed him. That kind of sobered the old man up, and he left off his diggin' for a year or two.

"Joel was seventeen or eighteen when that happened, and he'd been kep' at it so hard he didn't have no schoolin' to speak of. That was when he went to work for Moore, and the old man saw he had something in him and helped him along. Old Sam took the gold-fever just as bad as ever agin after a while, and made Joel dig into it with him. But Joel he was learnin' something all the time, and when he come of age he put his foot down and quit. But before that happened old Sam and them they'd done work enough, if it'd been put on top of ground, to make him easy for life. Danged old fool!"

"How long was he at his mining operations before Joel came of age and balked?"

"Oh, seven or eight years, off and on."

"He must have made considerable of a tunnel in that time."

"Yes, he must 'a'. No man knows how much work they done, for no man ain't never been in there but theirselves. Homer gittin' killed in there kind of took off whatever edge anybody ever had to go in that 'tarnal hole. They say it's all caved in now."

"It's a wonder they weren't all killed."

"Yes, it's past the knowin' of anybody how they escaped it. Yes, there shorely air some queer geniuses down there in the Narris, you'll see that before you're done with 'em, son. Must be something in the air that turns 'em must be. Don't know how I came to escape so long, livin' so near by. Was you aimin' to see old man Moore?"

"That will be the next step in the quest of the Morning Star."

"You was down that way?" Gregg suggested.

"I was down in the Narris neighborhood, but I didn't know about Moore and his ownership of the land then. I was just taking a look around while waiting for you to come home."

"You must 'a' seen his house standin' back from the road, it's the biggest one around here."

"The one with white pillars, on the hillside among the trees?"

"Twenty-three rooms in it," Gregg nodded, proud of the neighborhood's distinction, "begun before the war and finished a year or two before the Morning Star was lost in the Narris. Moore brought his wife there—married her in New Orleans."

"Yes, I'll go over this evening and see him."

"After supper I'll hitch up and drive you over. Come on in and git acquainted with my folks."

"If I can get Moore's permission to sound for the wreck and explore it, are you willing to take hold with me and help locate it?"

They were walking slowly toward the house, Gregg leading in the little weed-bordered path which was too narrow for two to walk abreast. The old man did not answer at once. He walked on pondering the question, his head bent.

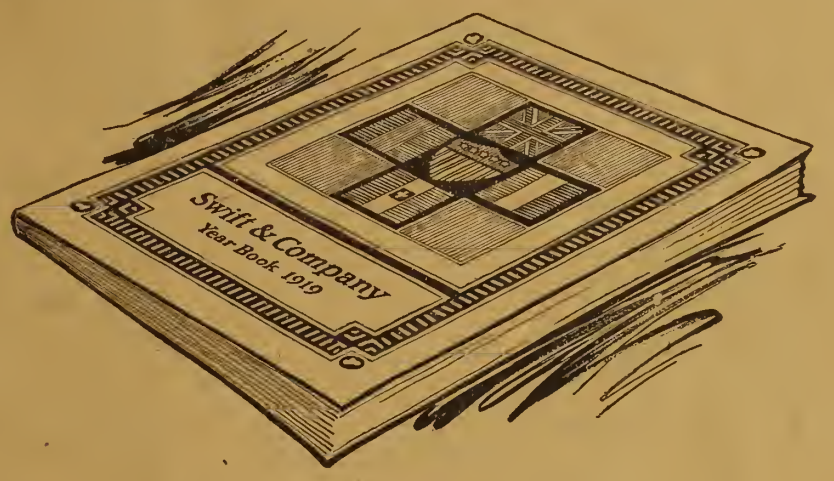
"There's no man alive that I'd turn a hand quicker for than I would for Captain Walt Randolph's boy," said he, with reservation, even a shadow of caution, in his manner and speech. He walked on a rod or two before resuming the theme. Then: "But that's a matter I want to think over before I jump in and take a hold of it, Jonathan; I want to think it over."

"All right," Randolph agreed.

He wondered what mystery there was about the wreck that cost men's lives and impelled Captain Gregg to speak of it with caution when the matter was pressed upon him. One thing he determined upon: if he should obtain permission from Moore to make his explorations, the tragedy of the Morning Star should be cleared away.

Arkansaw had spun his distaff of sleep quite out and was sitting on the floor of the porch with fingers locked in front of his up-drawn knees. He ap-

(Turn to Page 23)



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Parsons Gives Definition of Dry Farming Terms

(Continued from Page 5)

the free water drips off but a film remains which you have to wipe off with a towel. When it rains the free water drips down between the granules, but a film remains. In wet weather these films become so large that they run together, and if there is enough water the spaces between the granules become filled, the air driven out for the time being, and the soil is practically waterlogged. This condition cannot last long on the dry farm with a dry subsoil down below. The free water works its way down into the dry soil and keeps on going until it all becomes film water around the granules. All water in the soil is either free water or film water. The free water can move in any direction by capillarity, but the film water remains on the granules until used by roots, or evaporated by drouth. In the East crops are raised principally on free water and they used to argue that dry farming was impossible because crops could not be raised on film water. My own experiments have shown repeatedly that after all the free water has disappeared and there is nothing in the soil but film moisture, it will still contain from 15 to 17 per cent of water. Some soils will hold less, some more, according to quality. This fact is now recognized by the colleges. When the percentage of water in the soil gets down to 6 or 7 per cent, crops begin to suffer.

Capillary water. This is a vague term used principally by amateurs, sometimes for film water and sometimes for free water. All water is capillary, which we suppose means subject to capillary attraction, just as all water is wet. The status of all water in the soil is either free or film. Each granule of earth possesses a certain amount of attraction, according to its size and density; it can hold a certain sized water film and no more, and when the limit is reached the surplus drips off and becomes free water.

Hygroscopic moisture. If a dry cigar is placed out of doors at night when the usual humidity is present, in the morning it will be damp and pliable. This effect is due to hygroscopic moisture. All dry vegetable matter, including seeds and grain, holds a certain percentage of moisture which cannot be removed from it except by artificial heat, such as baking, kiln drying, etc. The same with soil, especially when it contains humus. If we take some seeds, or sun-dry soil, or any dried vegetable matter and weigh them and then bake the last atom of moisture out of them in a hot oven and weigh them again, we can tell just how much moisture has been driven off; then if we place them out of doors for a night or two the moisture will come back from the air and the water content will be just the same as it was before. The amount of moisture that we can drive off by baking anything which is already sun-dry is called the hygroscopic coefficient, because it equals in amount the hygroscopic moisture which it can get back again from the air. For this reason the moisture which is always retained by anything which has been dried out of doors is often called hygroscopic moisture.

This moisture is more important than it might at first be supposed, for without it all vegetation would perish from the earth. It is this small percentage, usually between 5 and 10 per cent, which keeps the germs of all seeds alive, owing to the fact that the life principle is the protoplasmic cell and if the protoplasm loses its viscid nature and becomes absolutely dry it is dead.

Sun-dried soil, in which we say there is no moisture, will often contain from 3 to 6 per cent, according to the quality, the hygroscopic coefficient of rich loam and clay soils being much higher than that of sandy soils, and in a loam soil a high hygroscopic coefficient is a sure sign of plenty of humus.

The soil solution. In the dark ages it used to be imagined that the plant obtained its growth by absorbing and digesting the soil itself. Now we know that all the plant absorbs is clear water; but this water contains all the necessary elements from the soil, although the granules remain behind. We grind up soil granules with the plow, the harrow, the cultivator and the disk to make soil solution, just as we grind coffee berries to make coffee. Chemical changes are continually releasing soluble salts from the granules and these dissolve in the water and form soil solution, and the more the granules are broken up the better, the more surfaces for chemical action to work upon. The longer a field is fallowed the better it produces, not only on account of moisture conservation, but on account of the chemical action which is constantly forming plant food, which is another name for fertility.

Soil salts. This term is somewhat misleading, for the soluble salts of the soil have nothing to do with salt particularly, except that salt also is soluble and is sometimes present in the soil. Soluble salts are formed by the combination of a base with an acid. Carbonate of soda is a common soil salt, formed from carbonic acid and soda. Saltpetre, or nitrate of potash, is a salt of potash made from nitric acid and potash, and so on. In all water which has percolated through the soil and become a soil solution are found the dissolved salts of iron, potash, lime, magnesia, sulphur, phophorous, silica, alumina, etc., and with certain acids and gases from the air and water this is about all the plant needs. Two buckets of ordinary soil solution would contain about a teaspoonful of mineral salts. Spring water is often a good soil solution. Mineral spring water usually contains a heavy percentage of two or three salts to the exclusion of others. Artesian water is apt to be heavily loaded with one or two, and seldom tastes as good as the surface spring water to which we are accustomed.

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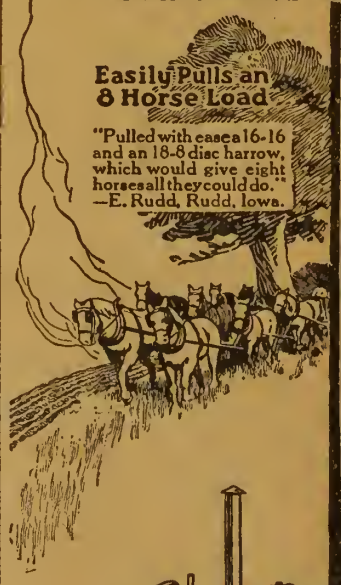

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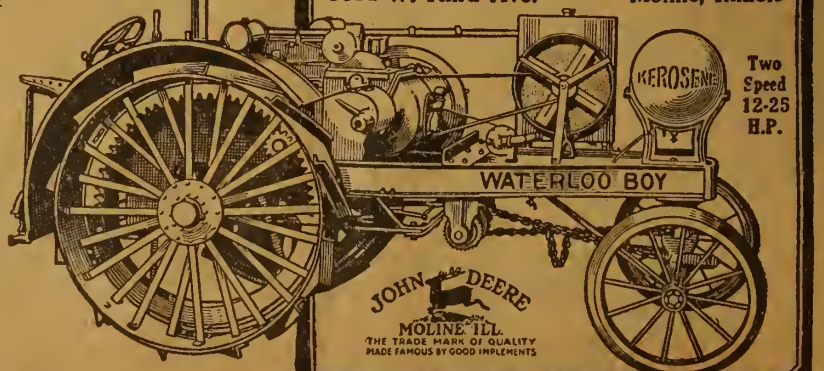

Two Speed 12-25 H.P.

Steamboat Gold

(Continued from Page 21)

peared to be bucking himself together that way, as if he feared that some smothered spark of energy might find a vent and result in an explosion that would rend him limb from limb.

Such a probability appeared very remote to Randolph, beholding Arkansaw for the first time as he approached the house. The son of his father's old pilot was a man in his early thirties, whiskered over more or less with a short, reddish caterpillar fuzz. His eyes were blue and clear, his hair sandy, his hands broad, with fingers to them as thick as cucumbers. The taste of sleep was strong in Arkansaw's mouth, but he got up with a sheepish grin and shook hands when his father presented Randolph, and gave the stranger a word of welcome in which there was no shading of doubt nor question of sincerity.

"Kind of warm," said Arkansaw in a tentative, suggestive way, as if he stood ready to withdraw or amend the statement if the exigencies of hospitality demanded.

"Absolutely warm," Randolph conceded, the little journey from the well having opened the founts of his skin again.

"Yes, if it keeps on we'll have a spell of summer," Arkansaw allowed.

Gregg was squaring his rocking-chair around to get it off the loose planks. Now he pressed Randolph to seat himself, enlarging on the comforts of that cool spot.

"Mystery," he called, come out here on the porch a minute."

Randolph had heard a step retreating from the window at their arrival, so light and quick that he had thought it a child's. Now, when Mystery appeared in the door, he experienced the sensation of one who had expected little and received much.

Mystery had dressed herself in the expectation of his coming. She stood before him in cool, white lawn, her low-necked dress fastened with a black-studded brooch, healthy, wholesome and undeniably fair. She had cooled from her labor with the iron, the flush and the sweat were gone from her face. Elder blossoms in the morning are no sweeter than Mystery appeared there in the door, her brown hair on her neck.

She came to meet Randolph without trace of rustic embarrassment, rather more like a lady who was accustomed to receiving guests. Captain Gregg stood by, proud of her, moved to greater pleasure by Randolph's surprise than he would have been by the neatest compliment that tongue could have turned.

The old man explained to her Randolph's claim on their hospitality, and her brown eyes widened, her grave face seemed to flit in shadow, when she heard that Randolph was as one who had stretched his hand out to that house from the romance of the past.

"You're doubly welcome, Mr. Randolph,' she said. "I've heard father speak of Captain Randolph many a time. You are not a stronger; you are an old friend come home."

"Now! I couldn't 'a' said as comfortable a thing as that, Jonathan, if I'd figgered it over for six months," said Gregg.

"It is comfortable," said Randolph heartily, his wonder over this woman growing momentarily. "I never have had a greeting equal to it in my life."

There was sincerity in his eyes as he looked at Mystery keener than the mere formalities of a first meeting required, perhaps, and held her hand a bit longer than even the gratitude of a stranger at a hospitable door gave warrant for, in truth. Randolph was a little dazed by the sudden and unexpected appearance of a woman of such fine contrast with her surroundings, and that Mystery was not ignorant of it was attested by the flush in her face and a quickening as of mischievous appreciation in her eyes.

Randolph marked that Gregg had not mentioned his mission there, and she, with what seemed studied avoidance, had not spoken the name of the lost boat. The formalities of introduction being over, Mystery returned to her tasks in the house, Arkansaw excused himself on the plea of pressing chores, and Gregg went to pour more water over his indolent hog.

The sun was slanting among the corn, projecting the shadows of its tassels across the dusty road like spears reaching to plunge into the river's bosom and seek if it had a heart. There was a hush in the day as if all the world stood weary after the pain of that long searing. Flat, oppressive and unsatisfying the still air pressed, the vigor burned out of it.

Randolph eased the thongs of his thick boots. He longed to plunge his feet into the trough beside the well, yearned even toward the thick waters of that yellow river stealing past like a crunching tiger under the white bank. A feeling of depression had settled over him, pressing down his spirits, casting a cloud upon his hope. Indefinable that sense seemed, and deep. It gloomed over him like a warning, and dulled the zest of that search which had been so keen in him only an hour ago.

There in the shadow of Moss Gregg's porch he looked out over a scene of rustic peace and beauty. There was no scar on the face of nature, no depressing thing to strike the sight and throw the soul out of its harmony. Only the vast fields of corn were there, hemming the house like men under arms, and across the river they spread away again, laving the feet of the distant hills in a green and bounteous sea. Surely a man should rejoice in the liberality of nature and the prosperity of his kind in that fat land.

Randolph got up, as if to lift himself above the dead stratum of air that seemed to draw upon his vitality and make a coward of him. Gregg was coming, a pail of water in his hand, and from the kitchen the savory vapor of frying chicken blew, unmistakable among all the sweet scents which floated that summer evening to soothe or whet the appetite of man.

He parted the curtain of honeysuckle that drooped over the end of the porch and screened the field from sight at that point, to look again on the wonder of that mighty corn. An old gray picket fence cut the field off from the dooryard, morning-glories draping it, jimson tall and coarse pressing like ruffians into the tangle of caressing vines.

The noise of a gate softly closing drew his eyes along the fence. Opposite the kitchen door the gate stood, as if letting into a garden beyond. A man had passed outward through it; the corn blades quivered behind him as he flitted away in such haste as to be almost a run, and bent and skulked and hid himself, like the quick passing of a bird in the brushwood, among the giant stalks.

Yet not so cautionsly, for all his care; not so quick, for all his haste, that Randolph had not seen him. And having seen him, marveled. Joel Langworthy, it was; the man with the blasted cheek.

CHAPTER VI
MOORE'S ADVICE

Caleb Moore's house stood back a good half mile from the site of his old landing on the Narris, on ground that rose much higher and gave a sweeping view. It had been a notable mansion in the days of Moore's prosperity, and had sheltered many a brilliant company. Its Ionic pillars, white once and gleaming through the trees like a pagan temple, were gray now, for they had known no paint in many a long and stormy year.

The melancholy of a disappointed man had long ago settled on Caleb Moore. His hope, his belief, that the river would turn back to him one day seemed never to be realized in his time. It bore upon him like the faithlessness of a woman, for he had loved the river in his proud commercial way, and reckoned it entirely his own. Now it had been alienated for half a century, and its disloyalty made him sad.

Price City, as the steamboat landing had been called pretentiously in the age of its prosperity, had vanished, and left no evidence to establish its existence in the memories of man but Caleb Moore's store. It never had contained more than a dozen houses, although it had been the seat of supply for a wide territory in the days of slavery, when that vast valley was one unbroken field of hemp.

Captain Gregg had driven Randolph along the twilight road where pressing forest growth hemmed the wheel-tracks, and swarms of barbed mosquitoes charged them in the low places where the air hung moist and still. At Moore's gate he had left the adventurer with the assurance that his house was open at all hours of the day and night.

Randolph was impressed by the dignity of that gray old house as he faced toward it from the gate. The sun was down now. Cool little gusts of wind were starting, like night creatures waking and winging softly away. Matted long bluegrass lay soft under the feet on the deep lawn and there was the scent of honeysuckle coming down from the viny portico to meet him like a pale sweet lady with a smile upon her lips.

Caleb Moore rose up out of the shadow of vines to greet the stranger, standing tall upon the topmost of the three treads which lifted from lawn to veranda.

A man of heroic mold, like a warrior statesman of the old Roman days, his great head proudly held, his eyes imperious, frowningly piercing under long harsh brows; his hair upstanding, thick and gray, as if distracted fingers had tossed it. A short gray beard curled on his strong, stern jaw.

"Yes, I knew Captain Randolph," he said, when the treasure-hunter had introduced himself, "as many another up and down the river knew him—in a strictly business way. He often

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touched at my wharf in the old days. Yes, I recollect him very well, very well; he left us a memento here when he went away."

Moore smiled reminiscently as he spoke of the wreck in those terms.

"Yes, something remains here in the Narris to keep his name alive, even though he has been dead more than twenty years," Randolph returned. "It is about the wreck of the Morning Star that I have come to see you, sir; I have come a long and weary way."

Moore did not appear either curious or encouraging in his manner. He bent his head as if in reflection, and Randolph thought that he shook it a little sadly, but of that he was not sure.

"Tell me about it," he requested at last, not lifting his face from his cogitations.

Randolph plunged into the matter of the lost treasure, frankly and without reserve, as he had related it to Captain Gregg. Now and then Moore nodded, as if he approved or understood, and twice or thrice he looked up at Randolph with sharp inquiry, his eyes made small in frowning concentration. When Randolph had made an end of his brief story the old man sighed, with a great sound in it, as of a lifting of relief.

"So you've come after the old wreck, too," said he musingly, "only you have come to me with a different story, a story that I believe to be the only straightforward and honest one that any man who has come to me on this mission ever told."

Moore seemed greatly moved by what he had heard. He left his chair and paced up and down the veranda, his great, noble head thrown back, his broad shoulders set like a soldier's.

He stood a little while before the steps, hands clasped behind his back, looking off down the dusky valley where the fireflies were rising out of the corn; down the scar of the old river bed, now soothed over by green field and pleasant meadow, where Randolph knew the Morning Star lay deep under the down-drawing sands.

The old man returned to his chair presently, something of brightness in his manner, the outward glow of the excitement that this latest adventurer's tale had stirred in his judicial breast.

"Others have come to me, and to Moss Gregg, whom you have seen before me, wanting permission and help to search for the Morning Star," he said. "You have heard about them."

"Captain Gregg has told me how they came unheralded and disappeared without explanation or trace—all but the last."

"There are people in this community who believe I am the ghost that drove them away from their quest unsatisfied," the old man said, bitterness tincturing his contempt. "Some of them tried pretty hard to get me indicted by the grand jury for killing that man."

That was something Gregg had not told. Randolph spoke deprecatingly of the neighborhod suspicion, but the old man only shook his head in a manner of excusing their view-point.

"They felt justified, I suppose," he said, "for all along I have stood out against any exploration of the wreck. That was because I believed it was the whisky they were after, and I thought then, as I think yet, that it was in a better place down there than it would be on top of the ground. I suppose it looked suspicious to some of them around here who don't know me as well as neighbors ought to know a man who has lived among them for more than sixty years."

Randolph nodded; he could not bring his mind back quickly from its long rambling touching the details of that old tragedy as they led away to far and unexplained things, and frame words suitable to the moment.

"The trouble of it all was that those men—four of them, I think, came during the course of the past twenty years—never satisfied me that they were square in their intentions. They all proposed a contract with me granting them permission to explore the wreck on a percentage of what might be salvaged from the cargo. Well, I knew there was nothing of the cargo left but the liquor that could be turned to money now. You know, in the steamboat days cargoes of whiskey were frequently lost on this river. Years afterwards, when whisky got to bringing more money than it did in the old days, and the wrecks were buried in silt and sand as the Morning Star is buried, men used to go around sounding for them. Steamboat whisky came to have a peculiar value, a peculiar excellence, according to the standards of that outlawed and villainous trade. Once in a great while a wreck would be located and the barrels pumped empty. But they seldom found a cargo, for the river is a pretty good hand at keeping what it takes.

"I didn't want any of that going on around me. I suppose those barrels are still sound, and that whisky would be worth a good deal of money now if a man cared to get his profit out of that kind of traffic. But I don't believe now, since you've told me this, that one of those men, from the first to the last, was considering the whisky at all. They were after that money down in the bowels of that boat; they lied to me, and tried to deceive. They intended to make a pretense of exploration, find it and disappear."

"Captain Gregg is of the same opinion, sir."

"It does him credit," said the old man, with a shading of contempt for the opinions of Moss Gregg. "I tell you, Jonathan Randolph, that's guilty money, and the men who came hunting it were guilty men. There is somebody guarding the secret of the Morning Star, waiting his day. Guilt has been heaped upon guilt to protect what must have been gained in violence and crime."

"Whoever it is, he has stood a long and faithful watch," Randolph said. "Why, do you suppose, have they waited with all this secrecy? Why couldn't they have come to you, made an honest disclosure of the facts, and gone after their money—if it belongs to them by any honorable claim?"

"It does not; that's why. I don't know any more about it than you do—I didn't know as much a quarter of an hour ago—but what you have told me has begun to let a little beam of light into it. It's guilty money; no man has a claim on it that's an honest claim."

"Then it's any man's to find and take away in defiance of them and their ghostly guardianship, but yours above all."

"I don't believe it would bring happiness or peace to any man," said Moore; "it has brought a great deal of sorrow and trouble to me. I never knew it was there, I never dreamed of that, but it has reached up out of the ground like the vapor of some foul thing, and cast a blight and a bitter shadow over my declining years. I would to God that you might cleanse that spot, fathoms deep that it lies buried, and purge away its blight and its mystery that hang like a cloud over me and mine!"

"All I ask is your permission to try."

"I always said that when the right man came, the man that could look me in the eye and give me a plausible and honest explanation of his eagerness to delve down to the bones of that old boat, I would give him leave to go ahead and explore. But since you have told me this about the old man's gold I seem to want only to cover it deeper, and let it lie there with its guilt, maybe its blood and broken honor, until the river—until the judgment of the Almighty descends upon this world."

"I believe I could clear away this mystery if I could get my hand into it, Mr. Moore."

"The dangers of such a quest offset the gain, outweigh the most extravagant hopes of it. You are a stranger here, you cannot know, or feel, the dread of this thing as we do, sir."

"I am not insensible to the danger of the undertaking, Mr. Moore, for there must be danger in touching a thing that had swallowed four lives already. But I'm not just what you might call afraid of it, either. If you'll give me your consent to go ahead, I'll assume the risk."

"There is a risk, you have said the word, there is a subtle, waiting danger, graver because I cannot tell you how to proceed to guard yourself against it. I have hoped to see it cleared, and this vile suspicion that has piled on me and made my spirit bitter, swept away from my name before I go. But I don't know, Randolph—I don't know."

Moore left his chair again, and walked the length of the veranda and back. Near Randolph's chair he paused, looked at him steadily a little while as if he would speak, turned again and walked away. At the

Smoke Meat Free!

106S

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The LAUSON 15-25

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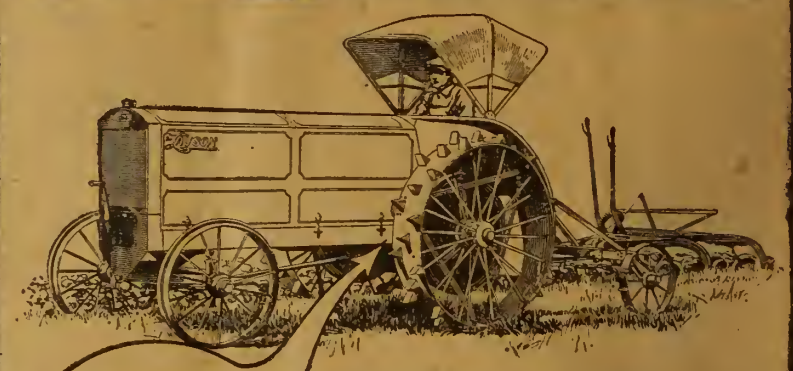

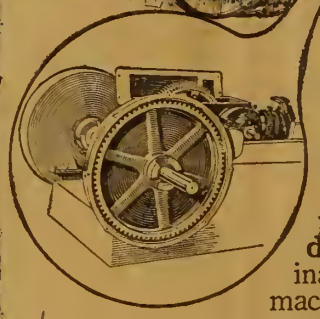

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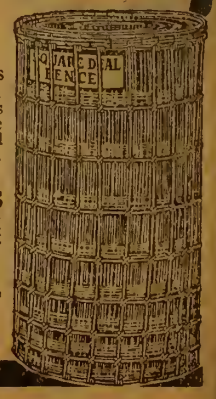

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(64)

farther end of the porch he stood a few minutes, his chin up, his gaze on the darkening hills beyond the river, as if distance held the answer to his perplexity, elusive before his gleaning eyes.

"Randolph," said he, coming back slowly, placing his hand in paternal confidence on the young man's shoulder, "let the treasure of the Morning Star sleep on—it isn't worth your young life to go seeking it; no relief of suspicion and dread that you might give me would be worth a sacrifice like that. I have lived under the shadow of it, and the cloud of my eccentricities a long time; I can bear the load to the end. Let it go; let it go, boy—let it go!"

Randolph was deeply touched by the old man's manner, and by the sorrow that lay with such leaden weight behind that brave front.

"I'd feel like a coward now if I should turn tail and leave it untouched," he said.

Moore returned to his chair. He sat swaying gently on the rockers, his hand in his hair, his head drooped in thought.

"Still, there is much to be considered," said he in low voice, as if to himself. "You must have counted on it with a good deal of hope, looking forward to it so long. It doesn't seem fair to deny you, since you have come frankly and honestly to me this way. How would you go about it, Randolph?"

"I've got her measurements, taken from the records of the surveyor of the port at St. Louis, where she was registered. My plan was to engage Captain Gregg to locate her as nearly as possible according to his recollection of the spot, and then make soundings until I struck her. There's no rock in the way, it would be a simple matter. When I'd found her, I'd outline her by sounding out the shape of her hull, then by her measurements fix the location of the clerk's office and the safe. A shaft could be put down to it in a few days' time."

Moore nodded his rough gray head. "It sounds simple, it sounds like you could do it that way." Then he fell into silence again, peering away into the distance, where the last sunlight reflected from a mass of thunderheads in the middle sky picked out the river over against the hills as bright as a bared sword-blade.

Randolph knew that the old man must have spent many an hour out of his years gazing at the scene, where the river pressed against the hills. It had withdrawn from him as far as it could go; the rocky hills were curbing it, its yellow lips snarled at them in unending feud as it went sulking by. It seemed that the old man, sitting there in dark concentration, was matching his unbroken will against its sullen strength seeking to bend its mighty current back into the Narris and sweep it past his door.

"Even after you had found her it would be like digging a hole in water to reach her, buried there under forty or fifty feet of quicksand."

"It would be very simple, with a coffer-dam and pump."

"But costly."

"No; a few hundred dollars would do it."

"Still, that would be the smallest consideration of all, the expense in money. It is not so much what it would cost in money; that old treasure seems to call for blood. That old man's blood that you have told me of spattered it, he must have spent blood in his turn—and maybe the lives and souls of others—to get it into his hands."

"But its tragedy has been a long time quiescent now; more than likely the long watch on the old wreck is over. Fifty years is a long time for a man, or a set of men, to stand guard and keep a mystery covered."

"A long time!" Moore echoed. "But the watch is still kept; I can feel the foreboding of it; I can sense the danger, like a man draws back from some unseen obstruction in the dark."

"It only makes me keener to be at it," said Randolph, leaving his chair, tingling with the eagerness that this unexpected complication had given the quest of the Morning Star.

"Youth has such sublime confidence!" sighed Moore. "I had it in my day, I had it too. Well—" he laughed a little with the word—" I have a little of it yet, I keep a shred of it, like a scarlet thread from some old garment worn out and cast away. It is my only hope in life Randolph, that little bright thread of confidence hidden away in the dark closet of my old heart, the confidence in old things to become new, of the old justice, the old mercy. So, you've turned from the cold scents of Peruvian lost lodes to this warmer trail up here in the Narris? Peru; I used to read about it in Prescott a long time ago. When I was a youngster I often planned to go down there and find some of that Inca gold."

"We are all adventurers at heart, I think, sir."

"Yes, no doubt we are, timid ones, cornfield adventurers, most of us, I am afraid. Is your mother gone, too?"

"Gone; since I was a little boy."

"So you are alone."

"Quite alone."

"Even then it isn't worth the risk—it is not worth it, Jonathan Randolph "

The old man spoke with almost dramatic decision, his great hand smiting the arm of his chair. "Let it go; it isn't worth while to stand your young life up against an old death-trap like this."

"If you have no other objection than the danger I might run," Randolph spoke eagerly, in sight, as he believed himself to be, of realizing on his dream; "if that is the only objection, sir—"

"There are other objections which we'll not stop to argue now," Moore interposed, with spirit-dampening haste. "Let me tell you, boy, even if I was to give you the permission you ask to go ahead and dig, you'd never come to the treasure you've set your young heart on, not even if you passed through the dangers that have driven other men away. No human hand will ever open the safe that hides that old man's money, for what the Missouri takes, it keeps!"

Moore leaned back in his chair, weary with his old vigil, depressed by the somber tragedy and unread mystery which clung to him like noxious vines strangling a noble tree.

"It took my youth and hope away from me," said he, sad and low, "and if it ever comes back—and it will come back, as sure as the judgment of God,—it never will return them to me any more. It took wealth and prosperity away from me in a day, and left my life as barren as the top of a rock. It is greedy and capricious, wicked as a false woman, dangerous as a volcano. Let it keep its guilty money! you couldn't buy happiness with it if you had it in your hand tonight."

(To be continued)

Data on Cost of Beet Production in Colorado

(Continued from Page 4)

and thereby make a greater profit? You are all familiar with the present manner of handling the hand labor. It is done carelessly and little attention is paid as to stand. The chief desire seems to be to get through and get the money. In some instances this hand labor is actually supervised in the field but a man cannot afford to do that if there is any other way of solving this problem. A few have followed the plan with very much satisfaction by giving a certain amount for a certain number of tons raised, say $15 for twelve ton yield and then allowing a bonus for every ton over twelve. Both worker and farmer benefit by the increased yield and more attention will be given to the thinning by the hand labor. The soil problem can only be solved by building it up, if it is not fertile, by manurial applications and rotation of crops, providing, always, that the soil is adapted to beet growing.

Poultry For Sale:—See classified advertisements on page 30 for bargains in all kinds of poultry.

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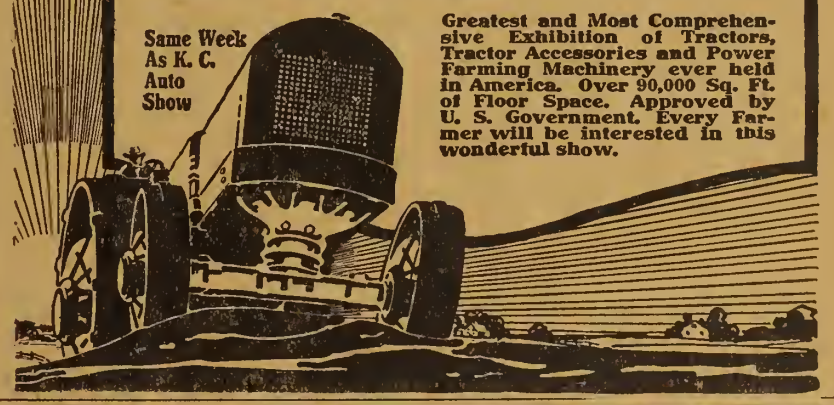

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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

"Nor knowest thou what argument
Thy life to thy neighbor's creed has lent;
All are needed by each one,
Nothing is fair or good alone."
—Emerson

Being Neighbor to Your Schoolhouse

The enforced vacation that most schools over the country have had to take this year on account of the influenza epidemic has not been over for more than a month in most of our western states. The uncertainty of duration of that vacation, the possibility for illness and sorrow, the general depressed feeling has been hard upon everybody's nerves. But it seems to me that the place where it will be hardest to pull against the current is in the school. The children have forgotten everything they knew, it seems; a varying from customary routine has given them new interests and there is, oh, such a lot of work to be done before those spring examinations, that the little country school teacher is coming out of the struggle very much the worse for wear, unless we prove very good neighbors to her and her little schoolhouse.

The strain has made all of us a little impatient, indifferent to and careless of everyone's troubles but our own. In fact the quarantine rather discouraged the "neighboring" instinct, and now we're a little puzzled where to take it up again. Begin on the place you can help in the school, if you can't think of anything better to do. It was easy enough in the fall to ask Susie and Sammy something about school, who got the highest in spelling or what pretty thing the teacher brought, because it has been the habit of past autumns to change the current of our summer's lives in just that fashion. But now Sammy and Susie have gone sledding on a week-day afternoon and gotten their winter evening's chores done for some two months without having to come home from school to do them; and in all probability they are a little prejudiced in favor of the unaccustomed freedom. You have been deep in winter's work and spring plans lately and find it hard to tear away long enough to get interested in small school plans again. But that is exactly the stimulus the children need to put the extra zest needed for their work the rest of the year. See that any help you can give with lessons is offered, and make Sammy and Susie feel the necessity of making the year count in spite of difficulties.

The teacher will feel the force of such interest in the schoolroom itself; but she, as well as anyone else, likes a little personal interest on her own account. Be sure to ask her in once in a while for supper and try to make the evening a happy one for her. You remember a standard of neighborliness was formulated long ago by one whom we have ever since called the Good Samaritan and the first thing he did was to heal, and the next thing to feed the neighbor who needed help. You can't get any better recipe than that; but if the need for healing isn't so apparent then be sure they are well fed.

That brings me to a hobby which many other people are following, that of having something hot for the children and teacher to eat each noon. It is my firm belief that one hot dish, a cup of cocoa, a bowl of soup, or a hot vegetable will do more to keep up the efficiency of all school people than any other one thing. It is not fair to the teacher either to give her all the burden of planning, nor preparation of this noon meal, if she has never done it before. The mothers should plan in a group how this may be done, whether the schoolhouse stove may be used or not, what foods they may send, or any of the numberless things which are needed to make the undertaking a success. The proof of the pudding, you know, comes after the time has been taken to prepare it. Try out something to help your school and be a neighbor to it, for it needs you.—E. D.

CATALOGUE NOTICE

Send 25c in silver or stamps for our Up-to-Date SPRING AND SUMMER 1919 CATALOGUE, containing 550 designs of Ladies', Misses' and Children's Patterns, a CONCISE AND COMPREHENSIVE ARTICLE ON DRESSMAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various, simple stitches) all valuable hints to the home dressmaker. Address Western Farm Life.

What Mary Wants

Dear Sarah:

John's news when he came in from town yesterday and said that he had seen Marvin and found that you were really going to move out to the old Willoughby place sent us all into whoops of joy. Of course, you know it's in bad condition and I think you "have a nerve" to move into the house, especially at this time of year. The gate even had rheumatism last summer when we were by there and that beautiful old rose garden that Jim Willoughby's mother took such pride in isn't any better than the briar patch in our south pasture now.

But it means that you and I are closer together in the matter of distance than at any time except for one day after we left the old Academy. Surely thirty miles won't keep us from having a few of those visits this summer that we've talked about ever since my "little John" was one and a half and your little Sue was just a quarter as old; even though our "flivver" will be doing truck duty into Colorado Springs and your Dodge—well, Sarah, your Dodge may be hauling anything from milk to marble! You'll find that just being moved from a small town garage to its portion of a big barn in the country changes all the ambitions and capacities of a car.

Probably the Lord is pleased when we make the most of the possibilities He sets before us and likes to see us use gasoline engines for everything from learning geography at first hand to sawing wood; but that doesn't take away the difficulty of removing all traces of a smashed egg from your Sunday suit and the back seat of the Ford in time to ask the minister and his wife's first cousin home to dinner before the services begin. That happened once in "our family."

Don't think I'm objecting to the dual purposes we have to put most of our farm conveniences to, Sarah, for using your ingenuity is simply part of life in the country, and I love it. But do you know when I visit certain houses in town I sometimes envy the women because things are cool and comfortable and well ordered (on the surface at any rate), and the interest seems to center about the pleasures of the living room instead of the filling of the water bucket and the wood box. The drudgery of keeping things going seems to be so obvious in the country when it doesn't in town. I'd like to change that.

This letter has run into a moralizing tone, but there has been so much snow that I haven't any neighbor news of interest enough to send. John has had a time keeping the paths open for the cows to get water because the snow drifts so. Little John was out helping him this afternoon and got his feet wet. I have the vinegar out and the musterole ready for that croupy cough which is such a sure sign of trouble with him.

I hope that none of you take cold moving out and that you will be settled soon enough to write me your usual letter. Lovingly,

MARY.

Are You Putting Up Ice?

Do you have these things when you want them?

Ice cream?

Iced tea, lemonade, iced buttermilk?

Ice cold watermelons and canteloupes?

Ice for use in sickness?

If you do not, it is your own fault, provided you live in a natural ice region.

All you need is an inexpensive ice house, and a pond or stream. The labor comes during the slack winter season. Write to the United States Department of Agriculture for a bulletin that tells how.

Weights of Milk and Cream

Investigations by the U. S. Department of Agriculture show that the weights of milk and cream containing various amounts of fat are approximately as follows, at a temperature of 68 degrees:

Skimmed milk of a fat content of .025 per cent weighs 8.63 pounds per gallon, while milk which tests 3 per cent butter fat weighs 8.6 pounds per gallon. Milk which tests 3.5 per cent weighs 8.59 pounds per gallon; while 4 per cent milk weighs 8.58 pounds; 5 per cent milk weighs 8.58 pounds; and 6 per cent milk weighs 8.57 pounds per gallon. Mixed milk and cream of a 10 per cent fat content weighs 8.53 pounds, while a similar mixture of 15 per cent fat content weighs 8.47 pounds per gallon. Twenty per cent cream weighs 8.43 pounds, 25 per cent cream weighs 8.39 pounds, 30 per cent cream weighs 8.35 pounds, 35 per cent cream weighs 8.31 pounds, and 40 per cent cream 8.28 pounds to the gallon. For all practical purposes the weight of milk testing from 3 to 5 per cent butter fat may be figured at 8.6 pounds per gallon.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2594—Good Model for General Wear. This is fine for cheviot, velour, serge, mixtures and pile fabrics, such as plush and corduroy. It is also nice for satin, or velvet. The collar may be rolled high or low as illustrated. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5¾ yards of 54-inch material.

2664—Simple but Attractive Model. This gown is made with an under portion in one-piece style, over which the long blouse is worn. The sleeve may be in wrist length or cut shorter, in loose style. A belt or sash confines the fulness at the waistline. Satin, velveteen, duvetyn, serge and satin or silk and jersey cloth combined are nice for this also. Cut in sizes 16, 18 and 20 years. Size 16 will require 5¼ yards of 40-inch material, with 1⅝ yards of 27-inch lining. Width of skirt at lower edge is 1⅞ yards.

2254—For the Little Girl. This design is nice for all wash goods and suitable for serge, gabardine, cashmere, voile or repp. The right front overlaps the left at the closing. The sleeve may be in wrist or elbow length. Cut in sizes 2, 3, 4, 5 and 6 years. Size 4 requires 3⅛ yards of 36-inch material.

2186—New Things for the Baby. Infant's set, consisting of a cap, a sack, a night gown and a dress. Muslin, cambric, flannel or flannelette will do nicely for the night gown, while lawn or nainsook is suitable for the dress, with embroidery, tucking and lace or edging for decoration. The sack will look well in silk, cashmere, flannel or flannelette, and the cap is suitable for lawn, silk or "all-over" embroidery. For the dress of flouncing, it will require 1¾ yards of 36-inch material with 1¼ yards of plain material for yoke and sleeves. Of nainsook or lawn 36 inches wide it will require 2¼ yards. The gown will require 2½ yards of 24 or 27-inch material. The cap, ½ yard of 18-inch material. The sack requires ⅞ yard of 27-inch material.

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In response to inquiries received from sections where there is, as yet, no Grange organization, State Master John Morris has prepared the following statement embodying the principal facts of interest to prospective members:

Requirements for Membership in a Subordinate Grange

The Grange was organized for the purpose of bringing the farmer, his wife, sons and daughters together for social, educational, fraternal, financial and legislative benefits. The charter fees are $1 for man and boy over 14 years of age and 50 cents for lady and girl over 14 years of age. After the charter is closed all members must be admitted by application and the fees are the same as the charter fees. The monthly dues are 16⅔ cents per month, or $2 per year. One dollar remains with the subordinate Grange and $1 goes to the State Grange, to keep up the state organization and pay dues into the National Grange on all members of subordinate Granges in Colorado.

We would not care to organize with less than twenty-five charter signers; the more the better. There are thirteen officers in a Grange.

Speaking for myself, I think more of the Grange today for the social and educational part of it than I do for the financial end of it. There is something more than dollars and cents to be considered in being a citizen of the United States and a member of a good, live, subordinate Grange, where we can meet together twice a month, with a Pomona Grange every three months, and discuss the questions of our neighborhood, of our county, of our state and of our nation, and not in a partisan way. The Grange has been organized for over fifty years.

We also have a Grange Mutual Insurance company in Colorado, which has been writing fire and lightning insurance for the past twenty-three years for our membership in Colorado. The cost for the past twenty-three years, on a $1,000 policy, has been $2.23 per year. Before a person can be a policy holder he must be a member in good standing of some subordinate Grange in Colorado.

Any reader of Western Farm Life wishing to ask questions about the Grange, or the Grange insurance may write to me and I will gladly answer to the best of my ability.

JOHN MORRIS,
Master State Grange, Golden, Colo.

Ohio State Grange

A significant note in last week's proceedings of the 46th annual session of this body was the cordial attitude toward specific rural organizations. Said State Master Taber in his message to the delegates:

The Grange can be made to serve every possible need of a rural community that organization can supply, but, with our varied interests, it is doubtful if it is wise to so fully extend Grange machinery. Cow testing associations, breeders' organizations, etc., will reach their maximum efficiency when the membership contains those most vitally interested. The Grange can serve best by acting as the big brother and defender of these smaller organizations.

The Grange is strongest and most influential in those states where its policy has been shaped according to this conception of its mission. Wherever it has been jealous of the development of specific organization it has missed its big opportunity, and consequently been limited in appreciation and patronage. The Ohio State Grange has grown just because its leaders have in the main had the bigger vision of the Grange's mission; it service.—The Ohio Farmer.

Manure on Winter Wheat

Farmers have been very busy and short of help during the past season. Doubtless in many cases the manure pile is still in the barnyard. There was neither time nor help at hand to spread this manure at the usual time, and as a result the wheat may now be growing on land that is not as fertile as is desirable.

In such cases it will be of great help to the wheat crop and of profit to the farmer if manure, or straw not needed for other purposes, is spread evenly and thinly on the more level wheat fields this winter. Such application should be made when the ground is dry or frozen. The application of manure should not be heavy—probably not over six tons to the acre in any case—and it should be spread evenly so as not to smother the plants.

Provide Ample Silo Capacity

A farmer came into the office the other day to consult about his silo and in the course of the conversation he gave these figures: After filling his silo there was 4.65 acres of corn left which he had no room for. This averaged 8 tons per acre. He sold it to a neighbor to help fill his silo and received $35 per acre, or a total of $162.75 for the 4.65 acres of corn. Now had he had enough more room in his silo for this extra amount, it would have made him 53.2 tons more of ensilage, worth at the market price of $10, $532. Figuring $1.50 per ton for putting it in the silo, plus an interest charge of $8 to cover cost of extra capacity, the extra cost of making silage out of it would have been $87.80. The value of the extra silage ($532) less this amount would have left this man a difference in the value of the crop of $281.45. It certainly looks like a little more capacity in silos would pay.—Boulder County Farmers' Exchange Bulletin.

Wyoming Farm Orchards

Most of Wyoming lies at altitudes varying from 3,500 to 7,000 feet above sea level. In spite of these high altitudes, however, it is possible for most ranchers and farmers in the state to grow what small fruit they need, and in many instances plums, pears, and apples can be grown to advantage.

In case one has not a naturally protected spot in which to set out his orchard or small fruit, this can usually be made by planting a wind-break of willows, poplars or cottonwoods, or by making a hedge of some hardy shrub like the Russian olive, or Siberian peabush (Carrigana). Inside this shelter a variety of fruit can be grown, and by proper selection and care some fruit may be picked for several months during the summer and fall. While walking to the office on the morning of October 15th, I found a gentleman in his garden picking strawberries, and have known of instances where such berries have been picked from the garden in the month of November in Fremont county.

The everbearing varieties of small fruits have an advantage over other varieties in that even though their first blossoms may be blighted by frost, they continue to produce others, and in this way bear fruit continuously throughout the whole season, and usually are in bloom when the fall frosts catch them. Mulching them with straw or manure in the fall insures their living over winter, and the trouble is well worth while, for what makes a country more attractive than a plentiful supply of berries the summer long!

It is well known that considerable fruit is raised in Fremont and Natrona counties, and in the Big Horn basin in many places, and I venture to say that nearly every ranch and farm could be made to produce fruit of various kinds in abundance if a little care and attention was given to its selection, location and culture.

The State Horticultural Farm at Lander has been raising fruit for many years, and has been experimenting with many different kinds and varieties of fruits to see what kinds are best suited to Wyoming conditions. Their experience has shown them that there are a considerable number of varieties that can be grown here successfully, and they will undoubtedly do well in many parts of the state. The following varieties have proved most hardy:

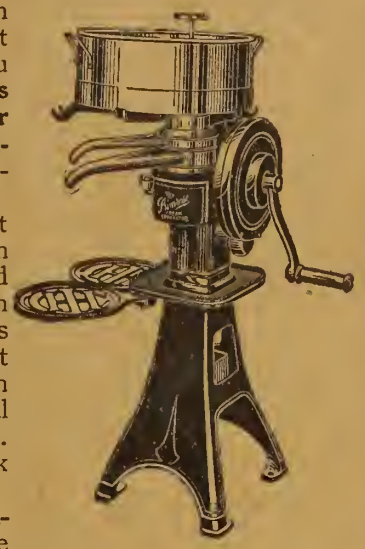
Summer or early fall apples: Yellow Transparent, Whitney No. 20, Enormous, Charlemoff and Harvest Sweet.
Fall or winter apples: Wealthy, Hutchin, Suzoff Winter, McMahon, Utter's Red, Alexander, Snow, Windsor, Estelle, Champion, and Perfect.
Crab apples: Transcendant, Martha, Florence, Bailey, Crimson, and Virginia.
Plums: Cheney, Forest Garden, Rolling Stone, De Sota, Burbank, Hanson's Kaga, Hanson's Opata, Wyant and the Italian prune.
Pears: Idaho, Bartlett and Lincoln.
Raspberries: Cardinal, Louden and St. Regis (everbearing).
Dewberry: Lucretia.

M. B. BOISSEVAIN,
Fremont Co. Agricultural Agent.

To help South America swine raisers improve the quality of their droves. Armour and Company are arranging to ship a large number of purebred boars and gilts from this country for use in Brazil and the Argentine.

Waste No Butter Fat!

IF YOU are still setting your milk and skimming by hand, you are losing anywhere from one-fourth to one-third of your cream. If you are using an old separator or one that is not reliable, you are still losing an amount of cream that would surprise you if you knew it. **Butter fat is worth too much this year to be wasted.** Buy a **Primrose** or **Lily** cream separator and stop the waste.



Don't imagine that cream left in the skim milk will fatten pigs and calves faster. It has been proved scores of times that stock thrives as fast on warm separator skim milk, when a little meal or flax replaces the fat. Cream in the skim milk is dead-loss cream!

Primrose and **Lily** separators get that cream. We can prove to you that they get it all, except about one drop in each gallon.

Besides that, they are well-known as simple, easy-running, easily-cleaned machines, that last and do the same good work year after year. Buy a **Primrose** or **Lily** and know the satisfaction of using a close-skimming machine. See the local dealers, or, write us for catalogues of these or any other machines in the list below.

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ARTIFICIAL INCUBATION

The artificial incubation of hens' eggs is a necessity which all must realize and give due consideration. In the first place, sufficient chickens cannot be hatched by natural incubation to raise the number of pullets each year necessary to renew the flocks with young layers to produce the eggs needed for our country's consumption.

In the second place, profitable poultry keeping depends to a large extent upon the early hatching of chickens that the pullets may get their growth and come to maturity in the fall of the year and produce fall and winter eggs when needed most and highest in price. "Early hatch, early lay," is a saying based on fact and recognized by all successful poultry keepers.

Early hatching is possible only to a very limited extent, unless accomplished by artificial incubation. Very few hens become broody early enough in the season to obtain early hatched chickens by natural methods. The pullet year should be and is (when early hatching and a proper development of the growing pullet has been accomplished), the year of largest and most profitable production of the hen's life.

These basic facts make artificial incubation imperative, if best results and largest returns from poultry keeping are desired or expected.

It is good business and the best possible poultry practice to renew the entire flock with early hatched pullets each year, with the exception that enough selected year-old or two-year-old hens (the best of the entire flock selected for their constitutional vigor and productiveness, selected in October or November) be kept for breeders the following season. This cannot be accomplished except in very small flocks, unless artificial incubation is practiced. Never use pullets for breeders unless forced to do so. Chicks hatched from matured hens' eggs are larger and more vigorous, make a quicker growth, and commence laying earlier.

The important considerations that should claim the operator's' attention in artificial incubation are:

1. Follow directions of manufacturer.
2. Temperature.
3. Ventilation.
4. Moisture.
5. Turning.
6. Cooling or airing.
7. Testing.

An attempt will not be made to go into a thorough discussion of artificial incubation in all its requirements, as books have been written upon the subject and thousands of experiments have been made at agricultural colleges and by incubator manufacturers all over the country. But no one has been able to determine definite instructions for all locations, all machines and all kinds of eggs. The writer will, however, give a short practical discussion from experience of incubator problems. All advice given must be applied with judgment and by the study of local conditions.

In the purchase of an incubator buy a standard, well-made machine of one of the reliable successful companies with a reputation and pay the price. Do not purchase low-priced, cheaply-constructed machines, as they will be short-lived and hatching results will never be as satisfactory even in the beginning. The initial cost of an incubator should not be a consideration. The reliable makes of incubators should last many years and will more than pay for themselves in a few hatches by the obtaining of more and better chicks.

Study first the directions of the manufacturer that they may be understood and carefully followed. Exhaustive experiments have been made at many colleges, by many manufacturers of incubators and by practical poultrymen to determine the best temperature at which to incubate eggs. The writer believes, as a summary of the work done and his own experience, that a temperature of 102 degrees the first week, 102½ the second week and 103 to 103½ the third week is as near right as it is possible to determine. The bulb of the thermometer should be on a level with the top of the eggs but not touching them at these temperatures. A slightly higher temperature is needed for early hatches when cold than for later hatches. Hatching should be completed at the end of the twenty-first day. If it takes longer a little more temperature should be used. If hatching is completed sooner the temperature has been too high. Before starting the season's hatching have all thermometers tested to make sure that they are correct.

All machines provide ventilation, but the operator must provide ventilation in the cellar, or room where the machine is operated. The machine should be located in a good cellar if possible; if not in a room where the temperature varies as little as possible and where good ventilation can be maintained, that none but life-giving air, full of oxygen, goes into the machine.

Moisture is an unsolved problem, but the majority of experiments seem to demonstrate that moisture in artificial incubation is essential, as evaporation from the egg takes places more rapidly than by natural incubation. In the writer's ten years' experience in New England, where the humidity is greater, the air containing much more moisture than it does in the intermountain region, it was found that moisture was necessary. It would seem that it would be difficult to supply too much moisture in artificial incubation in locations where the air is naturally dry. Moisture can be supplied by a sand tray in the machine with the sand kept wet all times, by sprinkling of the eggs, by keeping a pail or pan of water directly under the lamp of hot air machines.

For five years a machine having sand trays was used, keeping the sand soaked with water, and excellent results were obtained. For five years a hot water mammoth machine with nine thousand eggs capacity, was used and the floor of the cellar underneath the machine was covered with sand and kept soaked with water.

Eggs should be turned twice daily, beginning with the third day, and continuing until the end of the eighteenth day, and cooled or aired once daily, beginning at the end of the first week and continuing until the eighteenth day.

Eggs should be tested on the seventh day to remove all infertile eggs, dead germs and blood rings. They should be tested again about the fourteenth day, to remove all dead germs missed on the first test and all chicks that have died during development up to that time.

The United States Department of Agriculture has for free distribution Farmers' Bulletin number 585 entitled "Natural and Artificial Incubation of Hen's Eggs," by Harry M. Lamon. Write to Washington for it.

The world is short of poultry and poultry products. The state is very short of poultry products, importing a very large part of the table consumption of poultry and eggs by its citizens from other states. This should not be and will not be when the farmers and poultrymen of the state realize the importance of poultry to the state and the opportunity for profitable poultry keeping when right poultry practices are followed.

All are urged to raise many more chickens this year than ever before, and to keep more pullets and hens for layers next winter than ever before.

That a good egg production may be had next fall and winter and good profits realized, may we urge all to hatch early? To this end prepare at once for artificial incubation, or the purchase of day-old chicks from early hatches.—H. W. SANBORN, Poultry Expert, U. S. Dept. of Agriculture.

Plan now if you want poultry profits next fall and winter.

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The big demand for poultry products insures a continuance of high prices for a long time. Take advantage of this money-making opportunity. Make *your* birds lay heavily *now*. Have lots of eggs to sell. And get highly-fertile eggs too, the kind that gives big hatches of sturdy chicks which will grow rapidly to market weight. Use

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A Market for Farm Pests

Owing to the exceedingly high price of muskrats, one man believes a substitute should be found for cheap lining for coats and wraps. Muskrats are superior to all fur bearing animals for such purposes, but now that they are getting too high, most of the farm pests can be substituted for them, such as squirrel, prairie dogs, woodchucks and mountain ground beaver.

Note this: Twenty-two years ago there was no market in the United States or Europe for the American white ermine. No dealers in furs in this country quoted them in their circulars. Manufacturers in this country and Europe were urged to substitute them for the Russian ermine. It was a slow process as they were not then fashionable—they were at the low price of from 10 to 20 cents for a number of years.

Herein is a story. When King Edward of England was to be crowned and all the invited guests were informed that they must wear a wrap of Russian ermine, and the newspapers in all portions of the earth made mention of it, the fashion became a craze and continues to this day. Now, considering the size, they are as valuable as mink. Millions of dollars are made in this country and Canada every year by the trapper boys trapping these little farm pests.

The fur of squirrels, prairie dogs, wood-chucks and mountain ground beaver is coarse compared with the muskrat, but they will make very good cheap lining, and some fur buyers are going to give encouragement for their capture. Between their meat and their skins, it will be very profitable for the boys to shoot and trap them. It is also said that the meat of the prairie dog, wood-chuck and mountain ground beaver is as good as squirrel and rabbit, and that their fats should be used for cooking, machinery and soap-making. All animals that live on good food make good food for the human family. Prejudice is a foolish thing. "Prove all things—hold fast to that which is good," is an ancient but wise saying, and well worth remembering and practicing.

Jarosa Draft Horse Sale

Monday, February 24th, is the time; Longmont the place; the annual Jarosa Ranch horse sale the event which every farmer should keep in mind. On that occasion fifty-five head of purebred registered mares and stallions of the three draft horse breeds will be offered for sale to the highest bidders. Thirty Percherons, fifteen Belgians and ten Shires are to be offered. The sale is to take place, as usual, at the stock pavilion on the Longmont fair grounds, right in town. It will start at 10 o'clock in the morning.

For about ten years Howard M. Jay has been bringing the best draft horses that money can buy into Colorado, both from abroad and from the best breeding farms of the East. This blood has been used on the Jarosa ranch, the produce being raised under the ideal range conditions of Colorado, resulting in a line of draft animals that have the advantage of being acclimated and from the best blood lines in the three leading breeds. The Jarosa Ranch annual sales have been the means of dispersing these animals over a wide area in this and neighboring states. The coming sale will, no doubt, bring buyers from all over Colorado, from many parts of Wyoming, western Nebraska and greater distances, as there is no other opportunity in this western country for picking as good individuals as those to be offered February 24th.

Colorado Sugar Beet Bulletin

Sugar beet growers will be interested in Bulletin 726 recently published by the U. S. Department of Agriculture, which is a report of farm practices in growing sugar beets in three districts in Colorado. The data presented in the bulletin are based upon 371 farm estimates obtained from representative sugar-beet growers in Otero, Morgan, Larimer and Weld counties, Colorado. Labor, including man, horse and contract labor, was the most important item in growing sugar beets in these districts, according to the bulletin, and varied from 54.3 per cent to 59.1 per cent of the total cost of production. Charges for materials, such as seed, manure, and water for irrigation, varied from 8.6 per cent and 10.7 per cent of the total cost of production. Miscellaneous costs, such as interest on the land for owners and land rental for tenants, insurance, taxes and machinery make up 32.3 per cent to 35 per cent of the total cost of raising this crop. The bulletin describes the best methods in vogue in the districts of preparing sugar beet land, planting and cultivating the crop, blocking and thinning the plants, irrigating, harvesting and hauling the beets to the factory. Copies may be had by applying to the Division of Publications, U. S. Department of Agriculture, Washington, D. C.

A Call for Organization

Organize, demand and stick together should be the watchword of every farmer. Great demands will be made in the reconstruction days that are just ahead. Many important problems are to be settled, problems that will greatly affect the farmers of this country. Whether or not the farmers have a voice in the deliberations will depend upon their wishes in this matter. They can have, if they will. But not as individuals, and small groups—they must get together in a strong organization with a single purpose in mind, that of benefiting their business. When organized labor speaks, lawmakers listen, but not so when farmers ask for something. They have few spokesmen and nothing to back up those they do have. Representatives of other industries are nearly always chosen to speak for the farmers and they take what others are disposed to give them. If the farmers of America were organized as they should be they could have forced the Food Administration to stand by its promise in the matter of hog prices instead of permitting the packers to control. If they were organized, millers and implement manufacturers would have been unable to profiteer on the feeds and other things they bought the past year. If they were organized they could have quickly settled the matter of price fixing on the crops they produce and been assured of a fair share of the profits that have gone into the pockets of others. And if they were organized they could now see that there is no discrimination against agriculture in the policies of this country for the future.

Agriculture, which is the greatest industry in the world (every other industry would perish without agriculture) should at least share equally with other industries, but will it? The future can only be judged by the past. Lawmakers usually accede to the demands of the organized classes. Shall farmers continue to take what they are handed, or shall they say what they want and then be strong enough to get it? We believe that the next three years will be very strenuous years for the farmers, and of all things they should organize solidly for their own protection and benefit.

So let us organize, educate, co-operate for mutual benefit. What say you? Will we do it?—A FARMER.

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THOROUGHBRED LIGHT BRAHMA COCK erels. E. Grosser, 2240 Perry St., Denver Colo.

BUFF LEGHORNS—BEST LAYERS ON EARTH Breeding cockerels. Champney, 25 S. Logan, Denver, Colo.

RINGLET BARRED ROCK COCKERELS, $3 and $5 each. Mrs. C. N. Bailey, Lyndon, Kans.

L. D. GOOCH, SEWARD, KANS., WILL SELL R. C. Brown Leghorn cockerels $2 each if taken soon.

S. C. BUFF ORPINGTONS—EGGS, $2 FOR 15, or $7 per 100, postpaid. Mrs. S. S. Tate, Orlando, Okla.

WHITE WYANDOTTES—COCKERELS OF quality, $3 and up. Miss Anna Lansdown, Fort Lupton, Colo.

TWELVE R. C. RED PULLETS, GOOD COLOR, type, laying condition. First $25 takes them. E. A. Miller, Alma, Neb.

BABY CHICKS—ORDER EARLY, GET CHICKS from the winter layers. Price list. Sarver's Poultry Farm, Hastings, Neb.

WINTER LAYING BARRED ROCK AND White Orpington eggs, $5 per hundred. Myrtle Stuller, Bristol, Colo.

PURE-BRED SINGLE COMB WHITE LEGHORN cockerels, $2 each. From healthy flock. W. E. Roggenbach, Wisner, Neb.

THREE DOZEN PUREBRED SINGLE COMB White Orpington pullets at $27 per dozen. C. M. Horsfall, Thayer, Neb.

BUFF ORPINGTON COCKERELS, BOURBON turkeys and Toulouse geese. Eggs in season. Mrs. Frank Neel, Beverly, Kans.

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatchery, Smith Center, Kans. Shipped anywhere, 15 cents.

WHITE WYANDOTTE COCKERELS TO SUIT or return, $2, $3 and $5. White African guineas, $1.75 each. Robert Fulliton, Austin, Neb.

FOR SALE—ONE HUNDRED S. C. WHITE Leghorn hens of the Ferris trapnested strain. Also a few cockerels. L. E. Larson, R. R. No. 1, Fort Morgan, Colo.

EGGS FROM BUSHBY'S WINTER LAYERS, single comb, reds. $7.50 hundred, expressed from Pueblo. Flock established twelve years. H. A. Bushby, Rye, Colo.

ROSE COMB WHITE LEGHORN COCKERELS —Years of breeding for winter layers, $3.00 and $4.00 each. Eggs in season. Chas. Householder, Winfield, Kans.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of corckerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

RED SUSSEX—LIMITED NUMBER EGGS, TWO cockerels and few females for sale. Won at Choicago Coliseum in 1916 and 1917. Rees Evans, Box 29, Ardmore, Okla.

BARRED PLYMOUTH ROCKS—A CHOICE LOT of cockerels of both the light and dark lines. Bradley and Latham strains—none better. Price $3 and up. Chester Blunt, Route 1, Greeley, Colo

BUFF LEGHORNS—BEST LAYERS ON EARTH. Baby chicks. Hatching eggs now ready—$1.50 for fifteen prepaid. Book orders early, number of customers disappointed last season. Champney, 25 South Logan, Denver, Colo.

COCKERELS, PULLETS, BABY CHICKS—write us for prices of fancy breeding stock, and day-old chicks of all leading breeds. Prices reasonable and satisfaction of course. Denver Baby Chick Co., P. O. Box 1323, Denver, Colo.

PARTRIDGE PLYMOUTH ROCKS—THE beauty and utility breed; stock for sale that are prize-winners. Pullets, $3; cockerels, $3 to $5 each. Eggs for hatching, $3 for fifteen eggs. Satisfaction guaranteed. A. R. Stover, Manzanola, Colo.

TOM BARRON WHITE LEGHORNS EGGS FOR hatching. Baby Chicks. Stock tested nine years for heavy egg production. Prices reasonable. Get our illustrated circular before you buy eggs or chicks, it's free. Write, Fowler Egg Farm, Fowler, Colo.

GENUINE YOUNG BRONZE TURKEY HENS, $7.50, and gobblers, $8.50 each. Rose Comb White Wyandotte cockerels, $3 to $5 each. Rowen drakes, $3 and female ducks, $2.50 each. White Holland turkeys, tom or gobbler, $10 each. C. O. Philbrick, Ord, Neb.

PUREBRED BLACK AND WHITE MINORCAS, barred and white Rocks, Rhode Island whites and reds, white, brown and buff Leghorns, Black Langshangs and Buff Orpingtons. All orders filled for eggs at $7 for 100 and $1.50 for 15. C. W. Hamilton, Garnett, Kans.

SINGLE COMB WHITE LEGHORNS—OUR Leghorns are bred to lay more eggs at all seasons than common hens and especially in winter. It pays to get eggs and chicks from a heavy laying strain. Fourteen years in the business. Hatching eggs and chicks. Riverside Poultry Farm, H. D. Walker, La Junta, Colo.

SHANK'S WINTER LAYING ORPINGTON'S— One pen of pullets averaged 110 eggs per pullet in 150 days. Get your future breeders from a strain with the egg habit and standard qualities bred into them. Cocks, cockerels, hens and pullets at bargain prices "quality considered." Breed the best, it pays. F. M. Shank, Route 2 A, La Junta, Colo.

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

100,000 BARRED ROCK AND RHODE ISLAND Red eggs wanted for hatching, also other breeds. Farmers please answer. Our cash price, $2 to $3 per case more than Denver commission houses. The Denver Incubator Co. and Hatchery, 175 S. Broadway, Denver, Colo.

FOR SALE—ONE HUNDRED BARRED ROCK cockerels Our barred rock cockerels are raised not only from prize winners but the best of layers; breeding stock at $5 each; prize winners at $10 to $15 each. Write J. R. Anderson & Son, Fort Morgan, Colo.

TURKEYS

MAMMOTH BRONZE TURKEYS FROM 40-lb. toms and 22-lb. hens. Young toms, $10.00; pullets, $7.00; yearling toms, $15.00. Laura Ullom, Lamar, Colo.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANT TO HEAR FROM OWNER OF FARM for fruit ranch for sale. O. O. Mattson, St. Paul, Minn.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

WANTED TO HEAR FROM OWNER OF GOOD farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

CATTLE

POLLED JERSEY CATTLE—BREEDERS' names, sale dates, etc., of. Chas. S. Hatfield, Sec'y, Springfield, Ohio.

FOR SALE—MILKING STRAIN SHORTHORNS. Three young bulls, roans, grandsons Rose Glenside. W. A. Wight, Las Animas, Colo.

MEADOWDELL FARM OFFERS FOR SALE registered Jersey bulls of the Sophies Tormentor strain. The world's champion Jerseys. Gerald Gimple, Clifton, Colo.

FOR SALE—THREE REGISTERED JERSEY cows and one eight-months-old Jersey bull calf, of the Hood Farm breeding. O. S. Larson, R. R. No. 1, Fort Morgan, Colo.

FOR SALE—JERSEY BULL CALF AT FARMers' prices. Dam gives 6 per cent milk, heifers have milked over four gallons. first calf. Dr. Shirley, 3934 South Bannock street, Englewood, Colo.

HOGS

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemoor Farm, Littleton, Colo., Caldwell Martin, Owner.

VERY GOOD BIG TYPE POLAND-CHINA PIGS, both sexes, September farrow, pedigrees furnished. Gad Barney, successor to Barney Bros., Haawell, Colo.

REGISTERED DUROC JERSEY BOAR FOR sale, Grandson King the Colonel, 22 months old, length 66 inches, 8¾ inches bone. Price, $135. For particulars write G. N. Morrow, Box 194, DeBeque, Colo.

HORSES

REGISTERED BELGIAN STALLION, TWO years old. Registered mares, weanlings up to bred mares. Good jack. E. T. Purington, Wilcox, Neb.

THE MILLS PERCHERON HORSE FARM OF Hastings, Neb., has for sale four purebred stallions, 200 Hampshire bred sows, 20 Hampshire boars and 50 barred Rock cockerels. Can use Liberty Bonds.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo

WHITE SWEET CLOVER REASONABLE—SOW on snow, wheat or corn stubble. John Lewis, Madison, Kan.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

POSTS — LUMBER — SHINGLES. LOWEST prices, delivered your station. Send lumber list for estimate. Pay after unloading. Kirk Co., Box 1188-S. Tacoma, Washington.

IF YOU WANT TO MAKE A SURE SHOT FOR an orchard, order your trees from Plainview Nursery. Hardy varieties that seldom get killed by late frosts and stand dry weather well. Plainview, Texas.

BEE SUPPLIES AND HONEY

DELICIOUS PURE HONEY, ALFALFA-CLOVER extracted. Two 60-pound cans, $29.75. Sample, 15 cents; reference, First National Bank, Boulder. Wesley Foster, Producer, Boulder, Colo.

HELP WANTED

WANTED—POSITION BY MAN AND WIFE, ON farm or sheep ranch. Both experienced. Address A S., Western Farm Life, Denver, Colo.

FARMERS 16 TO 40 WANTED. BECOME railway mail clerks. $1180-$1800 year. Pleasant work. Many 1919 appointments. Common education sufficient. List positions free. Write immediately. Franklin Institute, Dept. C-172, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

POSITION AS FOREMAN OF LARGE DAIRY or cattle ranch by Colorado Agricultural College graduate in animal husbandry; two years specialized experience in steer feeding and dairy herd management. Familiar with milking machines, gas tractors, general farm machinery. Married and one child. Best of references. Address T. E. L., Perry Park Ranch, Larkspur, Colo.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

LUMBER—SHINGLES—POSTS SOLD DIRECT. Karlot Lumber Co., Tacoma, Wash.

SEEDS

SUDAN GRASS SEED RAISED ON DRY LAND, 1918 crop, commercially cleaned. A. J. Tatman, Wiggins, Colo.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page Illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES— Ford's the est kodak store, 1029 16th St. opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies develop any size roll films, 10c; print pictures 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper

BICYCLE SUPPLIES

FREE CATALOG OF BICYCLE SUPPLIES. Everything for the bicycle; prices very low. Write today. William Mullin, Box 4, LaPorte, Colo.

The Platte River Cattle Company

Denver, Colorado

Pure Bred Herefords, raised in Colorado. Bulls and bred heifers Good bone, colors and markings.

715 E. & C. Building Phone Main 3989

406 New Live Stock Exchange
Phone Champa 4793

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

Do you notice the Majesty's are "going over the top" in all departments? I have recently added "Majesty's Feather Lad" to my herd. He is out of a daughter of old Royal Majesty, with a test of 712 lbs. butter, and a show cow, and sired by a grandson of Royal Majesty. He is fine individually, too. Where can you beat this breeding? I have one or two splendid bull calves of Majesty breeding, and can spare a few heifers.

In Durocs, am all out of fall boars, but have a few splendid spring boars, by an Albian Chieftain boar, and out of Critic-bred sows. Sold out of spring gilts. Have a yearling bred sow to sell.

A. M. McCLENAHAN, Greeley, Colorado

DUROCS, POLANDS AND HOLSTEINS

We are sold out of spring boars, but have July pigs of both breeds and sexes. Write for December price list. We also have some bred Duroc and Poland gilts.

A good bull calf, nearly all white, sired by our son of Sir Pieterlje Ormsby Mercedes. His dam has records of 430 pounds butter in a year with first calf, and 25 pounds of butter in seven days at six years. The calf is just a year old.

DEPARTMENT OF ANIMAL HUSBANDRY
State Agricultural College, Fort Collins, Colo.

HOLSTEIN BULL CALVES FOR SALE

MONTROSE COLORADO
PVR
PAHGRE VALLEY RANCH
QUALITY

POSSIBLY

we have just the individual you want. At any rate, we have some mighty good ones with fine advanced registry backing and from a clean herd. We offer only calves bred and raised by us. Let us tell you of them before you buy your next herd sire.

Prices $100 to $1,000

PAHGRE VALLEY RANCH
MONTROSE, COLO.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

Shorthorn and Polled Durham Cattle

Valentine's Last, X12316, 452008 at head of beef herd. Claywood White, 427350 at head of milk type.

STATE INDUSTRIAL SCHOOL
Golden, Colorado

THE JAROSA RANCH

Sixth Annual Dispersion Sale

Pure Bred 55 Head Registered Mares and Stallions

Monday, February 24th

Percherons Thirty head, "The Farmers and Breeders kind." The mares will earn their keep and return you a profit in foals. The stallion in an appreciative community will return the purchase price in first season.

Belgians Fifteen head of the kind that will suit and of the line of breeding that has topped every previous sale.

Shires Ten head, a few of which are among the best bred in the West. Balance young things a little out of fix.

An absolute Dispersion of the entire fifty-five head.

Farmers and Breeders will have the opportunity here to buy what they want in Mares and Stallions at their own bidding.

NOTHING RESERVED. Everything must be sold.

Sale will be held, rain or shine, in immense livestock pavilion at Fair Grounds in the city of Longmont.

Write at once for our illustrated catalog

PLAN TO ATTEND.

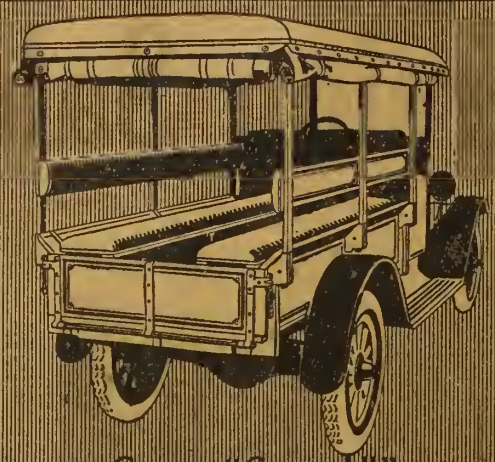
THE JAROSA RANCH, Owners

Box 692, Longmont, Colorado

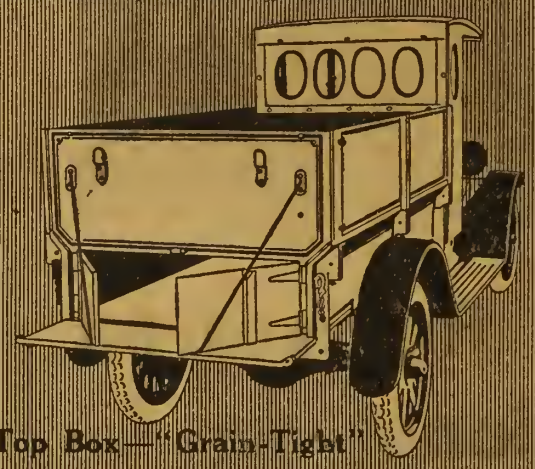
AUCTIONEERS
Alpheus Bashor, Longmont
Joe Hays, Berthoud
C. W. Snook, Greeley

LUNCH SERVED
in the Pavilion by the Ladies of the St. Stephen's Guild

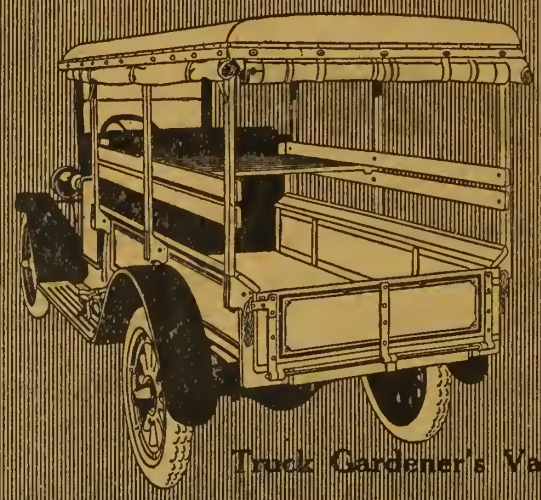
REO



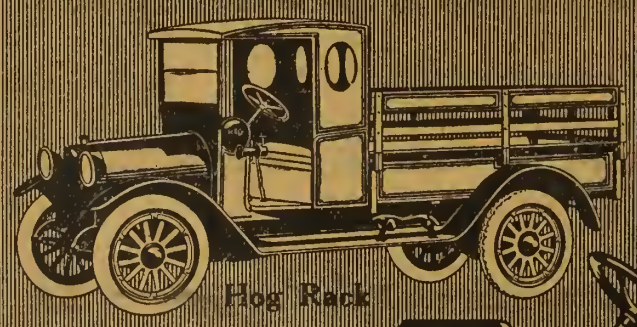
Passenger Car or "Carry-All"



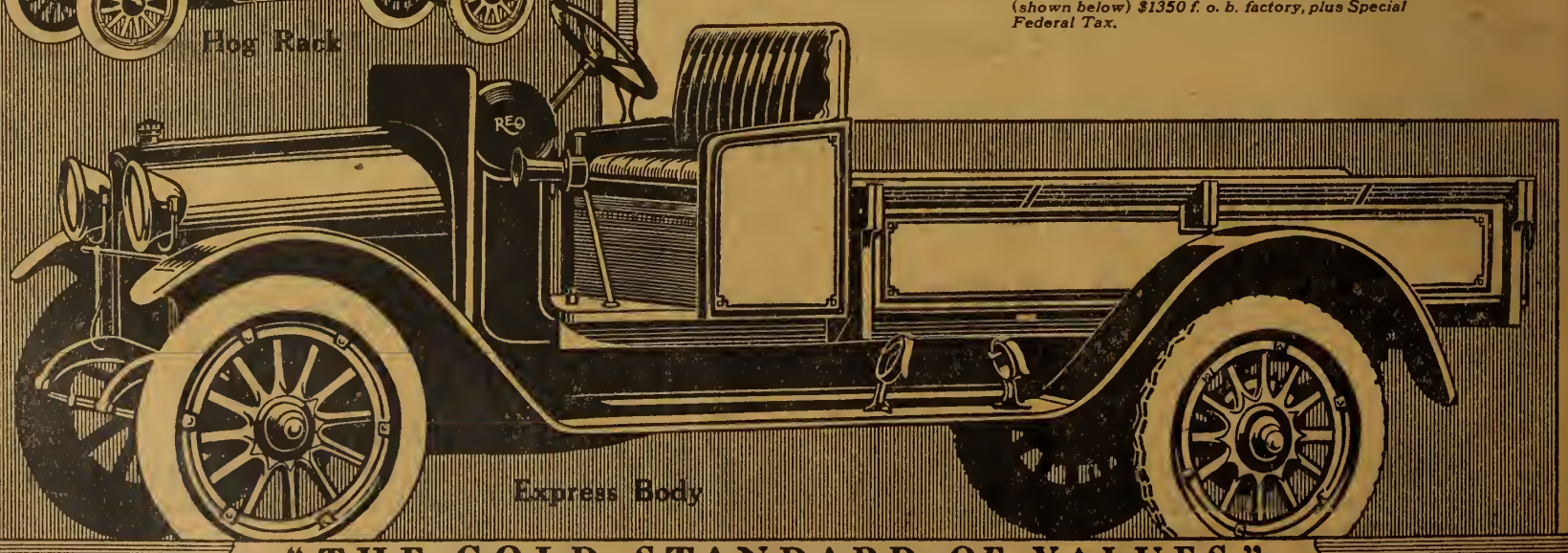
Top Box—"Grain-Tight"



Truck Gardener's Van



Hog Rack



Express Body

Another Triumph for Reo Engineering

There has existed a great need for a more adaptable motor truck.

The need was not for a chassis, for the Reo "Speed Wagon" had proven, in several years of use, that this chassis is ideal for every class of farm hauling.

But there was great demand for a body that would enable you to carry a maximum load of any commodity regardless of its density.

Many attempts have been made to develop a body that would be readily convertible into several practical forms.

Some of these have been successful to a degree.

Fault with all of them, however, was too much complication—too many adjustments and connections to get out of order.

Such construction also ran into a lot of needless weight to be carried all the time.

It remained for the Reo engineers to solve the problem in the simple, direct, substantial Reo way.

And they did it, not by making a convertible body that would fold first into one form and then another, but by a set of sectional units with one basic body as a foundation.

This basic body itself performs fully fifty per cent of all delivery service.

No user will need all the extra sections.

Each user will, however, need one or several of them.

You buy the Reo chassis equipped with the basic—low express—body shown below.

Then, to fit your special service, you select such other attachments or sections as you find most applicable to your work.

This Reo body in its several forms meets every requirement of speedy, economical hauling—in city and suburban as well as rural service.

There are seven forms in all.

On the left we show four forms of this body.

The other forms you may obtain at a few dollars extra cost.

Need we add that the chassis on which these body types are mounted has been longer in service and has been more conclusively proven than any other?

It is, in fact, the pioneer of its class—the first motor truck to be mounted on pneumatic tires.

Also, lest you forget; Reo was the first to see the need for, and to equip a motor truck with electric starter and lights.

The very classification "Speed Wagon" was original with Reo.

This Reo proved the superiority and the greater economy of the pneumatic-tired truck.

In operation and upkeep cost this Reo easily surpasses all others.

And so it should—for it represents the ripest experience and the soundest engineering known to the industry.

Your own Reo dealer will show you this versatile Reo "Speed Wagon" with the seven styles of bodies and quote you price on such as you may select as best suited to your own requirements.

Demand is—tremendous. Always is for Reos, but this season more so than ever before.

Only way to be at all certain of getting a Reo "Speed Wagon" for early delivery is to place your order at once.

Today won't be a minute too soon.

Reo Motor Car Company, Lansing, Michigan

Price—Chassis equipped with low Express body (shown below) $1350 f. o. b. factory, plus Special Federal Tax.

"THE GOLD STANDARD OF VALUES"

34.05
IN

Western Farm Life

DENVER, COLO.

The Grand Champions

Feb·15·1919

FREE — **IT ANSWERS ALL YOUR FARM PROBLEMS**

This handy book is brimful of information for the farmer—thousands of copies have been sold at the regular retail price of 50c—we will send you one FREE if you send us your name and address. We will also send you our latest catalog of

SQUARE DEAL FENCE

Another very valuable book for you because it tells you how you can save money on fencing. It tells you why SQUARE DEAL FENCE is the choice of most farmers. It tells how it is made—why it lasts longest and looks best—why it requires fewer posts—why it never sags or bags. Send a post card or letter today and get both of these valuable books FREE.

Keystone Steel & Wire Co.
7451 Industrial Street
Peoria, Ills.

30 DAYS FREE TRIAL

Ranger Electric Lighted Motorbike

and *freight prepaid* on a new 1919 **"RANGER"** bicycle. **Write at once** for our *big catalog* and *special offers*. Take your choice from 44 styles, colors and sizes in the famous **"RANGER"** line.

Marvelous improvements. Extraordinary values in our 1919 price offers. *You cannot afford to buy* without getting our *latest propositions* and **Factory-Direct-to-Rider** prices and terms.

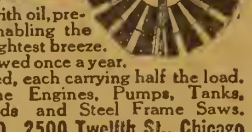
Boys, be a **"Rider Agent"** and make big money taking orders for bicycles and supplies. Get our *liberal terms* on a sample to introduce the new **"RANGER"**.

TIRES, equipment, sundries and everything in the bicycle line at *half usual prices. Write Today.*

MEAD Cycle Company Dept. W-304 CHICAGO

THE-SELF-OILING WINDMILL

has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

HEIDER EVENERS

Heider Eveners are the best that skill and brains can produce. We make 2, 3, 4, 5 and 6-horse Flow Eveners, 2-horse Wagon Eveners, Wagon Doubletrees, Singletrees and Neckyokes, also Straight and Extension Ladders. If your dealer has none in stock write us and we will tell you where to get them.

4 HORSE PLOW — 3 HORSE WAGON

HEIDER MFG. CO., Dept. 38 CARROLL, IOWA

Hand Pull Lateral Gates

These gates prevent cutting the ditch banks in order to divert the water and put the water under complete control of the irrigator. They are durable, low initial cost, preserve ditches. May be attached to "Armco" iron pipe outlet conduit any desired length. No cement work required.

Write for our free 125 page catalog, which illustrates and prices these gates, as well as more than 65 other articles for the irrigator including the "Armco" flumes, ditch lining, pipes, culverts, tanks, troughs and grain bins.

THE R. HARDESTY MFG. CO.
1837 Market Street DENVER, COLO.

Big Money Boring Wells

One Man One Team

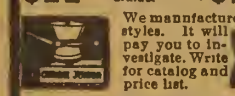
Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

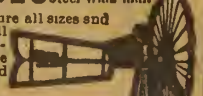
Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

LISLE MFG. COMPANY
Box 743 Clarinda, Iowa

$22.00 Sweep Feed Grinder | **$28.00** Galvanized Steel Wind Mill.



We manufacture all sizes and styles. It will pay you to investigate. Write for catalog and price list.



CURRIE WIND MILL CO.,
610 E. Seventh Street, Topeka, Kansas.

Grain Graded For Farmers

It is not generally known that it is possible, at a small expense, for a farmer, country grain buyer, miller or anyone else, to have a sample of wheat or shelled corn inspected and graded by a grain inspector who has been licensed by the secretary of agriculture. Yet such is the case. By mailing a sample of the correct size, in the form prescribed by the rules and regulations of the secretary of agriculture, anyone may learn just how that particular sample grades, according to the official grain standards of the United States. The grade and the dockage of that particular sample will be determined the same as the samples graded at the market centers. As yet, official standards, or federal grades, have been established for wheat and shelled corn only.

It should clearly be understood by those who may wish to have samples graded that such work is done only by grain inspectors licensed by the secretary of agriculture. The offices of the Federal Grain Supervision of the Bureau of Markets do not inspect and grade wheat and shelled corn, except when an appeal has been entertained on the grade assigned by a licensed inspector, or in case of a dispute over uninspected grain.

A service that the office of the Federal Grain Supervision may render, however, is to give those who wish to have samples inspected and graded the names of the nearest inspectors and advise them regarding the necessary method of taking and sending samples. Such persons should, therefore, write to the nearest grain supervision office for the necessary information.

A list of Federal Grain Supervision offices follows:

Missouri, Kansas City, 310 Postal Telegraph building.

Nebraska, Omaha, 738 Brandeis building.

Kansas, Wichita, 313 Sedgwick building.

Colorado, Denver, 509 Cooper building.

Utah, Salt Lake City, 423 Ness building.

There is no prescribed fee for having a sample inspected and graded; however, the rules and regulations of the secretary of agriculture prescribe that inspection charges must be "reasonable." Therefore, the fee should be ascertained by writing the inspector.

When a grade is established for a sample sent to an inspector, the certificate returned by the inspector specifically states that the grade assigned applies only to the sample. That is, the grade does not apply to the entire amount of grain from which the sample was taken. While the grade may represent such grain, provided the sample was taken according to the instructions given by the grain supervision office, the inspector is not permitted to certify to the grade of anything but the sample itself. Where a purchase and sale are involved, however, the parties interested may agree to a representative sample, and by contract further agree that the grade of such sample shall apply to the entire lot from which the sample was taken.

It may be explained in this connection that the size of the sample and the manner of handling are matters of importance. The sample should, of course, be representative of the lot of grain from which taken, and it should be at least two quarts in size, of which one and one-eighth pints or more should be inclosed in a clean air-tight container and the remainder in a clean cloth sack. The entire sample may be inclosed in the air-tight container if desired. Grain samples sent in a paper sack or in a cigar box or other makeshift container will not be inspected and graded by licensed inspectors.

The benefit and satisfaction to the farmer, country grain dealer, or miller, by reason of having samples of wheat or shelled corn inspected and graded according to the official grain standards of the United States, must be obvious. To the farmer, it should be a satisfaction to have first-hand information as to the correct grade of his grain. To the country grain dealer

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What Stock Show Means to Western Agriculture

INFLUENCE GOES FAR BEYOND CASH TRANSACTIONS OF WEEK

ALVIN T. STEINEL

BACK in the eighties when the range men on the western prairies were laying the foundation for the highly developed modern meat industry, discussion centered about "the best breed" much as it does today, though in a far different environment and from a different point of view. Then it was the occasional cattlemen's convention, the roundup, or in the better settled sections, the new county fair that gave opportunity for an exchange of ideas. Today we have the several livestock shows where our stock farmers and breeders, long since done with talking, are showing against each other not only the best breed, but the best blood lines in each breed. These men of the later generation have brought their cattle to perfection, having settled and answered every question—except the original one—which is the best breed?

Read here what a pioneer, Edwin W. Brown of Kansas, wrote in the early eighties:

"Our stock journals have devoted a large amount of space, of late, to the discussion of this important point: Which is the best breed for the stockman and the butcher, the producer and the consumer? Shorthorns, Herefords, Polled Angus and Galloways each have their admirers and champions, ready to back up their opinions with a formidable array of facts and figures. The truth is, each and all are good. But the question is, which of these famous breeds will give the best results out on the great prairies and ranges of the West? All agree that the ideal animal for this purpose must be hardy, and come of hardy stock, that he may endure the chilling blasts of winter and the hot winds of summer; that he must have the get-up-and-go qualities that make a good forager; that he must be compact and beefy; of such condition and build that neither meal bin, oil cake, corn crib nor a stall are essential for his growth and proper development. In short, that he must live, thrive and fatten on the range, and go direct from the buffalo grass to the slaughter house."

Though we do not send as many of them directly from the grass to the packer as formerly, the requirements still hold good, and what is more, the leading beef breeds have shown their adaptability to the conditions. This was again demonstrated in the competition at the National Western Stock Show, the thirteenth annual, held at Denver the latter part of January. This show was started as a beef show; it has remained strongest in that class, as it should, because beef is the big thing for our western farms, but it has added from year to year, until the term "livestock" is all inclusive, ranging through every class of farm animal and including beside beef cattle, dairy cattle, hogs, sheep, poultry, horses and pet stock.

In beef cattle, the question, which is the best breed, has been answered most largely in favor of Herefords and Shorthorns. A few years ago one might have said the National Western is a Hereford show. It cannot be said again. The Shorthorns have been coming up stronger each year, and this year, for the first time, there were more entries, by just a few, than in the whitefaces. The Shorthorns have not grown at the expense of the Herefords. The increase means this: there are more farmers and ranchmen engaged in producing purebred and high grade cattle than formerly. There are many more Hereford breeders in this western territory than there were eight or ten years ago, and the percentage of growth among Shorthorn producers has been as great. There have always been outstanding examples of the black breeds, both Angus and Galloways at the show, and this year was no exception to the rule, but these breeds are not spreading fast in the West.

The Dairy Development

In the dairy division there has been a most remarkable change in as short a period as five years—yes, in the last three years. From a few purebred herds here and there around the cities, the dairy breeds are now found widely scattered on plains and mountains, under irrigated and dry land conditions, and the industry is growing tremendously. In dairy cattle the Holsteins are making the big gains in numbers, although the demand for Milking Shorthorns, Jerseys and Guernseys is active. There was at the recent show a decided inquiry from farmers for the "dual-purpose"—the Milking Shorthorn, because that ideal (the combination of beef and milk) appeals to our new dairy farmers, many of whom are accustomed to range conditions. Inability to supply the demand will be the only factor to hinder a large development in Milking Shorthorns in this territory during the next few years. Attempts to supply it with beef type Shorthorns will kill the business quickly. There is opportunity here for conscientious breeders who have the foundation herd to bring out the inherent milking qualities of the breed; incidentally, a temptation for others not so conscientious to ride to prosperity on a wave of approaching popularity of the dual purpose.

From dairy cattle to hogs is a natural transition and at the show the two divisions were housed in the same quarters, both inadequately provided for, because building was impossible during the war. During the present year, however, the dairy and hog men are promised improvements that will insure more and better space for both of these fast expanding departments. War prices on pork, no doubt, had something to do with the increase in hog exhibits—war prices and urging from governmental sources that we produce more meats and fats.

A notable fact is that good hogs are not coming solely from the sections where irrigation insures a large tonnage of alfalfa. Our dry land farms are producing porkers that, for style and finish, held their own in every way with the product of the irrigated farm, and had the edge on the latter because of lower cost of gains. King Corn in the northeast counties is making himself felt in the hog pens of the dry lands. One big nine-hundred-pound Poland from Yuma county, Colorado, doesn't know what an irrigation ditch looks like, and Iowa has nothing on him when it comes to size and ability to put on flesh.

Sheep, horses, carlot classes, fat stock—all were good. There was so much to see from the farmer's standpoint that one might forget the evening horse shows altogether and still have an eye full and an overflowing notebook, the details of which may be found running through various pages of this issue.

A Word for the Management

The show management deserves credit for having met and mastered conditions that looked distressing earlier in the winter, when the whole West was suffering from fear of influenza. On top of generally unsettled conditions came the sudden illness of General Manager Fred P. Johnson, without whose guiding hand a National-Western show was thought out of the question. But Mr. Johnson had a host of well-trained helpers and friends. Everybody got busy; Harry L. Youngerman, assistant manager, assumed full charge, and he and Secretary R. R. Boyce attended to details of advance work in a way that insured a smooth-running exhibition. When Manager Johnson was able to return from the east he found things in fine shape, and he was able to shift a part of the load that usually falls on his shoulders during show week.

There were many distinguished visitors at the show, among them Secretary of Agriculture Houston, who was in Denver to address the American National Livestock association, which met in convention during the week. All of the western agricultural colleges were represented, either by exhibits or by delegations from the animal husbandry departments, who came to watch the placing of the exhibits, or to help at judging.

Transactions in livestock of various kinds for the week amounted to some eight or ten millions of dollars. But the true estimate of the show is not the cash represented by these transactions, but the continual improvement in quality of livestock on our western farms and ranches and the individual prosperity resulting therefrom.

Grand Champion Steer, an Angus. Exhibited by Western Meat Co., San Francisco, and Sold at $60 per Cwt.

$43,000 for the Red Cross

The Red Cross offerings sold at auction brought over $43,000 to that worthy cause. More than a thousand head of calves had been donated by Colorado and Wyoming stockmen for this purpose and most of the offerings passed through the ring twice. The highest price paid for any animal was $525 by Carl Miller of Bellvue, Kans., for a bull calf donated by C. L. Martin of La Veta.

Students' Judging Contest

In the students' judging contest, teams from the Colorado Agricultural college and the University of Nebraska competed, the latter winning by a score of 2,825 as against 2,650 for Colorado. Highest individual honors on the teams went to Miss Eva Ashton of Nebraska, whose score was 645, and whose work was pronounced by judges to be the best that has been seen on any student team at the National Western. To have this honor go to a young woman naturally created much comment. The fact that Miss Ashton distanced her nearest competitor by 85 points indicates that she earned the decision.

Feeder Sale Breaks Records

All records for feeder cattle were broken in the annual feeder sale at the Denver yards during stock show week, 177 lots going through the auction ring. The first thirty-three carloads averaged $15.52, which is better than last year's top load. And the top loads sold at $20.25 and $20.75 per cwt., the first being the champion load of Shorthorns from the herd of Fred Weiss of Elizabeth, and the second the grand champion load, Herefords, by Russell Brothers of La Jara. The Russells turned the grand championship trick on carlot feeders for the third time in four years.

Feeder buyers were in Denver from all sections of the cornbelt, Illinois, Indiana, Iowa, Missouri, Kansas, Nebraska and South Dakota being represented, while not a few loads went to the irrigated districts of Colorado. The sale indicated that there was no intention on the part of feeders to curtail operations, nor any fear among

(Turn to page 18)

Spring Wheat the Cash Crop for Dry Lands

PRICE IS GUARANTEED AND MOISTURE CONDITIONS FAVORABLE

E. R. PARSONS

THE war is over, but high prices are not, and the drop, if it comes, will be very gradual, and will probably extend over a period of ten years or more. In order to take advantage of the situation while it lasts the dry farmer should consider that it is not only a question as to what crop is the best seller; but also as to what he can raise to the best advantage according to the season and the amount of moisture conserved. A few years ago pinto beans at 5 and 6 cents would have seemed very alluring and they ought to be higher, but beans are not the staple that wheat is. The world is clamoring for bread, and white bread if they can get it, and there is not yet enough bottoms for everything. Wheat takes precedence, and speculation takes a back seat, for the price is guaranteed at $2.26 a bushel until June 1, 1920. Lots of farmers have been looking forward as the prices soared to raising wheat. Here's their chance—a guaranteed price—lots of moisture in the ground in eastern Colorado.

The average yield of beans on the dry farms in the last few years is not over 600 pounds per acre at 5 cents a pound worth about $30. The average yield of spring wheat has been about 18 bushels, at present figures worth about $40.

With the precipitation we have had last season and this winter there is a magnificent chance—the best in years—of raising a fine crop of something payable, and at the same time of beating the record in the way of yield.

Our averages per acre have been too low, but they are coming up. When we take to deep fall plowing we can expect the averages of a few years ago to double. In La Plata county on 750 acres they have increased their yield by eight bushels per acre by plowing a few inches deeper. There are men in the Government employ yet who make their experiments on 10x20 plots, and say this cannot be done; but it is being done every year by County Agriculturist E. D. Smith and his band of farmers. There are men who are always making half-baked experiments and telling us that this cannot be done, and that cannot be done, but it is all waste of time unless it is for their own amusement, for the dry farmer has acquired the habit of accomplishing the impossible and proposes to keep on at it. There are reasons for the scarcity of wheat other than the chaos in Russia, and the agricultural paralysis of the countries invaded by war. Wheat lands are becoming scarcer every year because they are wearing out for want of proper fertilizing. In our own country in the eastern and central states, this condition has existed for years, and in many of the old wheat districts we find nothing now but barley and oats. If our wheat lands are to last we must learn the art of putting back into the land as much as we take out. In the western states, and the dry farming country generally, there are millions of acres of good wheat land yet and the best of this may last twenty years; but with rotation of crops and a good system of fertilizing could be kept going for centuries. The best land for wheat is a good mellow loam with a fair percentage of clay in it. The red and chocolate loams with a clay bottom so common in Colorado and New Mexico uplands are as good as there is.

The farmer who plowed or listed last fall will have the best land for wheat this spring. Land is often listed in the fall instead of plowed in order to prevent blowing and the question is often asked, is it necessary to break out the middles before sowing in the spring? The evidence tends to show that those who do so get a little the best crop, but it does not make so big an increase in small grain as it does in corn, and some of our listing wheat raisers never break out the middles, but simply smooth the land over with a drag and give it a good disking.

This season it will occur to many farmers that since there has been considerable winter precipitation, would it not be possible to raise a fair crop on spring plowing? This may or may not be possible; the only sure test is to discover how much water there is in the ground, which can be done by digging with a shovel or boring with a soil auger. If two or three feet of moist dirt are found before coming to the more or less dry subsoil, the chances would be all in favor of the farmer. The plowing should be done as early as possible and for immediate planting not over eight inches deep and thoroughly packed with a heavy corrugated roller. If the farmer has no roller the next best thing is to go over it twice with the disk set almost straight. The idea is to give it as nearly as possible the same compaction as fall plowed land. Nature's packing is the best because the weight of the top packs the bottom of the seed bed where it is most needed for the roots, without solidifying the surface. When we use an artificial packer or roller the surface should be loosened up again with the disk or harrow. It is impossible to raise a big crop of wheat on a loose seedbed. Soil which is rich in clay and sticky must not under any circumstances be packed when it is so wet as to run together and form a solid mass, for if this happens the tilth of the field is ruined for the time being.

Spring wheat, as a rule, does not stool as much as the winter variety, therefore about five pounds more per acre should be planted, about 35 pounds in all. It germinates best when seeded with a press drill about 2 inches deep. When planted too near the surface there is always some chance of it sprouting after a light rain and drying out before the next shower appears. This is more likely to happen in spring than in fall plowed land. The best time to plant small grain is just before March 20th. Just after this date we may expect the soft snows which start the seed to germinating and rooting, although the sprouts may not appear until late in April. Early planted grain does the best because the roots make growth even when the tops are not growing, for at this season of the year the soil is often warmer than the air. The grain that makes the biggest root, like winter wheat, makes the best crop. It is the same thing with corn, too quick growth does not make for grain, and corn planted in May will usually outyield that planted in June. Small grain is rarely if ever injured by spring frosts, for if the weather is cold it hangs back, and since our spring cold spells are always preceded by snow, it has all the protection it needs. The hard red wheats seem to always do the best on the dry farm. These are mostly of Russian origin and are adapted to dry weather. At present the Marquis, a wheat of this type, is attracting a great deal of attention and seems to be the best yielder under all conditions, either wet or dry. Spring and winter wheat can always be cultivated with the harrow before jointing and after that with the spring tooth weeder. It is as difficult to injure wheat by harrowing as it would be to drag out grass. There is nearly always a dry spell at the end of May or beginning of June which calls for a good mulch at that time. In Europe they not only harrow all grain crops but they often roll the winter wheat to make it stool and harrow later.

The principal factor in raising good spring grain is deep plowing in the fall. What deep plowing will do to wheat has been amply demonstrated by the best raisers. Before the beet period these men were satisfied with 20 and 30 bushels per acre. Now they raise nearer 50 and 60. A beet must have depth to grow; you cannot raise a 12-inch beet on 6-inch plowing, and now when they alternate with wheat they get the full advantage of the deep plowing. Beets, wheat and alfalfa make a fine rotation for the irrigator.

If the price of beets remains at $10 a ton we shall see more wheat than ever in the beet districts this year, but since Uncle Sam has to feed the world he will need every bushel that can be produced and every farmer who raises this crop will be doing his best for his country and the hungry people of Europe, and filling his own pocket at the same time.

How One Grower Helped His Fellow Orchardists

AN INCIDENT IN APPLE MARKETING ON THE WESTERN SLOPE

ALFRED M. WILSON

WHAT just one grower can do in the way of stabilizing the market is shown by what A. E. Johnson did, during the season of 1918, in stabilizing the apple market. Mr. Johnson is himself an apple grower, living in Highland Park between Clifton and Grand Junction. In fact he is one of the largest growers in the Grand Valley of Colorado. He has eighty acres in apples and pears. He was anxious to get just as much as he could for his own fruit; but what is more important, he was equally anxious to see that his neighbors should receive for their apples a price at least somewhere near what they were worth.

At any rate, he was unwilling to see the growers sell their apples at a loss, a danger to which he knew the growers would be exposed during the 1918 season. In the first place, the apples were not, as a whole, as clean as they should have been. Then the price of box shooks was abnormally high, and labor, proportionately so. These conditions had a tendency to make the growers anxious about the disposition of their apples, and readily susceptible to the wiles and blandishments of the peripatetics who flit by night, the buyers from the outside who are always keen to take advantage of any and every plight in which the grower may find himself. All such buyers can, without effort, see all the apples on a tree that are ringstreaked and speckled and spotted; but too many of these buyers are utterly unable to see the apples that are free from specks and up in color. When such a buyer goes out of their orchards, fortunate are the growers if they do not feel that their apples are not worth much more than cider apples and that they would be lucky to get any old price for them. Is this indictment overdrawn? No. As a Chinaman would say, "Has been."

And that is what too many outside buyers did do during the past season. Nor is that all. When one of the associations, in fact the oldest association in the valley and the one that is supposed to be conducted in the interest of the growers, went into the market to buy apples in bulk, it pursued the same policy that was pursued by outside growers: the policy of buying apples in bulk at the lowest possible figure regardless of the market price.

Anticipating what, under the conditions, would probably happen, Mr. Johnson early in the season got into the game, in order to show the growers that it was not necessary to lie down and let the buyers, whether from the outside or the inside, run over them. In fact, as early as July he began to buy boxed Jonathans, at least two months ahead of the time when they would be ready to be packed. He paid per box as follows: Extra fancy, $1.60; fancy, $1.35; choice, $1.00. Those were the prices net to the grower. Those prices were, however, far below the prices that boxed Jonathans commanded later in the season. The writer shipped his boxed Jonathans through the Grand Junction Fruit Growers' Association. The net returns per box were as follows: Extra fancies, $2.04; fancies, $1.65; choice, $1.30. But the prices Mr. Johnson paid, in July, for boxed Jonathans were, so he tells me, ten cents per box in advance over the prices paid in 1917. Furthermore, at the time Mr. Johnson went out to buy Jonathans, no one knew how much of a crop there would be, in what condition it would be, or what the ultimate price of boxed Jonathans would be. At that time the buying of boxed Jonathans was a gamble pure and simple. Mr. Johnson paid what he thought he could afford to pay. Even so, he might go into the hole. If he sold at prices as advantageous as those at which he bought, he must have cleared up a snug sum; but that is neither here nor there. For the sake of heartening his neighbors and of letting them see that there would probably be a strong demand for boxed Jonathans, Mr. Johnson took a gambler's chance. If he won, that is all the more to his credit and enterprise.

The growers who sold at the July price may perhaps feel, in view of the higher price later in the season, that he did not render them as pronounced a service as he might have done; but even they should remember that if he had not come to their rescue, they might have lost their heads, thrown their apples overboard and in the end lost them all. Certain it is, however, that Mr. Johnson, having gone out to buy boxed Jonathans at the above prices, no grower would sell his boxed Jonathans at a lower figure. The result was that outside buyers, to get Jonathans, had to pay a higher price than Mr. Johnson was paying. In other words, he forced the price of Jonathans up. This was a service of incaluable benefit to all the growers.

Later in the season, Mr. Johnson, in order to stabilize the market, began to buy apples in bulk. The cash buyers were paying $1.60 for Jonathans in bulk. Mr. Johnson immediately started in, paying $1.75 per hundred. From that time on there was keen competition between him and them as to which would pay the higher price. Mr. Johnson finally paid as high as $2.15 per hundred for Jonathans in bulk. That, of course, was less than they were worth; but whoever starts out to stabilize the market can not afford to pay quite the market price. Otherwise he may be utterly swamped, a result which Mr. Johnson had no intention of inviting. He set himself a task to do, and when that was accomplished, he stopped. The growers, moreover, appreciate what he did in the way of stabilizing the prices especially of apples in the bulk.

Mr. Johnson came to the Grand Valley twenty years ago from Trinidad. During seven of those years he was a member of the board of directors of the Grand Junction Fruit Growers' Association. During the last four years that he was on the board, he was president. He is a member of the Farmers' Union at Fruitvale, the Farmers' Co-operative Exchange of Mesa county and the Equity Exchange of Grand Junction.

An Old Time Farmer's Institute in Weld County

WHAT UNCLE SAM PAID FOR DIRT AND STONES IN PINTO BEANS

ALVIN T. STEINEL

IT IS an unpleasant truth that the United States government in 1918 paid for 190,660 pounds of stones and dirt at pinto bean prices, the money value of this dockage being $14,556.20. It does not help things to have Uncle Sam silent on the subject. If he isn't kicking vigorously, it is nevertheless necessary to face this situation and seek to remedy methods of handling and cleaning beans, because these pintos went on the market and the consumer is the fellow who will raise a howl over chewing sprigs of bean straw, or occasionally grinding his teeth on a pebble. These facts were brought out in a discussion of the pinto bean crop at the Weld County Farmers' institute at Greeley last month by O. H. Liebers, of the Bean Division of the United States Food Administration, who had charge of the pinto purchases for the government. He did not speak in a spirit of criticism, but with the intention of helping the growers solve marketing problems.

"Are not the handlers to blame for putting the crop on the market without proper re-cleaning?" asked one farmer.

Mr. Liebers pointed out that the growers could not, in justice to themselves, shift the responsibility. Pinto bean production is a farm industry, and the grower is most vitally concerned in the way in which the crop is marketed, for the fate of the entire industry now hinges on that point. If the growers do not protect themselves it means that pintos will slip back to the old figure of three cents a pound and become the last resort of the homesteader, instead of a leading cash crop.

Mr. Liebers had the history of the pinto bean at his fingers' ends. He had evidence to back up assertions regarding poor condition in which many cars went on the market. and, furthermore, he pointed out how conditions can be remedied. To dispose of that important feature first—the remedy is organization by growers to protect their product, improve its quality through seed selection and better methods of harvesting and handling. "Clean pinto beans," should be the slogan of the growers.

In reciting the history of the crop, he pointed out that a few years back practically the only outlet was a limited southern market that took eighteen to twenty million pounds of pinto beans from Colorado and New Mexico each season. He looked up quotations for twelve years and found the price to run right around three cents to the grower up to 1916. War demand for food of all kinds was responsible for a sudden jump, taking beans up to nine cents that fall. The food scarcity caused a skyrocketing in the spring of 1917 until as high as fourteen cents was obtained by farmers for seed beans. Nine cents was not unusual for market beans that spring.

In 1917 beans started at around nine cents, but it was a hang-over market and after the regular southern demand was supplied, by the last of November, it left Colorado with about one hundred million pounds of unsold pintos, and no movement. There was a need for this food, but no apparent means of getting it to those who needed it. Prices dropped to seven, six and one-half, six and finally hung around five and one-half and no movement. At that point a number of men interested in the development of the industry got busy. Mr. Liebers did not mention names, but there is no reason why the growers should forget their friends—it was chiefly through the instrumentality of the Agricultural department of the Burlington railway, represented by Mr. C. B. Lamson and Mr. Liebers, that the United States Food Administration took up the pinto bean deal. Most growers know the history of it. They were offered eight cents, on a re-cleaned basis, for all the pinto beans left in Colorado. New Mexico and adjacent bean territory. The growers had ten days or two weeks to decide. They were eager to sell. The only means by which they could be reached—some 12,000 of them—in that short time, was through the county agents and farm bureaus. The deal was put through on schedule time.

The reason for action by the Food Administration was two-fold: first, the beans were urgently needed as food; second, the pinto purchase would insure for the fall of 1917 a record acreage of wheat and another big crop of pintos for 1918. It was a drastic move that cut two ways: it put pintos into the eastern retail markets and released white beans for the army and navy, and it gave heart to Colorado and New Mexico farmers who were right up against loss and discouragement, after having complied with the request of the government for greater food production. Weld county's part in that was to furnish thirty million pounds of pintos valued at $2,400,000. The publicity furnished by the Food Administration, said Mr. Liebers, could not have been bought by the industry for several millions of dollars. It did not cost the growers a cent.

Now, as to the 1918 crop. The quantity bought by the United States Grain Corporation from pinto territory is 38,000,000 pounds, and there were no further export orders in sight at the time Mr. Liebers addressed the Weld county farmers. Forty per cent of the pinto crop was still on hand, while California had nearly 85 per cent of its pink beans on hand at the same period, with a similar situation in the New York and Michigan white bean districts. Why this difference? Mr. Liebers said it was the result of Colorado's organization for handling the crop of 1917, this organization having been maintained to the present time. Big orders for export were quickly placed because the Bean Division at Denver could wire, on governmental inquiries, "Yes, we can fill the order at the specified time."

The 1918 bean crop as a whole was the biggest ever grown. Pintos, however, showed up less than in 1917 by 20,000,000 pounds because of crop damage in some districts, the total for Colorado being approximately 100,000,000 pounds.

"Right now the problem is transportation," said Mr. Liebers. "There is no doubt of it, the world needs the food. If we could get the beans to the starving in Europe and the near East there would be none left on hand."

Another point he brought out was the elimination of the unfair differential between pintos and white beans. Whereas this was anywhere from three to ten cents a pound, it is now only one and one-half to two cents.

These facts proved interesting to the Weld county growers. The other side of the story was not so favorable, but it is necessary to bring it to the attention of the growers. Sample pound lots of pintos have been purchased in many Colorado retail stores. The full story of what these purchases have developed may be told later on in these columns. The bean grower should know what the exact conditions are, why pintos are still discriminated against and how marketing defects can be remedied. There is no cause for discouragement if we face the facts. Pinto beans are too important a crop to be allowed to suffer for lack of a frank understanding of market demands.

It looks to us as if the best way of accomplishing the desired end is the formation of a strong growers' organization. Several efforts have been made along this line, but war conditions were not favorable for carrying these plans through, and the government's big pinto purchases seemed to remove the need of a marketing organization. This prop has disappeared and now it is up to the growers to take care of their interests.

Other Questions Discussed

Many other interesting subjects were discussed at the Weld County institute, which lasted four days. No complete review can be attempted, but a few additional matters may be touched upon.

What can a farm bureau undertake in Weld county? In outlining probable projects State Leader Lovett suggested better seed, marketing, corn improvement, alfalfa improvement, irrigation and cow testing. Discussing alfalfa, he asked: "How much seed do you sow per acre?" The replies showed a variation of from eight to twenty pounds per acre. One farmer insisted that the heavy yields he had were due to high rate of seeding, which meant a good stand. Another said that eight or ten pounds was sufficient and anything above that a waste of seed. Ernest R. Bliss suggested that water was often the determining factor in yield of alfalfa and that the irrigation question should be thrashed out.

"Very little has been done in this state by farmers on the problem of the duty of water," said Mr. Lovett, as he chalked down "Irrigation" on the prospective farm bureau program. "Your discussion brings out your needs."

"How about corn? Do you want to improve that crop? You know what Boulder county is doing with Minnesota No. 13? They are standardizing there on that variety; had 10,000 acres of No. 13 last season. How about it?"

Farmer from the east end of Weld: "It is imperative that we find a variety that will mature on our dry lands."

Another spoke up: "I have been saving seed corn for seven years—a yellow dent. It was grown first on dry land and the last three seasons under irrigation. Last season I planted it on heavily manured land, drilled it three feet apart in rows, expecting to use it for silage. I hesitate to tell you what it made in matured grain. I estimated that it would go sixty bushels, but I measured the land, 3.6 acres, and the grain—it made just 100 bushels to the acre. I think all that corn needs, on dry lands and under irrigation, is a fair show. We have been told all along that Colorado can't raise corn profitably, hence our neglect of the crop. We are beginning to learn different."

Another farmer said he had tried Parsons' White Dent and Swadley, under the same conditions and found Parsons much the better yielder, going as high as forty bushels, without irrigation. Corn was put on the list as a good subject for farm bureau work in crop improvement.

N. C. Daugherty spoke on "New Problems Confronting the Farmer by the Peace Situation." He paid a high compliment to the farmers for their part in winning the war, stating that they produced the greatest amount of food and the best in quality ever grown for any army.

"The American farmer was just as much a part of the army as the soldier in the ranks, and he was the part that the Germans feared most, for he produced the food that defeated the plans of the enemy," said Mr. Daugherty.

C. L. Hover of Longmont reviewed the activities of the Boulder County Farm Bureau, telling of the work done in determining the relative value of Marquis and Defiance wheats, of the production of registered seed corn and of the co-operation between the bureau and the Boulder county fair.

Harry Farr, a beef and sheep feeder, reported good results in the use of silage. He has two high silos and also uses a trench silo for beet tops. He expressed a new idea regarding silos; said it proved to be a great help in keeping the boys interested in the farm. Feeding is easier and results in gains easier to keep track of.

Minnesota No. 13 corn gave him the best results for silage. He had thirteen acres of it under irrigation, from which he made 180 tons of ensilage. After a month's settling and some use he put in more corn, off the same acreage, and he still had corn left. He figured that the corn went about fifteen tons of silage to the acre and it was good quality. He advocates planting corn earlier, in order to get it matured for silage—the middle of May for the irrigated section of Weld.

He has found the trench siloing of beet tops satisfactory. Regarding time of corn planting, another farmer remarked that he planted as early as May 3 some years on dry land; that he would rather have it cut off three times by frost in spring than caught by a freeze in autumn.

"Where can I get some of that Parson's White Dent corn you spoke of here a few minutes ago?" asked a farmer from eastern Weld.

"I have some," came the answer. "My place is six miles east of Eaton."

That shows the nature of the discussions. It was a farmers' open forum; a type of institute that has been allowed to lag and die in many communities and it is a pity, for the best ideas are those brought out when practical farmers get together and have a free-for-all discussion of their problems.

On the closing day Dr. Charles A. Lory, president of the Agricultural college, who had just returned from a long stay at Washington, delivered a stirring address on agricultural problems of the state and nation which was a fitting climax to the excellent program.

Directors were elected as follows: N. C. Daugherty, Greeley; J. E. Law, Windsor; S. O. Nelson, Gill; R. M. Haythorn, Eaton; W. J. Wulfekuhler, Fort Lupton; Dr. O. E. Webb, Johnstown; Glenn P. Kennedy, Briggsdale; W. W. Cochran and S. B. Harding, Grover; M. L. Hayworth, Keota; M. Robinson, Ault; Charles Boulter, La Salle; Dan Straight, Purcell.

J. M. Collins was re-elected president; N. C. Daugherty, vice-president; George Houston, secretary, and C. F. Mason, treasurer.

Champion Carlot Hereford Breeding Bulls, Shown by L. G. Davis, Saratoga, Wyo. These Are Beau Carlos 2nd Bulls

Beef Breeding Cattle

GEORGE E. MORTON

The purebred beef cattle classes were remarkable in their quality and uniformity. The Herefords have long pleased the age at this show because of the way they carry their excellence clear to the foot of the line. This year the Shorthorns made a great step in advance in this direction, particularly in the younger ages. The Shorthorn people have decided to eliminate the Western classification, limited to animals owned from western Nebraska and Kansas to the coast, and this will make for still greater excellence, as the beginner will now make his tryout at his county or state fair instead of at the Western Show.

The tendency in the judging was towards scale in the Herefords, and meatiness in the Shorthorns, thus trying to strengthen the weaknesses of both breeds. The judges did their work conscientiously and well, and left a constructive type in the minds of observers.

A remarkable showing was made in one of the Hereford bull calf classes when the first fifteen places in the line were found to be held by Colorado bred animals. In competition with many of the best herds from further east, this shows what the possibilities are for breeding in the mountain region. J. Lynn Van Natta of Amarillo, Texas, placed the Herefords and Owen Kane of Wisner, Neb., officiated for the Shorthorns.

The grand champion steer was a disappointment. While in proper killing condition and so entitled to the judge's comment of "finished," he was two to three hundred pounds lighter than the steers standing alongside him, although he was a two-year-old and all the others were only senior yearlings. The yearling steers were well grown as well as finished, and in the growing of a fat animal lies much of the profit.

The grand champion carlot of steers were the best that have ever won the purple at this show. They were heavily meated and a number of them were fit to go in the individual steer show on the Hill.

To enter into a discussion of individual prize-winners in the breeding classes is impossible, but every western reader should scan the list of awards, and note the number of winnings made by western animals, and interpret those winnings in the light of the fact that this show is surpassed in America only by the International. The keenest kind of competition was present, and the show marks another long step in advance for better breeding.

The awards in the beef breeding classes were as follows:

Hereford

Senior Champion Bull—O. Harris & Son, Harris, Mo.

Junior Champion Bull—O. Harris & Son, on Repeater 129th.

Grand Champion Bull—O. Harris & Son, on Repeater Junior.

Senior Champion Cow—A. B. Cook, Townsend, Mont., on Lady Perfection 3d.

Junior Champion Heifer—Jesse Engle & Son, Sheridan, Mo.

Grand Champion Cow—Jesse Engle & Son, on Belle Blanchard 49th.

Reserve Champion Bull—O. Harris & Son.

Reserve Champion Cow—A. B. Cook.

Class 37—Hereford aged bull: First, W. N. W. Blayney, Denver, Colo.; second, O. Harris & Sons, Harris, Mo.; third, C. H. Lupton, Denver, Colo.; fourth, L. P. Stone, Lexington, Neb.; fifth, T. F. Dolan & Son, Brighton, Colo.

Class 38—Hereford bull, 2 years old and under 3: First, O. Harris & Sons, Harris, Mo.; third, David Firm & Sons, La Veta, Colo.; fourth, Hereford Corp. of Wyoming, Cheyenne, Wyo.; fifth, Wm. Henn, Denver, Colo.; sixth, Chesney Stock Farm, Evanston, Wyo.

Class 39—Hereford senior yearling bull: First, L. G. Davis, Saratoga, Wyo.; second, L. G. Davis, Saratoga, Wyo.; third, C. H. Lupton, Denver, Colo.

Class 40—Hereford junior yearling bull: First, O. Harris & Sons; second, L. C. Grant, Avondale, Colo.; third, L. G. Davis; fourth, L. G. Davis; fifth, O. Harris & Sons; sixth, A. B. Cook, Townsend, Mont.; seventh, E. E. Harrison, La Veta, Colo.; eighth, Herbert Chandler, Baker, Ore.

Class 41—Hereford senior bull calf: First, O. Harris & Sons; second, Jesse Engle & Sons, Sheridan, Mo.; third, Jesse Engle & Sons; fourth, T. F. De Witt, Parshall, Colo.; fifth, J. D. Canary & Son, Denver; sixth, Johnson Bros., Eagle, Colo.; seventh, L. G. Davis; eighth, A. B. Cook; ninth, John E. Painter & Sons, Roggen, Colo.; tenth, S. L. W. Ranch Co., Kersey, Colo.

Class 42—Hereford junior bull calm: First, Fulscher & Kepler, Holyoke, Colo.; second, Fulscher & Kepler; third, David Firm & Sons; fourth, Johnson Bros.; firth, Hereford Corp. of Wyoming; sixth, A. B. Cook; seventh, W. N. W. Blayney; eighth, T. F. Dolan & Son; ninth, W. N. W. Blayney; tenth, J. D. Canary & Son.

Class 43—Hereford aged cow: First, A. B. Cook; second, O. Harris & Son.

Class 44—Hereford cow, 2 years old and under 3: First, O. Harris & Son; second, A. B. Cook; third, J. D. Canary & Son.

Class 45—Hereford senior yearling heifer: First, T. F. De Witt; second, Jesse Engle & Sons; third, A. B. Cook; fourth, T. F. De Witt; fifth, O. Harris & Son; sixth, John E. Painter & Son; seventh, W. N. W. Blayney; eighth, Colo. Agr. College.

Class 46—Hereford junior yearling heifer: First, Jesse Engle & Sons; second, W. N. W. Blayney; third Hereford Corp. of Wyoming; fourth, A. B. Cook; fifth, John E. Painter & Sons; sixth, O. Harris & Son; seventh, L. G. Davis; eighth, Johnson Bros.

Class 47—Hereford senior heifer calf: First, O. Harris & Sons; second, T. F. DeWitt; third, Jesse Engle & Sons; fourth O. Harris & Sons; fifth, T. F. DeWitt; sixth, A. B. Cook; seventh, W. N. W. Blayney; eighth, L. G. Davis; ninth, Jesse Engle & Sons; tenth, John E. Painter & Sons.

Class 48—Hereford junior heifer calf: First, Fulscher & Kepler; second, Johnson Brothers; third, Fulscher & Kepler; fourth Fulscher & Kepler; fifth, J. D. Canary & Son; sixth, A. B. Cook; seventh, O. Harris & Son; eighth, S. L. W. Ranch Co.; ninth, Johnson Brothers; tenth, W. N. W. Blayney.

Class 49—Hereford aged herd: First, O. Harris & Son; second, A. B. Cook.

Class 50—Hereford young herd! First, Jesse Engle & Sons; second, T. F. DeWitt; third, A. B. Cook; fourth, O. Harris & Son; fifth, L. G. Davis.

Class 51—Hereford calf herd: First, Jesse Engle & Sons; second, O. Harris & Son; third, Fulscher & Kepler; fourth, T. F. DeWitt; fifth, Johnson Brothers.

Class 52—Hereford get of sire: First, O. Harris & Son; second, Jesse Engle & Sons; third, L. G. Davis; fourth, T. F. DeWitt; fifth, Fulscher & Kepler.

Class 53—Hereford produce of dam: First, O. Harris & Son; second, W. N. W. Blayney; third, O. Harris & Son; fourth, Mousel Brothers; fifth, T. F. DeWitt.

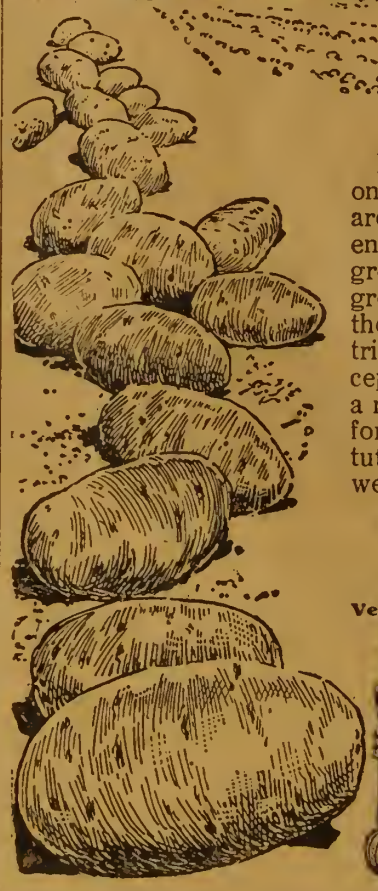
Western Hereford Futurity

Class F-1—Senior bull calf, Western Hereford Futurity: First, T. F. DeWitt; second, J. D. Canary & Son; third, Johnson Bros.; fourth, L. G. Davis; fifth, A. B. Cook; sixth, John E. Painter & Sons; seventh, Fulscher & Kepler; eighth, John E. Painter & Sons; ninth, L. G. Davis; tenth, S. L. W. Ranch Co.; eleventh, A. Christensen.

Class F-2—Junior bull calf: First, Fulscher & Kepler; second, Fulscher & Kepler; third, David Firm & Sons; fourth, Johnson Bros.; fifth, Hereford Corporation of Wyoming; sixth, A. B. Cook; seventh, W. N. W. Blayney; eighth, J. D. Canary & Son; ninth, W. N. W. Blayney; tenth, W. N. W. Blayney; eleventh, Hereford Corporation of Wyoming; twelfth, not entered; thirteenth, T. F. DeWitt; fourteenth, S. L. W. Ranch Co.; fifteenth, A. Christensen; sixteenth, Hereford Corporation; seventeenth, Colorado Agricultural College.

Class F-3—Senior heifer calf: First T. F. DeWitt; second, T. F. DeWitt; third, A. B. Cook;

Salzer Potatoes



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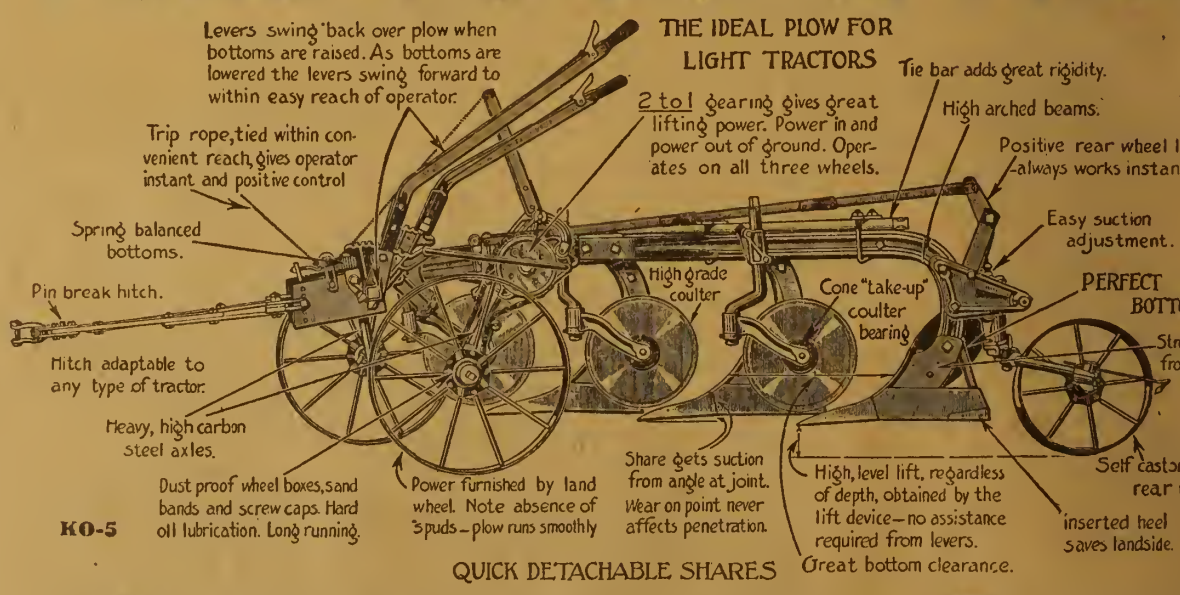

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fourth, W. N. W. Blayney; fifth, L. G. Davis; sixth, John E. Painter & Sons; seventh, J. D. Canary & Sons; eighth, S. L. W. Ranch Co.; ninth, L. G. Davis.

Class F-4—Junior heifer calf: First, Fulscher & Kepler; second, Johnson Bros.; third, Fulscher & Kepler; fourth, Fulscher & Kepler; fifth, J. D. Canary & Son; sixth, A. B. Cook; seventh, S. L. W. Ranch Co.; eighth, Johnson Brothers; ninth, W. N. W. Blayney; tenth, Hereford Corporation of Wyoming; eleventh, Hereford Corporation of Wyoming; twelfth, Hereford Corporation of Wyoming; tbirteenth, S. L. W. Ranch Co.

Champion Bull Calf (Western Futurity—Fulscher & Kepler.

Champion Heifer Calf (Hereford Futurity)—Fulscher & Kepler.

Best Hereford get-of-sire exhibited by Colorado or Wyoming breeder (Bohm-Allen Challenge cup), won by L. G. Davis, Saratoga, Wyo.

Shorthorn Breeding Cattle

Senior Champion Bull—Rees & Sons, Pilger, Neb.

Junior Champion Bull—C. A. Saunders & Sons, Manilla, Iowa.

Grand Champion Bull—Rees & Sons, Pilger, Neb., on Violet's Dale.

Senior Champion Cow—Maxwell-Miller Cattle Co., Steamboat Springs, Colo.

Junior Champion Heifer—W. E. Pritchard, Walnut, Iowa.

Grand Champion Cow or Heifer—Maxwell-Miller Cattle Co., on Clover Leaf Lovely 2nd.

Class 1—Shorthorn aged bull: First, H. Rees & Sons, Pilger, Neb.; second, K. F. Dietsch, Broken Bow, Neb.; third, R. G. Maxwell & Sons, Fort Collins, Colo.; fourth Chas. W. Plageman, Eckley, Colo.; fifth, G. W. Ball, Pierce, Colo.

Class 2—Shorthorn hull, 2 years old and under 3: First, D. Warnock & Sons, Loveland, Colo.; second, Maxwell-Miller Cattle Co., Steamboat Springs, Colo.; third, K. F. Dietsch, Broken Bow, Neb.; fourth, Wm. Henn, Denver, Colo.; fiftb, Cornforth Live Stock Co., Elbert, Colo.

Class 3—Shorthorn senior yearling hull: First, W. A. Forsythe & Sons, Greenwood, Mo.; second, C. A. Hauf, Glendo, Wyo.; third, Wm. Henn, Denver, Colo.; fourth, Wm. Henn, Denver, Colo.; fifth, C. W. Pritchett Ranch, Steamboat Springs, Colo.

Class 4—Shorthorn junior yearling bull: First, C. A. Saunders & Sons, Manilla, Iowa; second, R. Rees & Sons, Pilger, Neb.; third, J. M. Steward & Son, Red Cloud, Neb.; fourth, Lewis Kirk, Elbert, Colo.; fifth, W. A. Forsythe & Sons, Greenwood, Mo.; sixth, C. A. Melburn, Elbert, Colo.

Class 5—Shorthorn senior bull calf: First, Allen Cattle Co.; second, W. E. Pritchard, Walnut, Iowa; third, W. E. Pritchard; fourth, Gleason & Blazer, Kiowa, Colo.; fifth, W. E. Pritchard; sixth, Maxwell-Miller Cattle Co.; seventh, C. A. Saunders & Sons; eighth, Allen Cattle Co.; ninth, Allen Cattle Co.; tenth, Allen Cattle Co.; eleventb, Allen Cattle Co.; twelfth, W. A. Forsythe & Sons, Greenwood, Mo.; thirteenth, Hauf & Son, Glendo, Wyo.

Class 6—Shorthorn junior bull calf: First, H. Rees & Son; second, C. A. Saunders & Sons; third, Maxwell Miller Cattle Co.; fourtb, D. Warnock & Sons; fifth, K. F. Dietsch; sixth, W. A. Pritchart, seventh, Allen Cattle Co.; eighth, Allen Cattle Co.

Class 7—Shorthorn aged cow: First, Maxwell Miller Cattle Co.; second, K. F. Dietsch; third, K. F. Dietsch; fourth, A. C. Arnold, Hudson, Colo.; fifth, A. C. Arnold.

Class 8—Shorthorn cow 2 years old and under 3: First, Maxwell-Miller Cattle Co.; second, Colorado Agricultural College, Fort Collins, Colo.; third, H. Rees & Sons, Pilger, Neb.; fourth, Cornforth Live Stock Co., Elbert, Colo.; fifth, D. Warnock & Sons.

Class 9—Shorthorn senior yearling heifer: First, W. E. Pritchard; second, Maxwell-Miller Cattle Co.; third, J. M. Steward & Son, Fort Collins, Colo.; fourth, Thos. Andrews, Cambridge, Neb.; fifth, K. F. Dietsch; sixth, Maxwell-Miller Cattle Co.

Class 10—Shorthorn junior yearling heifer: First, W. E. Pritchard; second, H. Rees & Son; third, Allen Cattle Co.; fourth, D. Warnock & Sons; fifth, Allen Cattle Co.; sixth, Cornfortb Live Stock Co.; seventh, D. Warnock & Sons; eighth, D. Hampson, Cambridge, Neb.; ninth, Thos. Andrews, Cambridge, Neb.; tenth, Colorado Agricultural College.

Class 11—Shorthorn senior heifer calf: First, H. Rees & Sons; second, Maxwell-Miller Cattle Co.; third, D. Warnock & Sons; fourth, W. E. Pritchard; fifth, H. Rees & Sons; sixth, Allen Cattle Co.; seventh, W. E. Pritcbard; eighth, Thos. Andrews.

Class 12—Shorthorn junior heifer calf: First, C. A. Saunders & Sons; second, D. Warnock & Sons; third, Thos. Andrews; fourth, K. F. Dietsch; fifth, C. G. Gawthrop, Mancos, Colo.; sixth, Colorado Agricultural College; seventh, Allen Cattle Co.; eightb, Cornforth Live Stock Co.

Class 13—Shorthorn aged herd: First, H. Rees & Sons; second, Maxwell-Miller Cattle Co.; third, D. Warnock & Sons; fourth, Cornforth Live Stock Co.

Class 14—Shortborn young berd: First, W. E. Pritchard; second, Allen Cattle Co.; third, D. Warnock & Sons; fourth, Thos. Andrews; fifth, Cornforth Live Stock Co.

Class 15—Shorthorn calf herd: First, W. E. Pritchard; second, D. Warnock & Sons; third, Allen Cattle Co.; fourth, C. A. Saunders & Sons; fifth, H. Rees & Sons.

Class 16—Shorthorn, get of sire: First, W. E. Pritchard; second, C. A. Saunders & Sons; third, D. Warnock & Sons; fourth, Allen Cattle Co.; fifth, Cornforth Live Stock Co.; sixtb, Thos. Andrews.

Class 17—Shorthorn, produce of dam: First, D. Warnock & Sons, second, Allen Cattle Co.; third, W. E. Pritchard; fourth, Cornforth Live Stock Co.; fifth, Gleason & Blazer, Kiowa, Colo.; sixth, J. M. Steward & Son, Red Cloud, Neb.

Western Shorthorn

Senior Champion Bull—Warnock & Sons, Loveland, Colo.

Junior Champion Bull—Allen Cattle Co., Colorado Springs.

Grand Champion Bull—Warnock & Sons.

Senior Champion Cow—Maxwell-Miller Cattle Co., Steamboat Springs, Colo.

Junior Champion Heifer—Warnock & Sons.

Grand Champion Cow or Heifer—Maxwell-Miller Cattle Co.

Class 18—Western Shorthorn aged bull: First, R. G. Maxwell & Sons; second, Chas. W. Plageman, Eckley, Colo.; third, G. W. Ball, Pierce, Colo.

Class 19—Western Shorthorn bull, 2 years old and under 3: First, D. Warnock & Sons, Loveland, Colo.; second, Maxwell-Miller Cattle Co., Steamboat Springs, Colo.; third, Cornforth Live Stock Co., Elbert, Colo.

Class 20—Western Shorthorn senior yearling bull: First, C. A. Hauf; second, C. W. Pritchett Ranch, Steamboat Springs, Colo.

Class 21—Western Shorthorn junior yearling bull: First, K. Lewis Kirk, Elbert, Colo.; second, C. A. Melburn, Elbert, Colo.; third, C. A. Melburn; fourth R. G. Maxwell & Sons, Fort Collins, Colo.; fiftb, Alger C. Peterson, Elbert, Colo.

Class 22—Senior bull calf, western Shorthorn: First, Allen Cattle Co.; sccond, Gleason & Blazer, Kiowa, Colo.; third, Maxwell-Miller Cattle Co., Steamboat Springs, Colo.; fourth, Allen Cattle Co.; fifth, Allen Cattle Co.; sixth, Allen Cattle Co.; seventb, Allen Cattle Co.; eighth, Hauf & Son, Glendo, Wyo.; ninth, R. G. Maxwell & Son, Fort Collins, Colo.; tenth, Chas. W. Plagman, Eckley, Colo.; eleventh, Hauf & Son, Glendo,

Why Tractor Makers Choose Oliver Implements

Scene at National Tractor Demonstration, Showing Tractors Working With Oliver Plows

Every year—at the National Tractor Demonstration—tractors and tractor implements have a public opportunity to prove their merits.

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They realize that their success depends upon the quality of the plowing and seed bed preparation—that the performance of the tractor is often gauged entirely by these facts.

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Actual test has proved to them that these implements are—Oliver.

This increasing recognition of Oliver by tractor manufacturers is best evidenced by the records of successive tractor demonstrations.

At the National Tractor Demonstration in 1913 there was but one tractor that pulled an Oliver implement. On the strength of that single showing, and the Oliver organization's unequalled equipment for the task in hand—keeping pace with the great tractor industry—the popularity of the Oliver line has steadily risen.

Dominance was reached in 1918 when 85% of the tractors at the National Tractor Demonstration at Salina, Kansas, pulled Oliver tractor implements.

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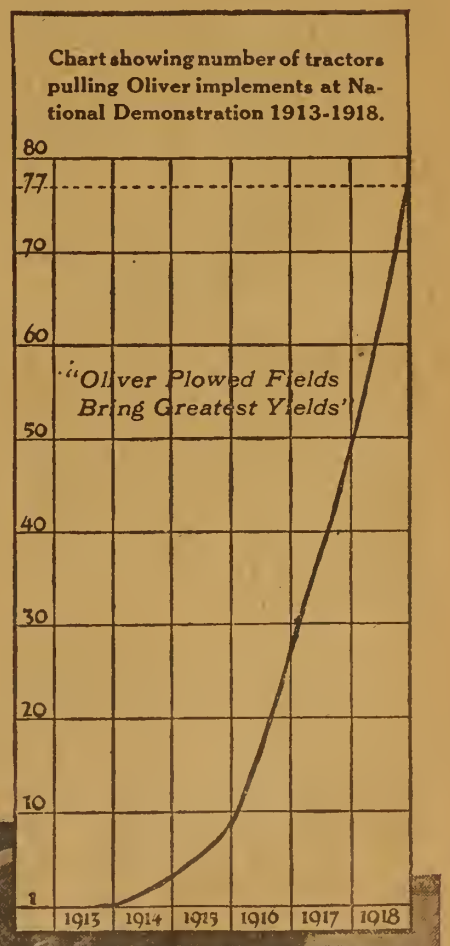

OLIVER
Tractor Implements

Wyo.; twelfth, Maxwell-Miller Cattle Co.; thirteenth, C. W. Pritchett Ranch, Steamboat Springs, Colo.

Class 23—Shorthorn western junior bull calf: First, Maxwell-Miller Cattle Co.; second, D. Warnock & Sons; third, Allen Cattle Co.; fourth, Allen Cattle Co.; fourth, Allen Cattle Co.; fifth, C. G. Gawthrop, Mancos, Colo.; sixth, R. G. Maxwell & Sons.

Class 24—Western Shorthorn aged cow: First, Maxwell-Miller Cattle Co.; second, A. C. Arnold, Hudson, Colo.; third, A. C. Arnold.

Class 25—Western Shorthorn cow, 2 years old and under 3: First, Maxwell-Miller Cattle Co.; second, Colorado Agricultural College, Fort Collins, Colo.; third, Cornforth Live Stock Co.

Class 26—Western Shorthorn Senior yearling heifer; First, Maxwell-Miller Cattle Co.; second, Maxwell-Miller Cattle Co.

Class 27—Western Shorthorn junior yearling heifer: First, Allen Cattle Co.; second, D. Warnock & Sons; third, Allen Cattle Co.; fourth, Cornforth Live Stock Co.; sixth, Colorado Agricultural College; seventh, Samuel D. Porter, Denver; eighth Gleason & Blazer; ninth, Cornforth Live Stock Co.; tenth, Lillian M. Melburn, Elbert, Colo.

Class 28—Western Shorthorn senior heifer calf: First, Maxwell-Miller Cattle Co.; second, D. Warnock & Sons; third, Allen Cattle Co.; fourth, Allen Cattle Co.; fifth, C. A. Melburn, Elbert, Colo.; sixth, Gleason & Blazer.

Class 29—Western Shorthorn junior heifer calf: First, D. Warnock & Sons; second, C. G. Gawthrop, Mancos, Colo.; third, Colorado Agricultural College; fourth, Allen Cattle Co.; fifth, Cornforth Live Stock Co.; sixth, Gleason & Blazer.

Class 30—Western Shorthorn aged bull: First, Maxwell-Miller Cattle Co.; second, D. Warnock & Sons; third, Cornforth Live Stock Co.

Class 31—Western Shorthorn Young Herd: First, Allen Cattle Co.; second, Samuel Ball, Wray, Colo.; third, Cornforth Live Stock Co.

Class 32—Western Shorthorn calf herd: First, D. Warnock & Sons; second, Allen Cattle Co.; third, Cornforth Live Stock Co.; fourth, Gleason & Blazer; fifth, Chas. W. Plageman.

Class 33—Western Shorthorn, get of sire: First, D. Warnock & Sons; second, Allen Cattle Co.; third, Cornforth Live Stock Co.; fourth, Colorado Agricultural College; fifth, C. A. Melburn.

Class 34—Western Shorthorn, produce of dam: First, D. Warnock & Sons; second, Allen Cattle Co.; third, Cornforth Live Stock Co.; fourth, Gleason & Blazer; fifth, Cornforth Live Stock Co.; sixth, Lillian M. Melburn.

Class 35—Best bull calf, calved after September 1, 1917 (American Shorthorn Breeders' Ass'n Special): First, C. G. Gawthrop; second, Thos. Andrews, Cambridge, Neb.

Class 36—Best heifer calf, calved after September 1, 1917 (American Shorthorn Breeders' Ass'n Special): First, Thos. Andrews; second, C. G. Gawthrop.

Aberdeen-Angus and Galloways

In the Aberdeen-Angus division L. R. Kershaw of Muskogee, Okla., took away the championships and divided honors in the classes with R. R. Lucore, Arriba, Ludwig Dietz, also of Arriba, and J. W. McClung & Son, Indianola, Neb.

The Galloways were represented by four breeders, H. Croft, Medicine Lodge, Kans; Guy Kroft, Bluff City, Kans.; C. E. Talley, Meade, Kans., and O. H. Swigert & Sons, Salisbury, Mo.

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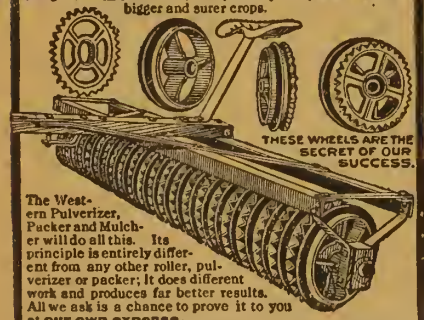

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All championships in Galloways went to H. Croft, and in the classes he divided honors with Guy Croft and Swigert & Sons.

Hereford Auction Sale

There was life and snap to the auction sale of registered Hereford cattle in the arena at the Stock Show January 22. Over 50 head of bulls and cows were disposed of with the usual rapid-fire action by Colonel Fred Reppert. The sale was held under the auspices of the Western Hereford Cattle Breeders' Association. As has been customary, a number of eastern breeders took advantage of the occasion to pick up outstanding individuals from our western range-bred herds and take them back to the cornbelt to infuse new vigor into the stall-fed Herefords. Buyers were present from all sections of the country and the list of sales shows a scattering from the province of Alberta on the north to Texas on the south, with Illinois and Iowa among the cornbelt buyers.

Top price was $3,500, paid by Elgin Kothman of Mason, Texas, for Wyoming 7th 677353, bred by L. G. Davis of Saratoga, Wyo. This bull is a full brother of Wyoming, of the Blayney herd, who was star at the International last December. J. D Watson of Lethbridge, Alberta, paid $2,500 for Panama 37th 560172 out of the Cook herd, and also bought another bull from the same herd for $900.

One of Otto Fulscher's offerings, Princess Domino 716898 went back to Iowa, the purchaser being J. N. Armentrout, Botna, for $2,425. The same buyer also took Lady Fair 2nd 688479, from the DeWitt herd at $2,125.

Prince Donald from the Hereford Corporation herd sold to George Chandler of Baker, Oregon, at $2,100. On the whole, the sale maintained the high average established by the Herefords, backed by their peculiar fitness for making beef under western conditions. Following is a complete list of the sales arranged according to consignors:

W. N. W. Blayney, Denver, Colo.—Cow, Dr. T. F. DeWitt, Parshall, Colo., $600; bull, E. G. Getz, Monte Vista, Colo., $1,000.

Geo. F. Crowe, Canon City, Colo.—Bull, Wm. Henn, Denver, Colo., $275.

T. F. DeWitt, Parshall, Colo.—Bull, O. Harris & Son, Harris, Mo., $750; bull, Hunter Casteel & Hunter, $500; cow, Arthur Pew, Burlington, Colo., $1,000; cow, M. Armentrout, Botna, Iowa, $2,125; cow, P. J. Sullivan, Wray, Colo., $1,275; bull, Cyrus Tow, Norway, Iowa, $900.

T. F. Dolan & Sons, Brighton, Colo.—Bull, C. J. Estes, La Veta, Colo., $300.

David Firm & Sons, La Veta, Colo.—Bull, Wm. Henn, Denver, Colo., $780; bull, O. Harris & Son, Parshall, Colo., $750.

Otto Fulscher, Holyoke, Colo.—Bull, La Salle L. S. Co., La Salle, Colo., $1,025; bull, C. F. Cuykendall, Roggen, Colo., $2,000; bull, E. E. Harrison, La Veta, Colo., $1,200; cow, L. P. Stone, Lexington, Neb., $650; cow, T. S. Strobel, Holyoke, Colo., $650; cow, W. N. W. Blayney, Denver, Colo., $875; cow, J. N. Armentrout, Botna, Iowa, $2,425.

L. C. Grant, Avondale, Colo.—Bull, M. M. Sutley, Center, Colo., $350.

Johnson Bros., Eagle, Colo.—Bull, Geo. W. Means, Sargent, Colo., $1,100.

John E. Painter, Roggen, Colo.—Bull, A. E. Headlee, Monte Vista, Colo., $580; bull, Art Hollenbeck, Trinchera, Colo., $575; bull Elgin Kothman, Mason, Texas, $400; bull, Leo Sheep Co., Rawlins, Wyo., $400; cow, E. S. Moser, Kansas City, Mo., $525.

Chas. Redier, Amherst, Colo.—Bull, W. N. W. Blayney, Denver, Colo., $425.

W. W. Shryack, Eagle, Colo.—Bull, D. Bowman, Ness City, Kans., $650.

J. R. Slack, Holyoke, Colo.—Bull, T. A. Probst, Merino, Colo., $400.

S. L. W. Ranch Co., Kersey, Colo.—Bull, W. N. W. Blayney, Denver, Colo., $400; cow, H. G. Squibb, Denver, Colo., $600.

Tomkins Cattle Co., Denver, Colo.—Bull, Arthur Pew, Burlington, Colo., $1,050.

R. & R. Brines, Rushville, Ill.—Bull, C. Miller, Bellvue, Kans., $675.

Chesney Stock Farms, Evanston, Wyo.—Bull, T. H. Smelzer, Sedalia, Colo., $500.

A. B. Cook, Townsend, Mont.—Bull, A. A. Campbell, La Veta, Colo., $300; bull, J. D. Watson, Lethbridge, Alta., Canada, $900; bull, J. D. Watson, Lethbridge, Alta., Canada, $2,500; bull, A. J. Metler, Menno, S. D., $1,750; bull, Carl Miller, Bellvue, Kans., $1,150; cow, W. N. W. Blayney, $1,300.

L. G. Davis, Saratoga, Wyo.—Bull, Dr. T. F. DeWitt, Parshall, Colo., $500; bull, C. A. Patterson, Custer, Mont., $1,200; bull, Geo. W. Baker, Littleton, Colo., $2,000; bull, Elgin Kothman, Maxon, Texas, $3,500; cow, H. G. Squibb, Denver, Colo., $800; cow, H. G. Squibb, Denver, Colo., $900; cow, Finch Bros., Joliet, Ill., $750.

E. E. Harrison, La Veta, Colo.—Bull, A. E. Headlee, Monte Vista, Colo., $700.

Colorado Agricultural College, Fort Collins, Colo.—Bull, T. A. Probst, Merino, Colo., $450.

W. E. Sears, Saratoga, Wyo.—Bull, W. M. Sutley, Center, Colo., $475; bull, L. G. Davis, Saratoga, Wyo., $400.

C. A. Watson, Apple River, Ill.—Cow, W. N. W. Blayney, $800.

Wyoming Hereford Corp., Cheyenne, Wyo.—Cow, H. G. Squibb, Denver, Colo., $825; bull, Geo. Chandler, Baker, Ore., $2,150.

He who reigns within himself and rules his passions, desires and fears, is more than a king.—Milton.

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National Western Sheep Show

CHARLES I. BRAY

The directors of the National Western Stock Show are entitled to the thanks of the sheep men for the airy, commodious quarters allotted to them at the 1919 show. One of the drawbacks of the show last year was in having the sheep down in the yards where only a small part of the crowd got to see them. This means a good deal since the publicity obtained through exhibiting is the main return which a man gets to pay him for fitting and bringing out a show flock. By moving the swine department across the car tracks to the old Hollis & Platt barns, the quarters previously occupied by this department were turned over to the sheep. That the sheep men were pleased by the change goes without question, as the pens are ideal for sheep, and the judging ring, which goes with the pens, had been much needed.

The sheep exhibit in the breeding classes was three times as large as last year, and a big improvement in quality as well as numbers. Four flocks that had previously exhibited at the International in December added to the interest and educational value of the show. The outstanding feature, however, was the number of Colorado exhibits, which were surprising in quality as well as in numbers even though some of them could have been improved materially by more fitting.

The main thing has been to get a start, and with this as a beginning we predict that the National Western Sheep Show will become one of the strongest shows in America. Denver is the natural center of the American sheep industry, and the main gateway to the big sheep-producing states of the west. These states have long been looked upon merely as the home of range sheep, but will before long have as many purebred flocks established as they have in the East. The central meeting place of these flocks will be the Denver Stock Show. The show next year should be, and probably will be, twice as large as this year.

The Hampshires were well represented, being the strongest class in the show. Sherwood Bros. of Shelbyville, Mo., showed 16 head in prime condition, winning both championships and most of the first prizes. A. W. Arnold of Galesville, Wis., had 18 head, but the Wisconsin exhibit was not in the first class condition one might expect from a flock coming the same distance. The largest Colorado exhibit was from the Ralston Valley Farm, owned by Harry Petrie of Golden. This is one of the largest flocks in the state and showed up well in competition with the outside flocks. The Colorado Agricultural College and the Kansas Agricultural College competed in this class, as did Judge A. W. Rucker of Mount Morrison.

In Shropshires the principal competition was between the Colorado Agricultural College, and Spencer Penrose of Colorado Springs. The Penrose flock is headed by two of the best imported rams in the West, one of which stood first in strong competition last year without special fitting. R. Eggleston of Mount Morrison showed two splendid ram lambs, one of them defeating the Kansas Agricultural yearling for championship, after winning first in class. These lambs were from the carlot shown by Mr. Eggleston at the ram sale, which were complimented so highly at that time by Shropshire men. Mr. Eggleston has some of the best foundation stock to be found in Colorado.

Southdowns were shown by R. G. Maxwell & Sons, Fort Collins, the Kansas Agricultural College, and A. W. Arnold, Galesville, Wis. The Maxwell flock was founded on the old Agricultural College flock, and was well fitted and shown, winning well against the outside flocks. Competition in Cotswolds was between the Colorado Agricultural College and A. W. Arnold, the former winning all the way through, wherever entered. In Rambouillets the well-fitted, internationally-known flock owned by F. S. King Bros., Laramie, Wyo., took all the first prizes and championships, the Colorado Agricultural College getting several seconds. The King flock also had an exhibit of Corriedales owned by the Wyoming Corriedale Sheep Company, Cheyenne. The Corriedale is one of the most widely discussed breeds of the present day. The breed originated in Australia and New Zealand by crossing long-wooled sheep as Lincolns, Leicesters and Romney Marsh on the Australian Merino. The result has been a larger type of range sheep with a very heavy yield of light shrinking wool. The Corriedale was introduced into this country by the U. S. Department of Agriculture, as well as by a number of Wyoming sheep men. Several flocks of these are now located in the San Luis Valley in Colorado.

In the fat classes the individual championship was won by a nuggety little Southdown fitted by Park Maxwell, Fort Collins, which afterwards brought the neat price of a dollar a pound at public auction. The Kansas Agricultural College won a large share of the other prizes. In the carlot classes A. J. Knollin of Pocatello, Idaho, won first and championship on a beautiful lot of Shropshire lambs.

We have good sheep here in the West, possibly as good as any that come here, but we may need to learn a little more about fitting for exhibition. A good sheep can sometimes win in "his everyday clothes," as Judge McKerrow said last year, but it is not fair to the exhibitors of either the well-fitted or the poorly fitted stock to have them compete under such circumstances. It is the latter who generally loses out.

Breeding sheep of mutton type are judged for their ability to produce stock of the best mutton form, and ability to fatten. It is impossible to judge them on this basis unless they themselves show ability to put on flesh. They cannot do this when they come into the ring thin. There is no use in saying, "My sheep are in far better breeding condition the way they are." That may be perfectly true, but the public will judge stock by its looks, and it is a good paying advertisement to have it looking its best. It works that way not only in selling sheep, but in selling beef cattle, hogs, or draft horses, that the people who say the most about "that stock being too fat for breeding" are the very ones who will pay twice as much or more for an animal in high show condition than they would pay for the same animal in ordinary shape. It is usually the expert fitter who can best pick out a good thin animal. Colorado exhibitors have learned how to fit and show against all comers with other classes of stock, and can do the same with sheep when they get started. It may be mentioned in passing that the college flock of 15 head which won 15 ribbons was fed, washed, trimmed, fitted and exhibited by Raymond Miller, a senior student in the Animal Husbandry Department, who has put himself through college the last two winters by looking after the college flock, and who had no experience in fitting sheep previous to last winter.

The sheep were judged by J. P. Van Houten of Shoemaker, N. M., a breeder and fitter of Rambouillets of national reputation. He was one of three who judged Rambouillets at the International in December. His work on fine-wool sheep was faultless. On the mutton breeds, however, there was occasional chance for criticism. Very few men indeed are fitted to do the very best work on both fine-wool and mutton sheep, and it would seem that from now on there might be a separate judge provided for each of these two classes.

List of Awards

COTSWOLDS, ram lamb under 1 year, 1, Colo.

(Turn to page 17)

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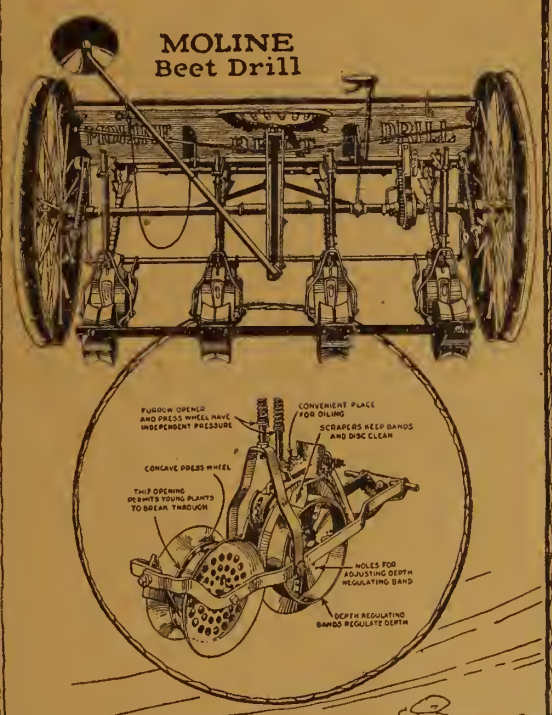

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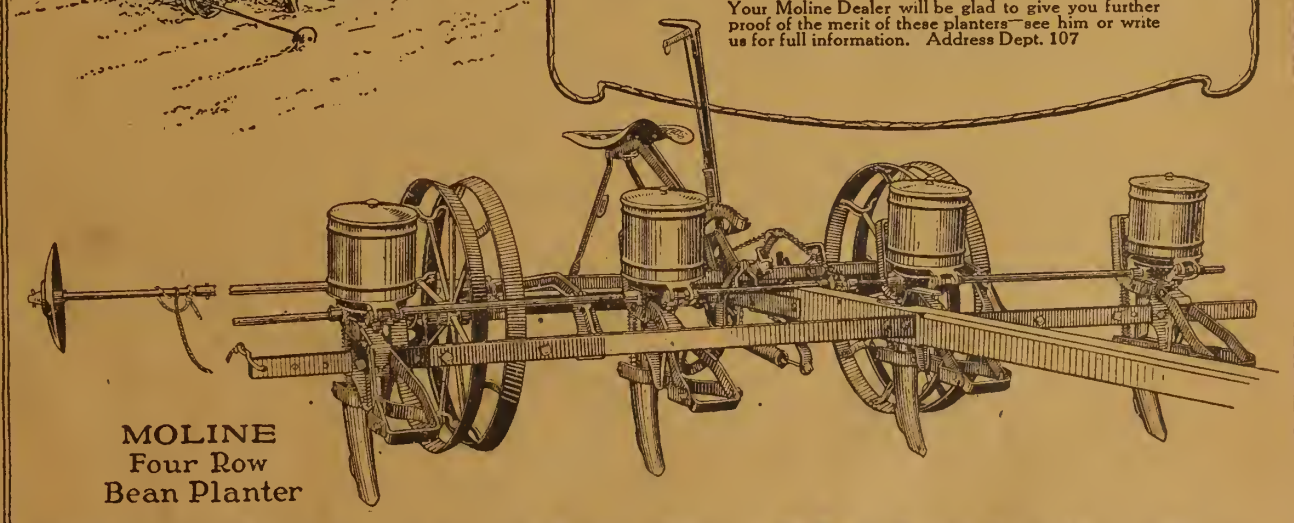

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Denver and the Stock Show

Those who are not in close touch with livestock development are, perhaps, taking a narrow view of the benefits derived from the annual National Western Stock Show. One hears occasionally of Denver business men who object to giving financial support to the show, because they feel that the crowds visiting the city during show week are of little direct buying benefit to them. From the same source comes the complaint: "Why does not tbe stock show become self-supporting?" This view of the situation is altogether shortsighted. If the Stock Show ever became a money-making institution, it would be time to close the gates, because it would then become commercialized. As long as it remains a public enterprise, founded upon the principle that its mission is educational and beneficial, its success as an exhibition of fine stock will continue. If its management should forget the prime object of the show—that of building up the livestock industry in the West—it might continue to be an attractive amusement enterprise, but it would do no more good than a three-ringed circus.

The writer has noted the steady growth of the show from its inception some fifteen years ago. As the show has grown in influence, so has the livestock industry of the mountain states reflected this growth in expansion as to size and in quality of stock. Purebred animals are no longer a curiosity on western farms and ranches, as they were fifteen years ago. The Stock Show has been the means of disseminating good animal blood. Within the arena and at the yards during show week we find the followers of tbe beef, dairy, hog and sheep breeds, the farmer-student of livestock, the feeder buyer, the purchaser of purebred sires and dams to head the herds, or replenish the blood. Incalculable good has been accomplished through these exhibitions. Millions of dollars have been added to the wealth of half a dozen western states.

Denver is the trade center of the country that has been benefited, and Denver business men, no matter what their line, have been reaping the results, directly or indirectly. The days of prosperity of the mine and smelter have given way to the influence of agriculture in the wealth-producing territory from which Denver draws its buyers. The merchant who fails to recognize this change, or quibbles over a dollar spent in encouragement of agriculture in his own trade territory, is blind to an opportunity for helping his own business. The Stock Show has asked no favors of Denver, but only legitimate support of Denver's greatest asset, namely, livestock farming.

Holsteins for the Dry Lands

Alarm is expressed by experts, as well as practical dairymen, over the great influx of Holsteins to the dry land districts of eastern Colorado. Tbis is what they say: "How can the dry lands care for the highly specialized milking strain that we have in the modern Holstein? Why do not these farmers buy milking Shorthorns, or go into business more gradually by building up their herds through the use of purebred sires?"

There is good reason for caution, but none for alarm. It is well to have the attention of our new dairy farmers directed to the fact that a cow of any specialized dairy breed needs the best of feed, care and protection to maintain her standard of milk production. Nothing will run down more quickly under neglect than a highly bred, specialized milking machine. The Holsteins have been developed under the most favorable conditions of feeding and care. Climatically considered, Colorado, or any other mountain state, is more favorable than any Holstein breeding center in America or Europe. We have an outdoor climate, naturally beneficial to man or beast. But we do have rigorous winter weather, on occasion, that demands facilities for protecting the dairy herd.

We can grow the feeds that constitute the bulk and succulence, but we must buy some concentrates. We must build silos; we must have comfortable dairy barns—and that does not mean fancy outfits—and we must provide good pasture. This can be done on the dry land farm, as well as on the irrigated farm, but it means more effort than the average dry land farmer has been putting forth while on a cash crop basis. It means planning a rotation. It means work every day in the year. All of these things are necessary in order to make dairy farming a success and without the extra effort even a dual purpose cow would fail to be a paying investment.

It is not so much a question of what type of milk producer a dry land farmer selects, but whether he is prepared for all the et ceteras that follow dairying—not to forget the drove of hogs. The field is open to other breeds. The Holstein men are not claiming a monopoly, but they are setting a lively pace.

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Parsons on Sweet Clover

Dr. V. T. Cooke in an article in our January 1st number wants to know why I am so reticent about sweet clover. In the first place, the doctor seemed to be championing it very ably himself without any help from me. In the second place, my experience with sweet clover has not been such as to excite any wild enthusiasm for it.

I raised it on the Platte river bottom in 1882 when every one was planting it for bees. I have raised it several times on my Parker ranch on the gulch bottom, and on upland dry farming land, and there is lots of it there yet, along the bottom; but not on the uplands, for it may reseed itself to a limited extent, but it dies out. On the bottom where it can reach a layer of permanently moist soil, or under irrigation, it is a wonderful crop, and any animal will eat it once it gets used to the flavor. There are many basins and valleys where it does well on account of natural subsoil moisture; but on the dry farming uplands where the subsoil contains no moisture to speak of except what you put there, it does not do so well.

I raised a crop on the upper part of my ranch in 1896. I planted it on fall plowed land in which there was about two feet of moist soil in the spring. It grew about six inches high and remained at about that height during the dry weather. I allowed the calves to pasture it for awhile, but it pulled out to some extent. The next year I cut about a ton to the acre and that was the end of that crop, except for a few seedlings which came up along the edges where some of it went to seed.

Sweet clover, being a biennial, puts all its energy into the second year's growth, and then dies out. On the bottoms it will perpetuate itself by reseeding; but not to any practical extent on the upland. I planted it once on a piece of land too thin to raise alfalfa; at the end of the second season I plowed it under and the following spring obtained a good stand of alfalfa. It is invaluable for this kind of work, since it not only fertilizes the ground, but opens up the subsoil with its big tap roots. Wben pastured in the early spring of the second year, it sends up secondary shoots; if the cattle are allowed to eat these off in May or June it is the end of the crop. A few years ago there was quite a sweet clover boom; some of my friends planted it. Two years or so afterwards I met one of them. "Well, John," I said, "how is the sweet clover coming?" "I cut a fairly good crop," he answered. "You don't seem to be as enthusiastic about it as you were," I remarked. "Well, no," he said, "you see my brother planted alfalfa at the same time that I planted the clover. He has got a fine alfalfa meadow, I've got nothing."

I recommended sweet clover once to a man for fertilizing purposes. Tbis is what he said: "Why should I wait two years for something to plow under when I can raise a crop of oats in two months, or a crop of rye between November and May?"—E. R. PARSONS.

✦ ✦ ✦

Guessing at the Ration

We once heard a farmer make a statement like this: "I don't worry about balanced rations and other foolish notions. My cows eat all the hay they need and I give them what I think is about the right amount of grain and that ends it." That was back in Missouri. We never had a chance to look over bis books, if he kept any. Maybe he made money and maybe he didn't. Maybe his stock thrived, and maybe it didn't. He thought it did and that's the way he fed—what he thought was "about right."

A few weeks ago we got a letter from a farmer in eastern Colorado. He said he was giving his calves cane fodder and corn and they were chewing the mangers; they didn't seem to thrive. He wanted to know what made them try to chew the boards.

Prof. Morton answered: "You are not giving your calves anything like the proper proportion of nutrients for growing stock in feeding them cane fodder and corn. Both these feeds are lacking in protein, the nutrient necessary for growth of muscular tissue."

The entire answer was published on Prof. Morton's page in the issue of February 1st. Now, as to the sequel. We got another letter from this farmer urging us to publish the reply for the benefit of others. He says: "The trouble with my calves is they are eating the boards of the wooden corn troughs. One of them dicd yesterday; some of the wooden splinters may have lodged in its stomach or intestines and caused death."

This man is grateful for having been told to feed some high protein feed, such as alfalfa, or bran, or linseed cake, along with what he had been feeding. He doesn't want to lose any more calves, or to have them grow up spindling and half starved. Neither does any other farmer. The cost of farming is so high nowadays tbat we cannot afford to guess. We must know what to feed and why.

✦ ✦ ✦

Farmers as Extension Lecturers

Successful farmers are to be enlisted, with pay, by the Agricultural Extension Service of the University of Missouri, to help carry on the continuous campaign for better farming. Men who are operating farms successfully, who are recognized leaders in their communities, who have ability to meet and talk entertainingly and knowingly with their neighbors, and who are in sympathy with the organized endeavor to build up in Missouri most efficient farms, are the men the extension service will employ under the simple title, "Lecturers in Farm Practice."

A. J. Meyer, director, believes that with such men supplementing the staff of scientifically trained workers, most effective results will be accomplished.

✦ ✦ ✦

The Cover Pictures

The animals shown on the cover of this issue are the grand champion Shorthorn and Hereford bulls of the National Western Stock show, namely: Violet's Dale, owned by Howell Rees & Sons, Pilger, Neb., in Shorthorns, and Repeater Junior of the Harris & Sons herd, Harris, Mo., for the Herefords.

The Branding Iron

Applied by Elias M. Ammons

The Opportunity School in Denver is a splendid illustration of the trend of the times in educational matters. It had a very humble beginning three years ago. It now has 3,500 pupils and had to turn away 700 this year for want of room. It shows the demand for practical training to fit students for some sort of useful employment. It illustrates that vocational training has come none to soon and that it is destined to command, at no distant date, a very large proportion of the educational effort of the country.

* * *

A great many of the soldiers who have gone from the Rocky Mountain district have made application for enlarged or grazing homesteads. It is said that millions of acres have been applied for by these boys, most of whom have been raised in the country and know the land for which they are applying and are, therefore, most capable of using it to the best purposes. Much of this land is awaiting classification. The Geological Survey has been designated to classify it. Congress should lose no time in either ordering this land classified or release it to claimants, subject to final proof. Tbe boys are returning from the army and most of them will probably be home within a few months. Their claims should not be held up a single moment after their return.

* * *

There are bills now pending in Congress to put the stockyards, the packing houses, commission men and allied interests, at the several markets of the country, under the Market bureau of the Department of Agriculture Our national legislature, having already made the Secretary of Agriculture a cow puncher, a horse wrangler, and a sheep herder, now proposes to make him a packer, commission merchant and a stockyards roustabout. Why not extend his activities to growing wheat, milling flour and running a grocery store and baking bread? After a while the people won't have anything to do except just to be happy. Really, isn't it about time this country should put a check on autocratic bureaus and return to the old principles of individual effort and incentive under which this country made its greatest and best growth? Truly, there is no difference between the autocracy of a kaiser and the autocracy of a bureau.

* * *

Cortez, Colo., Jan. 24, 1919.

Dear Mr. Ammons: I am glad to see your stand on the cigarette question in Western Farm Life of January 15th. More than a generation of effort has been necessary to put John Barleycorn where he belongs. The Y. M. C. A. has made a colossal error in encouraging cigarette using, and another generation of effort will be required to put Weary Willie Weed out of business and the land he occupies into corn, wheat, cabbage and potatoes. Keep at him.—G. P. Newsom.

* * *

The agricultural agents of all the railroads touching Colorado and adjoining states will probably issue a joint folder this year pointing out the advantages of soldier and other settlement in their territory. This will be quite a departure from the custom prevailing heretofore. Up to this time, each railroad has put out literature covering its own territory and there has been the keenest competition in securing settlement. The present movement is the result of federal control of the railroads during the war. Just what its effect will be no one can foretell. One result, however, is almost certain to follow: all statements concerning the several districts affected will be conservative and homeseekers will be able to get a better understanding of the comparative merits of the localities affected. The experiment will, probably, be the first of the kind ever made and will be watched with a great deal of interest.

Comment by Farmer Putnam

MEETS SEVERAL COUNTY AGENTS AT THE STOCK SHOW AND TAKES HUSH MONEY

EASY come, easy go, is a old saying and I found out that it is true, durin' Stock Show week. I made money hand over fist, but I couldn't keep it. You see it was this way: me and Josephine decided to come down to Denver together; that is, Josephine decided that we'd come together. I wasn't countin' her in on it, because I didn't think she'd care to see the cows and chickens and all them things because we has all them at home, but she sez: "Tom, you needn't think I'm goin' to let you go to the Stock Show alone. You went without me last winter and you come back by way of Cheyenne and tried to tell me it was on account of the snow blockade on the Moffat road. You don't work that on me twict. I'm goin' to that show with you and you kin look at the cows all you want to; I'll tend to the chickens."

That question not bein' open to argument, I decided we'd go together and I'd try to slip out onct in a while to attend a special meetin', while she was lookin' over the poultry show, or hobnobbin' with Miss Haynes and some of them other domestik science ladies.

Well, we had seventeen dollars when we got to town and I reckon it was a big plenty, or would-a been, if them Denver hotel men hadn't been tryin' to profiteer. I went to one place and they wanted seventy-five cents a-piece fur us fur a night's lodgin'! It took us a long time to find a nice place that was reasonable, but we got it down on Larimer street at fifty cents a piece fur lodgin', with our meals took out wherever we could git 'em. I knowed it wouldn't cost me nuthin' to git in the show, because me bein' a friend of Fred Johnsons and Harry Youngermans, and they fixed me up fur all week with a yaller button that left me in anywheres, the same as one of the ushers.

Now, about that money: you see, it was like this: I was walkin' around in the areney and who should I see but Mr. —— ———, the county agent from ——— county. I give him my hand and took out my notebook and begin to put down his name when he sez: "Fur heaven's sake, Farmer, don't put my name in the paper. You'll ruin me!"

"What's got into you?" sez I, "you usually like to be advertised."

"Sure, but this hain't no usual occasion. If the state leader finds out I run away from my county to attend the stock show he's liable to fire me. Us county agents has got to be mighty careful, you know. Now, I'd like to take you out to dinner, but I got to rush through the show and git back, because somebody's liable to run away with my county, or somebody's calf is liable to git sick, and if they cain't locate me why I'll git docked a day's pay. Here's a dollar fur the orphan's fund; now don't put my name in your darned old column."

I guess you-all begin to see now what kind of a prospect the week opened fur me in the money-makin' line, and before Thursday I had run acrost 11 county agents; two was from Wyoming and one from New Mexico, and they didn't give a darn whether I put their names in the paper or not, but they didn't pay me nothin' fur puttin' it in. The others paid me fur leavin' their names out, one dollar a piece, till I had eight bucks in my wallet.

Well, easy come, easy go. Thursday night Josephine got suspicious. I was sleepin' on a lounge in our room and I laid my pants acrost the bottom of it. Well, durin' the night I reckon I stretched out my legs too fur and the pants fell off on the floor and the jingle of the coin woke her up. She didn't say nuthin', but she stopped snorin' so I knowed she was awake. I laid right still and purty soon I heard her slippin' out, tiptoin' acrost the room. She reached down in the pocket of my pants and pulled out the wallet. It was light enough in the room so's I could see her countin' the money, and she went over it two or three times and then put it back and slipped back in her bed. Well, I knowed they'd be trouble in the mornin' and sure enough, when 5:30 come and I got up, she sez:

"Tom, you been a-gamblin'!" I denied it, but I might as well a-talked to a wooden Injun. She just kep' a-repeatin': "Tom, you been a-gamblin', you been a-gamblin', Oh, why didn't I stay to home, why did I let you come to this wicked city! Tom, answer me, where'd you git that extry money?"

I let her run on that way fur about ten minutes and then she saw I wasn't gittin' sore, so she kind-a knowed that I was innercent of wrongdoin'. I made a clean breast of it and she promised to help me hunt county agents that day at the Stock Show, but we didn't ketch another one. I reckon all of 'em had skipped back to their jobs.

I want to say fur the benefit of the boys that contributed to the county agent fund that riches has wings. Josephine is a regular savings bank. She's laid that away fur some purpose or other and it'll show up some day to help pay off a debt, or make a contribution to the church, or something. Anyhow, I didn't git to spend none of it. But the money done some good I'm goin' to see to it next year that every county agent in travelin' distance of Denver comes to that Stock Show. I'm goin' to take it up with the Stock Show association, and let them take it up with the counties and the college and see that county agents who has to keep posted on livestock. if anybody does, don't have to sneak away or apologize fur seein' the next to the biggest stock show in the world. How kin they help farmers pick out purebred bulls fur their herds, or advise 'em on which breeder has Shorthorns, which has Herefords, which has black cattle, which has Holsteins, Jerseys, etc. if they don't come to the annual clearin' house of the livestock industry? A week at the show is worth any farmer's time and money, as a educational help in his business, and with a county agent it's even more important, because he kin be eyes and ears fur a lot of farmers that cain't come to the show.

I couldn't keep up with farmin' if I didn't git around and see something. Dave Thomas sez to me: "How do you manage to git by as a expert in all them different lines? Today I seen you at the Shorthorn sale; yesterday you was a-helpin' Lord Ogilvie judge Herefords; the day before you was advisin' Hinman how to line-breed dairy Shorthorns; Monday you hung around the hog division, talkin' Durocs to Tingle."

"Well, Dave," I sez, "I work it by a regular system. When some feller comes up to me in the Shorthorn beef classes and asks how I'd place that thar bull if I was the judge I up and tell him my opinion, but I adds that it ain't final, because I'm more of a dairy cattle judge than beef cattle; and the next day when I'm lookin' over the hawgs and some feller tries to git me cornered, why I tell him that sheep is more to my likin', and so on. I'm never in two places at onct, and thar bein' so many different kinds of livestock, why I kin switch 'em offen the track without gittin caught."

Dave sez it's a wise system. Well, I got to do it self defense, because people that is used to seein' my pictur with them whiskers, has a right to expect that I really know a little somethin' and if I fall down on what they

(Turn to page 13)

A 4 YEAR CLEAN RECORD OF SERVICE ON FARMS

Waterloo Boy

Original Kerosene Tractor

Uniformly solid construction, without any "weak spots" to cause trouble and costly delays—the tractor in which every part is built with scrupulous care to fully sustain its share of the strain in a hard day's work—the tractor of demonstrated working adaptability and capacity, of low operating cost, easy control, complete accessibility, trouble-proof ignition, smooth, even power—lasting service. These and other features make the Waterloo Boy

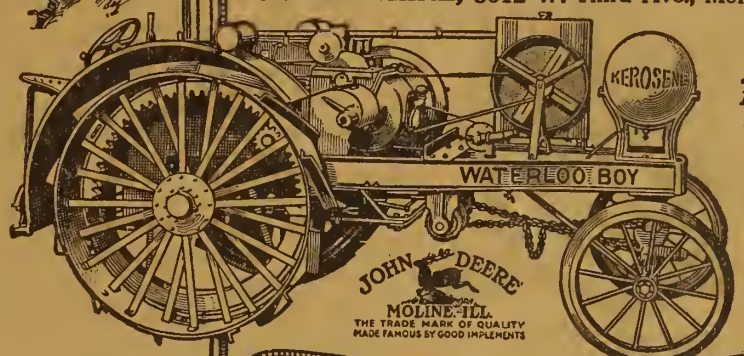
The Tractor of Steadily Growing Popularity

Owners of Waterloo Boy Tractors are their strongest boosters. George M. Breeding, of Milford, Ill., writes:

"Your tractor has given the best satisfaction. I plowed seventy acres of ground in eight days, with a 3-bottom John Deere Plow; did most of my discing with it, pulling two 18-inch wheel discs at all times. $2.00 a day pays for all fuel and lubrication, when doing a full day's work—on light work it is much less. I consider it a very economical machine. The service given by your distributors has been satisfactory at all times."

Let us send you illustrated catalog showing many points of Waterloo Boy advantages, and illustrations of the tractor at work in the fields of many owners.

JOHN DEERE, 5612 W. Third Ave., Moline, Ill.



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Prevents and destroys worms; aids digestion; saves 25% of feed; supplies necessary mineral matter.

CAREY-IZED STOCK TONIC Brick Or Block

Keeps stomach, bowels, liver and kidneys in order; keeps animals in prime condition to resist disease.

We make no claims for Carey-ized Stock Tonic Brick or Block which are not borne out by our own positive knowledge and by the experience of practical stock raisers. We guarantee satisfactory results in every case if fed as directed.

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Order 12 bricks or a 50-lb. block from your grocer, general store, druggist, feed or hardware dealer. If he can not supply you send us his name and we will send him for you 12 bricks (35 lbs.) at $2.50 f. o. b. Hutchinson, or a 50-lb. block $3.00. Or, if you prefer, send us the amount and we will supply you direct, freight charges collect. If at the end of 60 days feeding according to directions you are not entirely satisfied, return what you have left and we will refund all your money, including carrying charges. Our guarantee is good. Ask your banker.

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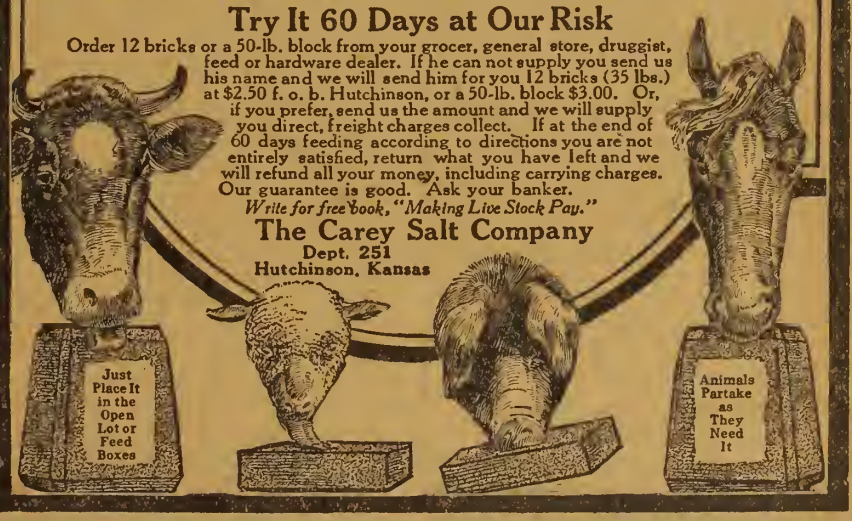

THE HINMAN HOLLOW TILE SILO

THE HINMAN SILO DENVER

We have built over 800 silos.

We have time-proved material, experienced labor, and we guarantee our work.

Better than any other guarantee, however, is our six years' record of fair dealing, and the satisfaction of our customers.

This is the kind of service and the kind of silo you want. Write us for prices.

THE HINMAN SILO CO., Stockyards, Denver, Colo.

Test Clean Treat

COLORADO BETTER SEED CAMPAIGN

The Agricultural college last fall launched a campaign for better seed that promises to save the farmers of the state a million dollars in 1919. The Department of Botany which has supervision of the pure seed law, is in charge. Many farmers have signed the better seed pledge. It is not necessary to sign to take part in this money-saving movement. All a farmer needs to do is to TEST, CLEAN and TREAT his seed. It will pay. The campaign is being taken up as a farm bureau project in many counties. It is being urged on the rural schools, where there may be facilities for seed testing for the surrounding farms. The state seed laboratory at Fort Collins makes tests free of charge for Colorado farmers. Write to W. W. Robbins, botanist, care Agricultural College, for particulars.

Test your own seeds. It is not a complicated process. All Colorado county agents have been supplied with blotter testers, or rag doll testers for free distribution. Why TEST, CLEAN and TREAT?

Let us suppose that you have selected a desirable strain of a particular crop—one that is adapted to your local soil and climatic conditions, one that yields high, and one that produces a marketable product. Before that seed is placed in the ground it should be:

1. Tested, in order to determine (a) its germinating power, and (b) its physical purity, that is, freedom from weed seeds, adulterants, sticks, gravel, dirt, and other inert matter.

2. Cleaned, in order to remove weed seeds, adulterants, sticks, gravel, dirt and other inert matter. A fanning mill on the farm will pay for itself in increased yields in one or two years. The purity test made above will determine whether the seed needs cleaning and if so, just what method of cleaning will give the best results.

3. Treated, in order to destroy dieases carried by the seed. Seed treatment is inexpensive. It is the cheapest sort of insurance. The small cereals should be regularly treated before planting.

Make TESTING, CLEANING and TREATING a part of your regular farm operations. Place seed in the ground that will germinate, that is free of weed seeds, and that is free of disease.

This is the time for seed testing. Cleaning and treating come next. If in doubt on any point write for advice to Western Farm Life Service Bureau, or to your college. A three-cent stamp will bring you simple methods of procedure that may add a thousand dollars to your income in 1919.

Cereal smuts cost Colorado farmers $2,783,656 in 1918. Stop the leak. Watch for further particulars in later issues. TEST, CLEAN, TREAT.

FOOD PRODUCTION MUST BE INCREASED

The horse is a vital factor in such accomplishment. His efficiency is measured by the degree of fitness for constant use.

Stuffed Collar Pads

Are the only guarantee against bruised, galled and chafed shoulders. They are better than other kinds, being soft, springy and absorbent. They make possible the continued use of a horse collar long after its worn condition would otherwise compel its discontinuance.

New Patented Hook Attachment

(Found only on pads made by us)

Consists of wire staple with felt washer. It gives hook a firmer hold and prevents pulling off, even though fabric is weakened by long usage. The greatest improvement since we invented the hook. Ask your dealer for Tapatco Booklet.

Thirty-Seven Years Making Pads
Look For the Felt Washer

SOLD BY DEALERS EVERYWHERE

The American Pad & Textile Co.,
Greenfield, Ohio
Canadian Branch: Chatham, Ontario

The FAMOUS WATER ELEVATOR for IRRIGATION

OUR elevators are sold under a positive guarantee that they will handle water with 50 to 60 per cent less power than any pumping system on the market.

We challenge any manufacturer of pumps to equal the performance of the "FAMOUS" Water Elevator.

Manufactured in Sizes from 250 to 1200 Gallons per minute on elevations up to 100 feet.

WRITE FOR CATALOGUE

The System of No Regrets
Famous Water Elevator Co., 1416 Stout Street DENVER, COLO.

It Was a Big Hog Show

There has been no hog show in the intermountain country to compare with the exhibition of 1919 at the National Western in number of entries and quality. That Colorado, especially, had made immense strides during the year was apparent not only by the increased size of the show, but by the interest in hogs manifested by farmer visitors. Duroc Jerseys continue to hold the lead, but the Poland China entries were a close second, there being 234 Durocs and 230 Polands in the show.

The Colorado Duroc breeders found themselves confronted by the hottest sort of competition from outside states, among them Crow & Fear of Hutchinson, Kans. They succeeded in capturing the grand championship on sow, but the highest honors on boar remain in the state, J. W. Brauer of the Ivywild farm, Colorado Springs, being the winner. Following are the awards in the Duroc Jersey breed:

Senior Champion Boar—J. W. Brauer, Colorado Springs.

Junior Champion Boar—Caldwell Martin, Littleton, Colo.

Grand Champion Boar—J. W. Brauer.

Reserve Champion Boar—Colorado Agricultural College.

Senior Champion Sow—Crow & Fear, Hutchinson, Kans.

Junior Champion Sow—University of Nebraska Farm.

Grand Champion Sow—Crow & Fear.

Reserve Champion Sow—Caldwell Martin.

Class 33—Duroc Jersey boar, 2 years old or over: First, Blue Ribbon Livestock Co., Pueblo, Colo.; second, Caldwell Martin, Littleton, Colo.; third, Plain View Hog Ranch, Milliken, Colo.

Class 34—Duroc-Jersey senior yearling boar: First, J. W. Brauer, Colorado Springs, Colo.; second, Caldwell Martin, Littleton, Colo.; third, Crow & Fear, Hutchinson, Kans.; fourth, Fred J. Barnes, Fort Collins, Colo.; fifth, Blue Ribbon Livestock Co., Pueblo, Colo.

Class 35—Duroc-Jersey junior yearling boar: First, Colo. Agr. College, Fort Collins, Colo.; second, Crow & Fear, Hutchinson, Kans.; third, R. C. Van Scoy, Denver, Colo.; fourth, A. M. McClenahan, Greeley, Colo.; fifth, Blue Ribbon Livestock Co., Pueblo, Colo.

Class 36—Duroc-Jersey senior boar pig: First, Colo. Agr. College, Fort Collins, Colo.; second, Caldwell Martin, Littleton, Colo.; third, Montair Farm, Fort Collins, Colo.; fourth, Blue Ribbon Livestock Co., Pueblo, Colo.; fifth, J. W. Brauer, Colorado Springs, Colo.; sixth, Colo. Agr. College, Fort Collins, Colo.; seventh, Crow & Fear, Hutchinson, Kans.

Class 37—Duroc-Jersey junior boar pig: First, Caldwell Martin, Littleton; second, Colo. Agr. College, Fort Collins; third, Caldwell Martin, Littleton; fourth, fifth, sixth, Colo. Agr. College, Fort Collins; seventh, Montair Farm, Fort Collins.

Class 38—Duroc-Jersey sow, 2 years old or

(Turn to page 13)

Service For the Rural Dweller

The last score of years has wrought some mighty changes in the life of the rural dweller.

Twenty years ago the work of the farm required great physical strength and endurance. Farm implements were crude and the work was slow, making long hours necessary in order to complete required tasks within each proper season.

Within that period, however, a revolution has taken place in machinery and in methods. With the tractor, the modern planters, harvesters, loaders, threshers, etc., the farmer now does in one day of eight or ten hours many times more than was formerly accomplished in several days of sixteen hours.

Added to these improvements the latter years have brought many conveniences, comforts and pleasures to the farm home, such as electric power and lights, the phonograph, daily mail delivery and the telephone.

Of all the inventions that have contributed to the efficiency of the farmer and to the pleasure and contentment of his family, the telephone stands out pre-eminently. It has placed him in instant and continuous communication with his farthest neighbors, his markets, the seat of his county government, his state capital, and has promoted the social, religious and political activities of his community.

To give a continuous, dependable telephone service to rural communities we must have a continuance of the splendid co-operation which has developed among the rural subscribers during the strenuous conditions imposed by the war. We recognize our obligations in this respect and with the co-operation of rural subscribers we will serve them well.

THE MOUNTAIN STATES TELEPHONE AND TELEGRAPH COMPANY

Livestock Field Notes

On March 10 Bradley Brothers, Warrensburg, Missouri, will offer at public sale 40 jacks and a few jennets. Those of our readers who are interested in securing big-boned animals with weight will without question find what they want offered at this sale. Bradley Bros. have just issued illustrated catalog giving detailed description of their offerings which they will be pleased to send to any reader of Western Farm Life interested. See their sales announcement in this issue of Western Farm Life.

The Animal Husbandry Department of Colorado Agricultural College made a fine showing, taking eleven championships or reserve championships and nineteen first premiums, and being in the money in many classes in beef cattle, dairy cattle, hogs and sheep. That the college herds have quality is evident from a glance at the following table, showing number of animals in the various classes and premiums:

Breed—	Number of Animals Shown	Number of Premiums Won
Duroc Jersey....	21	21
Poland China....	13	6
Shorthorns	4	11
Hereford	5	1
Holstein-Friesian	3	5
Jersey	4	10
Shropshire	4	6
Hampshire	4	0
Cotswold	4	7
Rambouillet	5	4

Among the exhibits of registered hogs at the Denver show few are attracting more attention than that of George E. Morton & Sons of Fort Collins, known as the Montair Farms herd. The proprietor of this farm is Prof. George E. Morton of the Animal Husbandry Department of the Colorado Agricultural College at Fort Collins. Prof. Morton has two young sons, 11 and 13 years of age, who are much interested in hog raising and these sons make up the rest of the firm of Geo. E. Morton & Sons. Prof. Morton gave them a young hog a few months ago to fit for the show, and so well did they do their work that they won seventh prize in a class of fifty-three, which is going some and proves that the sons are worthy successors of their father when it comes to handling live stock.

The Montair Farms herd has won many prizes at the show and Prof. Morton is well pleased with the showing made.—Record-Stockman.

At the recent National Western show Fulscher & Kepler of Holyoke, Colo., won first and second on junior bull calves in the National, the American and the Western classification, on the get of Prince Domino, these calves being from Beau Aster dams. In the junior heifer class they won first on Princess Domino, her dam being a Beau Aster cow, third on Marion Domino, and fourth on Duchess Aster by Beau Aster, in the National, the American and the Western, and grand championship both on bull calf and heifer calf in the Western Futurity. These winnings and others by western breeders called forth the comment of The Breeder's Gazette, from which we quote as follows: "How the comparatively new breeders have attained such uniformity, types so acceptable, coats so mossy, and so excellent a flesh covering, was keenly discussed and many a man left Denver thoroughly convinced that he had been in the heart of one of America's greatest Hereford producing centers."

It Was a Big Hog Show

(Continued from page 12)

over: First, Caldwell Martin, Littleton; second, third and fourth, Crow & Fear, Hutchinson, Kan.; fiftb, Caldwell Martin, Littleton.

Class 39—Duroc-Jersey senior yearling sow: First and second, Crow & Fear, Hutchinson, Kan.; third and fourth, Caldwell Martin, Littleton; fifth, Colo. Agr. College, Fort Collins.

Class 40—Duroc-Jersey junior yearling sow: First, Colo. Agr. College; second, J. W. Brauer, Colorado Springs; third, Colo. Agr. College, Fort Collins; fourth, Crow & Fear, Hutchinson, Kan.; fifth, University of Nebraska, Lincoln.

Class 41—Duroc-Jersey senior sow pig: First, University of Nebraska, Lincoln, Neb.; second, Crow & Fear, Hutchinson, Kan.; third, Blue Ribbon Livestock Co., Pueblo; fourth, Caldwell Martin, Littleton; fiftb, Colo. Agr. College, Fort Collins; sixth, Fairlea Farms, Englewood; seventb, Crow & Fear, Hutchinson, Kan.

I AM A PATHFINDER

Grand Champion Duroc Boar of the 1919 Show, from famous El Paso herd of J. W. Brauer at Colorado Springs. An exceptional individual of the type favorsd by ths best bresdsrs and popular with the judges.

Class 42—Duroc-Jersey junior sow pig: First, Caldwell Martin, Littleton; second, August F. Borgman, Longmont; third, Colo. Agr. College, Fort Collins; fourth, Caldwell Martin, Littleton; fifth, AugustF. Borgman, Longmont; sixth, Crow & Fear, Hutchinson, Kas.; seventh, Colo. Agr. College, Fort Collins.

Class 43—Old herd Duroc-Jersey: First, Crow & Fear, Hutchinson, Kan.; second, Colo. Agr. College, Fort Collins, Colo.; third, J. W. Brauer, Colorado Springs, Colo.; fourth, Caldwell Martin, Littleton, Colo.; fifth, Crow & Fear, Hutchinson, Kan.

Class 44—Duroc-Jersey, old herd, bred by exhibitor: First, Colo. Agr. College, Fort Collins, Colo.; second, Crow & Fear, Hutchinson, Kan.; third, Blue Ribbon Livestock Co., Pueblo, Colo.; fourth, Crow & Fear, Hutchinson, Kans.; fifth, Caldwell Martin, Littleton, Colo.

Class 45—Duroc-Jersey young herd: First, Caldwell Martin, second, Colo. Agr. College; third, Crow & Fear, Hutchinson, Kan.; fourth, Blue Ribbon Livestock Co., Pueblo, Colo.; fifth, Fairlea Farms, Englewood, Colo.

Class 46—Duroc-Jersey young herd by exhibitor: First, Caldwell Martin, Littleton, Colo.; second, Colo. Agr. College, Fort Collins, Colo.; third, Crow & Fear, Hutchinson, Kan.; fourtb, Fairlea Farm, Englewood, Colo.; fifth, Blue Ribbon Livestock Co., Puehlo, Colo.

Class 47—Duroc-Jersey get of sire: First, Crow & Fear; second, Colo. Agr. College, Fort Collins, Colo.; third, Caldwell Martin, Littleton, Colo.

Class 48—Duroc-Jersey produce of dam: First, Crow & Fear, Hutchinson, Kan.; second, Colo. Agr. College, Fort Collins, Colo.; third, Caldwell Martin, Littleton, Colo.

Best four pigs, produce of one sow (Cottrell Clothing Co. Special), shown by a Colorado or Wyoming exhibitor. Won by Colo. Agr. College.

The Berkshires

In Berkshires there was no competition, for C. W. Henry, the well-known Greeley breeder who swept the slate clean on prizes, with exhibits in every one of the sixteen classes.

Poland Chinas

The Poland China competition was sharp and there were a number of new exhibitors, with western Nebraska coming up strong, as usual. Awards in that breed were as follows:

Senior Champion Boar, Poland-China: First, Thompson Bros., Indianola, Neb.

Junior Champion Boar, Poland-China: First, Eleck Baldwin, Dickens, Neb.

Durbin Lady, Grand Champion Poland-China Sow, Owned by Deming Ranch, Oswsgo, Kan.

Grand Champion Boar, Poland-China: First, Thompson Bros.

Reserve Champion Boar, Poland-China: First, J. R. Davidson, Longmont, Colo.

Senior Champion Sow. Won by R. D. Deming, Oswego, Kan.

Junior Champion Sow, Poland-China. Won by L. G. Davis, Denver, Colo.

Grand Champion Sow, Poland-Cbina. Won by R. D. Deming.

Reserve Champion, Poland-China. Won by R. D. Deming.

Class 17—Poland-China hoar, 2 years old and over: First, Thompson Bros., Indianola, Neb.; second, F. E. Commons & Son, Yuma, Colo.; tbird, R. D. Deming, Oswego, Kan.

Class 18—Poland-China senior yearling hoar: First, J. A. Davidson, Longmont, Colo.; second, I. L. Mathison, Fort Morgan, Colo.; third, R. O. Deming, Oswego, Kan.

Class 19—Poland-China junior yearling boar: First, R. O. Deming, Oswego, Kan.; second, R. O. Deming, Oswego, Kan.; third, Colo. Agr. College, Fort Collins, Colo.

Class 20—Poland-China senior boar pig: First, Plain View Hog Ranch, Milliken, Colo.; second, Thompson Bros., Indianola; third, C. R. Broad, Golden, Colo.

Class 21—Poland-China junior hoar pig: First, Eleck Baldwin, Dickens, Neb.; second, University of Nebraska, Lincoln, Neb.; tbird, Colo. Agr. College, Fort Collins Colo.

Class 22—Poland-China sow, 2 years old and over: First, R. O. Deming, Oswego, Kan.; second, A. J. Erhart & Sons, Ness City, Kan.; third, A. J. Erhart & Sons.

Class 23—Poland-China senior yearling: Second, R. O. Deming; third, A. J. Erhart & Sons, Ness City, Kan.

Class 24—Poland-China junior yearling sow: First, R. O. Deming; second, R. O. Deming.

Class 25—Poland-China senior sow pig: First, L. G. Davis, Denver; second, J. A. Davidson, Longmont, Colo.; third, S. McKelvie & Sons, Fairfield, Neb.

Class 26—Poland-China junior sow pig: First, Colo. Agr. College, Fort Collins, Colo.; second, Eleck Baldwin, Dickens, Neb.; third, A. J. Erhart & Sons, Ness City, Kan.

Class 27—Old herd, Poland-China: First, R. O. Deming; second, R. O. Deming; third, A. J. Erhart & Sons, Ness City, Kan.

Class 28—Poland-China old herd hred hy exhibitor: First, R. O. Deming; second, R. O. Deming; third, A. J. Erhart & Sons.

Class 29—Poland-China young herd: First, Colo. Agr. College, Fort Collins; second, J. A. Davidson, Longmont, Colo.; third, Thompson Bros.

Class 30—Poland-China herd bred hy exhibitor: First, Colo. Agr. College; second, Thompson Bros.; tbird, R. O. Deming.

Class 31—Poland-China, get of sire: First, R. O. Deming; second, R. O. Deming; third, A. J. Erhart & Sons.

Class 32—Poland-China, produce of dam: First, R. O. Deming; second, R. O. Deming; third, Colo. Agr. College.

The Hampshires

In Hampshires the contenders were C. S. Bratt & Son, Arapahoe Neb.;

Colorado Gove, 900-lb. Poland-China Boar, Ownsd by F. E. Commons & Son, Yuma, Colo.

W. V. Harvey, Culbertson, Neb., and the University of Nebraska. Bratt captured grand champion boar, grand champion sow, senior, junior and reserve champion on boar, grand champion sow, senior champion sow. Harvey won the junior and reserve champion sow. The University of Nebraska divided honors with these two breeders in most of the classes.

Comment by Farmer Putnam

(Continued from page 11)

ask me they go away with a kind of a suspicion that maybe I do know somethin' about poultry, or corn, or dairy cows. That's why I allus hide out when the farmers has a convention; I'm afraid they might git me up on the platform and begin to ask questions, and then I'd blow up.

I was goin' to write about the Stock Show, but what's the use, everybody was thar (exceptin' a few of the county agents).

THOMAS JEFFERSON PUTNAM.

Carl Vrooman, assistant secretary of agriculture, who accompanied the agricultural commission sent by the department to Europe, has tendered his resignation, which has been accepted by the president. Mr. Vrooman has not been in very good health for some time and desired to be relieved of his duties, so that he might remain abroad until he fully recovered.

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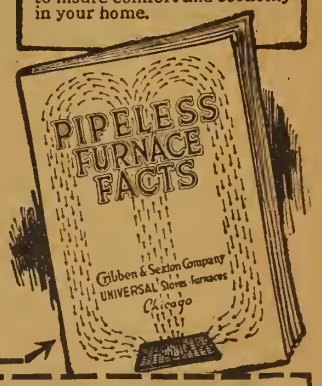

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Please Sign Your Name

Subscribers making use of this service are again urged to comply with a necessary condition, that of signing full name and address to each inquiry, so that same may be answered by letter. Every inquiry is answered by letter and only those are published which may be of general interest. Requests to omit answers from publication are complied with. Because of the great number of letters received by this department there is sometimes a delay of two or three months before answers, which can always be promptly mailed, can possibly reach this column for publication. Please give us a chance to answer by letter and save yourself unnecessary delay, which occurs when a subscriber omits name and address.

Public or Private Road?

Answer to A. K., Colorado:

Regarding road crossing your land, we have the following from Mr. T. J. Ehrhart, State Highway Commissioner:

"In his communication he does not say whether this is a county road or a private road to accommodate a neighbor. In my opinion, if it is a public highway, so declared by the county commissioners and used for that length of time, it cannot be changed without procedure for a petition, etc., before the board of county commissioners. If it is a private road for the accommodation of private parties, I believe that all that would be necessary is to give the parties interested some other outlet to the main road."

Poisoning Ground Squirrels

Answer to J. W., Idaho:

Formula for the destruction of ground squirrels. The following is used with good effect:

Whole corn	16 quarts
Strychnine (alkaloid powdered)	1 ounce
Saccarine	1 teaspoonful
Flour	¾ pint
Salt	1 pint
Water	1 quart

Directions for Mixing.—Dissolve the saccharine and strychnine in the amount of water called for in the formula, add the flour and salt, mix thoroughly with an egg beater, put over fire, and heat until the flour begins to thicken, stirring constantly. Pour the poisoned solution over the grain, thoroughly mix until each grain is evenly coated, spread, and dry. Follow the directions carefully. The success of the use of this formula depends upon the careful preparation of the poisoned solution and the thorough coating of the grain. Three or four kernels are sufficient for each burrow, and experiments made in the laboratory show that one or two kernels of corn treated with this formula will kill a squirrel.

Liability on Safety Deposit Vaults

Answer to R. W. P., El Paso county, Colo.:

Regarding the extent to which a bank is liable in case of loss of valuables in a safety deposit box, Mr. Grant McFerson, State Bank Commissioner, replies as follows: "We are not in position to make an absolute statement in regard to a circumstance of a nature mentioned in your letter, but I have always been under the impression that providing the bank is using due diligence in protecting property so held, especially wherein papers were in steel vaults properly protected, that the bank would not be held absolutely responsible for loss of valuables in case of burglary or other means of destruction. In general, banks are now issuing a receipt for fees paid for rental of safety boxes which states their liability."

Sweet Clover at 7,500 Feet

Answer to T. B., Custer county, Colo.:

Yes, white sweet clover would be an excellent crop for you at an altitude of 7,500 feet. I judge from your letter your land has not been broken, so would suggest that you break it with a moldboard plow, set deep enough to turn everything under. Harrow well, the same way you plow. White sweet clover can be sown broadcast. If you broadcast it, sow half of your seed north and south and half east and west, so as to get a more even stand. I don't recommend broadcasting anything. I prefer to use a drill; a double disc, press wheel, the kind called low-down. Press drills put the seed in at the proper depth, in properly prepared ground, compacting the moist soil around the seed, thus keeping the soil from drying out. Seed thus put in starts quicker than when broadcasted, and then, a man knows just how much seed he is using, which is important, as good seed costs money, and it does not pay to use poor seed. If you can get your land in condition, sow it early in the spring using hulled seed. If you should not be able to get to it this spring, then early in the fall will do, using unhulled seed if you sow in fall. Sowing unhulled seed broadcast on the early snow in fall might get results, but it would be better drilled in before the first snow. White sweet clover roots will help prevent soil washing on slopes. —Dr. V. T. Cooke.

Stock Running at Large

Answer to G. A. G., Phillips county, Colo.:

In order to protect yourself against damage by stock running at large, it is necessary for you to have a lawful fence. The law provides that where a road or lane is fenced on both sides with a lawful fence animals are not permitted to run at large or graze in such roads. If you have a lawful fence and stock break through, you have the right to take up such stock and hold it for any damage inflicted. Such damage can be determined by a board of three arbitrators, the party damaged selecting one, the owner of the animal or animals selecting a second, and the two arbitrators thus chosen selecting a third. Any person taking up stock must give notice within five days after taking it up to the owner or person in charge of such animals. If the owner is not known or cannot be found, then the taker-up shall publish within one week in a paper published nearest the place where the damage occurred, giving full description of such animal or animals including all marks and brands. If after that the owner cannot be located within ten days, then the taker-up shall notify the state

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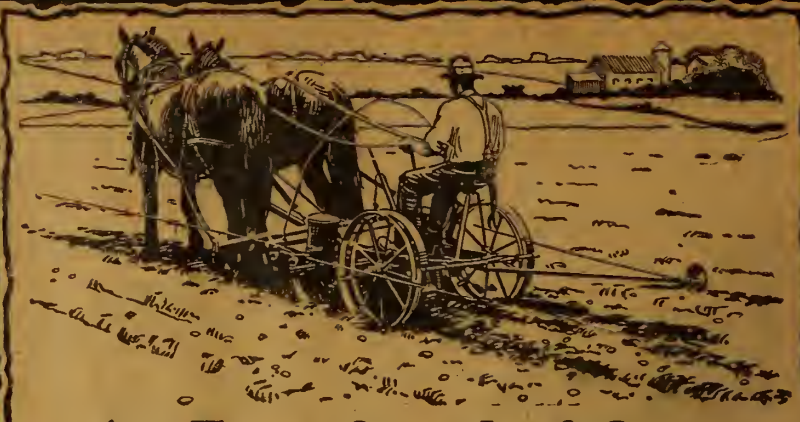

An Even Stand of Corn

GIVE your corn crop a good early start when you want an even stand. It takes a good planter to give it that start, a **C. B. & Q.** or **International Corn Planter** that is easily adjusted and that stays adjusted until the job is done. Consider these planters feature by feature.

They plant corn accurately whether used with edge drop, flat drop, or full hill drop plates; whether the corn is checked or drilled. The drop clutch can be changed, while the planter is working, to drop 2, 3, or 4 kernels to a hill. The tongue is easily adjustable to the height of the horses. A handy foot drop lever makes head-row planting easy.

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Name is..... **R. F. D.**.....

Town..... **State**.....

board of stock inspection, Capitol building, Denver, and he will be informed as to the next method of procedure. In regard to horses which you say have been running at large all winter and are not branded: You cannot take these horses up unless they break through your fences and damage your crops. However, if they are running in roads fenced on both sides by lawful fence then you should make complaint to the county authorities for violation of the state fence law.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Sterility of Cows

Will you please tell me if Irish potatoeos or pine needles will cause a mare to lose her foal? I have a Belgian mare 4 years old which lost her colt the 20th. It was about 4 months before her time. This is her first one. Have worked her steady. Fed her some potatoes with alfalfa hay. Have noticed her eating pine boughs when turned out. Also have two cows that won't become pergnant., Have been fresh nearly two years and giving milk yet. Have had different bulls with them at different times. They don't show any eigns of being in heat. Could there be anything done to them to make them get with calf?—E. C. H., La Plata county, Colo.

Both the Irish potatoes and pine needles might cause a mare to abort, but it is not probable that animals will eat enough of either to cause trouble. If the potatoes were of poor quality, they would be more apt to cause disturbances. The question of sterility is just now becoming more thoroughly understood. The first essential to treatment is an exact knowledge of the condition and this requires an examination by some on skilled in the work. Sterility may be due to a number of different causes, most common of which are cystic ovaries, retained corpusluteum and accumulation of pus in the uterus. Treatment, of course, varies in each case, and it is impossible to give you any directions for the handling of the animals in question without knowing the actual condition present. If it is possible, you should have the cows examined by a skilled veterinarian who can then prescribe treatment or recommend slaughter as seems advisable.—Dr. I. E. Newsom.

Case of Chronic Founder

Answer to C. H., Idaho:

This is apparently a case of chronic laminitis or founder. Chronic founder may develop from an acute form or may gradually appear as the result of mild but persistent irritation. The irritation may result from driving on hard roads, or city pavements. Improper shoeing, and leaving the shoes on too long, constitute the most prolific source of chronic founder. Farm horses generally should not be kept shod while working in the fields. Shoeing of horses has become something of a habit and sometimes a bad habit. The only farm horses that need shoeing are those that have crippled feet, that are kept much on the road, or that have weak, badly formed feet. A man who is training for a season behind home-base, bats and catches the ball with his bare hands, and knows that he would never get his hands in condition while wearing gloves. It is also surprising how tough the hoofs of horses become when they are conditioned by moderate work on the hard roads and without shoes. Before shoeing your horses, satisfy yourself that it is quite necessary. The horse in question is probably too far gone to be saved. It is now a question of getting as much service out of him as possible while he lasts. To this end it will probably be necessary to keep him shod and to keep the soles and hoof walls softened by application of oils of different kinds. Turpentine, pine tar, beeswax and fish oil constitutes a popular mixture to apply to the hoof walls and sole twice a day.—G. H. G.

General Debility

Answer to A. R., Las Animas county, Colo:

I have read your letter very carefully but am unable to get much of a comprehension of the case. The fact that she is very weak, falls down, and has a cough, is enough to indicate that her condition is probably serious. Not knowing the nature of the disease I am, of course, unable to suggest a particular treatment. I could only make the wildest kind of a guess. This would put you to expense for medicines and with a small chance of the mare being benefited. In a general way, suppose you try letting the mare rest for a while. Have her teeth examined to see if she is able to masticate her food. Mix a tablespoonful of Fowlers Solution of Arsenic with her grain twice a day. Give the arsenic as a tonic for two weeks and report results.—G. H. G.

Now that the German submarines have all been turned over to the Allies, the English farmers would better give up their notion of raising enough grain to feed their own country. We can do it cheaper than they.—Wallace's Farmer.

Milking Contest Results

In a three days' milking contest at the Stock Show, in which three Holsteins and one Milking Shorthorn were entered, the Holsteins led in total milk produced. A Holstein was first in butterfat production, the Milking Shorthorn second, and the latter easily won on feed cost per pound of butterfat. Following is the official report of the contest:

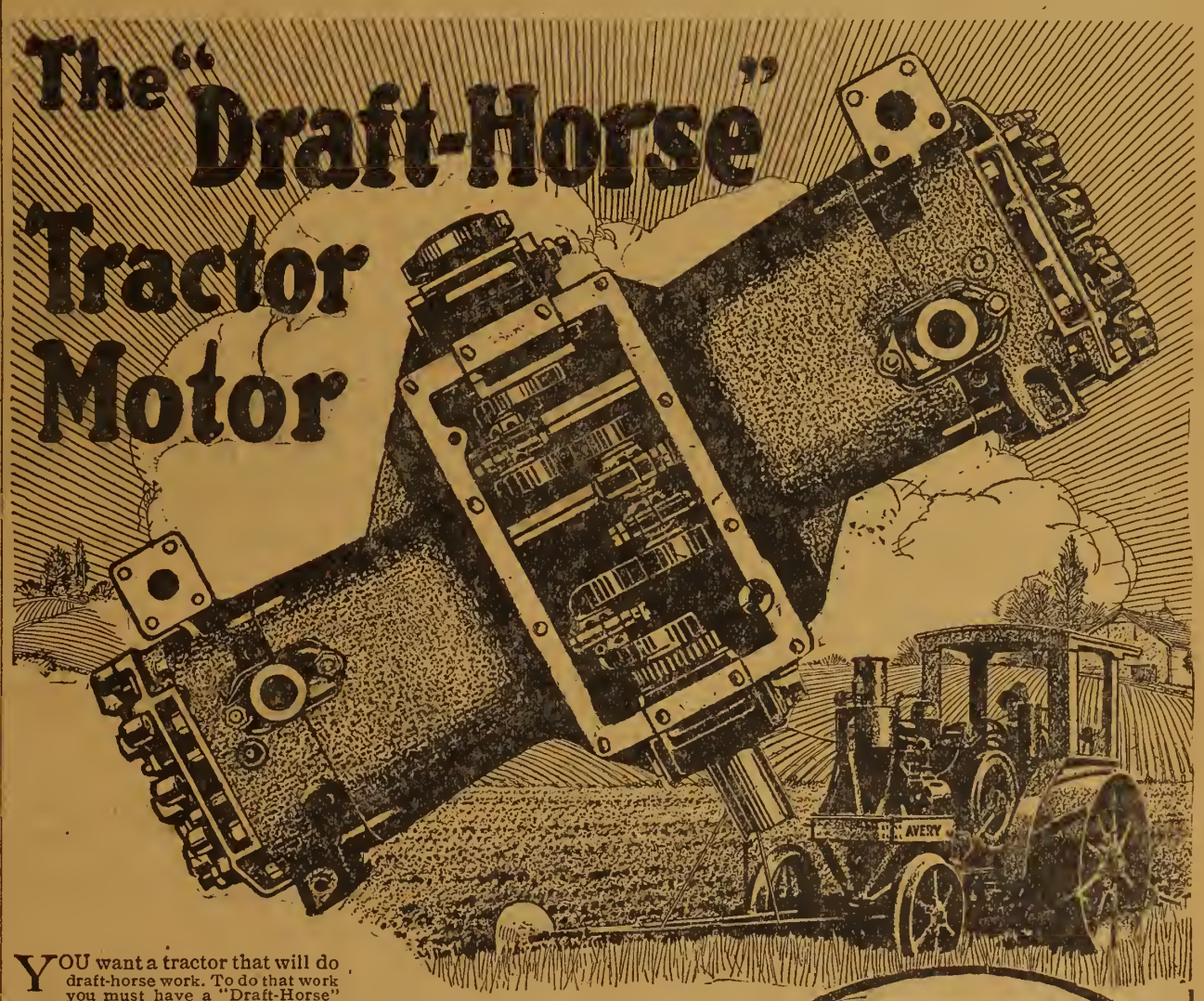
Overbrook Ury 3d, Milking Shorthorn, Owned by Bonvue Farms, Denver. Winner on Butterfat Production Cost

Name	Breed	Milk	Butter Fat lbs.	Feed Cost per lb. Butter Fat
Ismay Belle De Kol No. 305349	Holstein	186.6 2nd	5.138	43.4c
Ozark Peggy Mercedes No. 218028	Holstein	230.3 1st	7.013 1st	32.3c 2nd
Wisconsin Star Champion De Kol	Holsteln	166.2	5.057	43.1c
Overbrook Ury 3rd No. 93655	Shorthorn	123.2	5.217 2nd	23.9c 1st

The first two Holsteins are owned by B. F. Simpson, the third on the list by L. C. Donley. The Milking Shorthorn was shown by the Pine Valley Dairy & Farms Company of Colorado Springs, but was purchased by the Bonvue Farms Company of Denver, on the opening day of the show and has been placed by them on Record of Merit test. This company already has ten cows on official test.

Beware of Bleached Oats

In the purchase and selection of oats for seed, farmers are warned by specialists of the United States Department of Agriculture to be careful of grain that has been bleached by the sulphur process. This process is now used extensively by commercial grain dealers to give oats of inferior quality a bright, clean appearance. In experiments conducted by the specialists, a report of which is contained in Bulletin 725, just issued by the department, it was found that in nearly every sample of sulphur bleached oats there was a great reduction in the germinating power. The largest reduction was in a sample which germinated 97.5 per cent before treating and 9.5 per cent after treating, or a total reduction in germination of 88 per cent caused by sulphuring.



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The Avery Motor is of the Opposed Type. We selected the opposed type of motor over the twin-cylinder and the four-cylinder automobile type because: its length distributes the weight better between the front and rear wheels; its narrower width makes possible a shorter crankshaft with only two bearings; it runs at a lower speed and hence requires less gears in the transmission, and makes possible a "direct drive" in high, low, reverse and in the belt.

We build the Avery motor with the heaviest crankshaft in any tractor motor, practically unbreakable. Five-ring pistons and valves in the head, which mean power and economy. Thermo-siphon cooling system and round radiator—no fan, pumps, belts, pulleys, etc.

We invented renewable inner cylinder walls, gasifiers that turn kerosene or distillate into gas and burns it all, adjustable crankshaft boxes that take up the wear in the bearings instantly, and many other exclusive, protected Avery features.

The Avery Perfected Opposed "Draft-Horse" Motor is built especially for heavy-duty traction and belt work. It is made in our own *special* Motor Factory and *only* for Avery Tractors.

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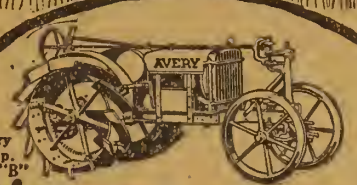
telling about Avery Tractors, Motor Cultivators, Plows and Threshers. Also ask for the Avery Free Tractor Correspondence Course and the Avery Special Circular entitled "100 Questions and Answers to Tractor Troubles." See Samples at the Nearest Avery Dealer.



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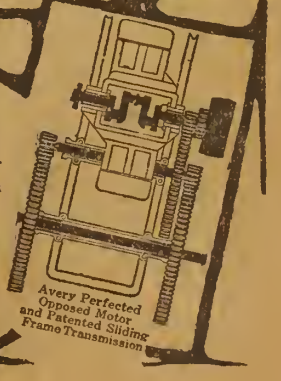

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Cloverleaf Lovely, Grand Champion Shorthorn Cow, Owned by Maxwell Miller Cattle Co., Steamboat Springs, Colo.

The Shorthorn Auction

Although the auction sale of Shorthorn breeding cattle did not take place until Friday of Stock Show week, when the crowd of buyers had begun to thin out, there was nevertheless a good demand for the splendid offerings. Some of the breeders were disappointed because bidding lacked spirit and a lot of extra choice bulls and heifers went for a song. However, these breeders have the satisfaction of knowing that their stuff has gone into the hands of good livestock farmers who will continue to be buyers of registered stock from the Shorthorn herds of the West. Top figure was $1,075, paid by Allen Carnahan, the well-known Elbert breeder, for Types Choice Goods 692583, a red Cumberland bull out of the Saunders herd. Another good figure, $1,025, was paid by J. H. Neal of Moffat, Colo., for Count Valentine 572749, a roan bull from the famous herd of W. A. Forsythe of Greenwood, Mo. Following is a list of the seventy-four sales arranged according to the consignors:

The Allen Cattle Co., Colorado Springs, Colo—Bull, P. J. Erwin, Douglas, Wyo., $275; bull, Wm. H. Paul, Eastonville, Colo., $450; bull, E. B. Perkins, Kremmling, Colo., $425; bull, W. C. Swinehart, Brighton, Colo., $225; cow, Glenn Martin, Boulder, Colo., $400; cow G. W. Ball, Pierce, Colo., $375; cow, G. W. Ball, Pierce, Colo., $275.

Maxwell-Miller Cattle Co., Steamboat Springs, Colo.—Bull, H. W. Gossard, Aspen, Colo., $200; bull, Thos. Andrews, Cambridge, Neb., $375; cow, Frank Edwards, Tiffin, Ohio, $475.

D. Warnock & Sons, Loveland, Colo.—Bull, F. J. Evans, Eastonville, Colo., $750; cow, J. M. Stuart, Chicago, Ill., $375; cow, C. A. Hauf, Glendo, Wyo., $700; bull, Reno & Sons, Idaho Falls, Idaho, $375; imp. bull, Arthur Collings, Soda Springs, Idaho; $300.

Cornforth Live Stock Co., Elbert, Colo.—Bull, Geo. Dagne, Virginia Dale, Colo., $225; cow, The Otis Herd, Willoughby, Ohio., $400.

C. G. Gawthrop, Mancos, Colo.—Bull, R. G. Maxwell, Fort Collins, Colo., $675.

Porter & Co., Denver, Colo.—Cow, Wilson & Son, Lucerne, Colo., $475.

Chas. Plageman, Eckley, Colo.—Bull, C. A. Hauf, Glendo, Wyo., $200; bull, Harry C. Bishop, Fairplay, Colo., $245.

Alger C. Peterson, Elbert, Colo.—Bull, Harry C. Bishop, $160.

C. A. Melburn, Elbert, Colo.—Bull, Frank Irwin, Ogden, Utah, $200; bull, Jules Peterson, Elbert, Colo., $300; bull, C. A. Hauf, Glendo Wyo., $275; cow, Jules Peterson, Elbert, Colo., $275; cow, R. P. Mann, Berthoud, Colo., $250

Carr W. Pritchett, Steamboat Springs, Colo.—Bull, Harry C. Bishop, Fairplay, Colo., $190; bull, Harry C. Bishop, Fairplay, Colo., $275.

R. G. Maxwell & Sons, Fort Collins, Colo.—Bull, E. W. Patrick, Ogden, Utah, $235; bull, E. W. Patrick, Ogden, Utah, $235; bull, C. A. Hauf, Glendo, Wyo., $300.

A. C. Arnold, Orleans, Neb.—Cow, R. G. Mann, Berthoud, Colo., $275; cow, Wm. J. Hauf, Glendo, Wyo., $250.

James Brown, Dundee, Ill.—Bull, Clayton & Murnan, Eaton, Colo., $225.

M. H. Brown, Sharpsburg, Ill.—Bull, C. A. Saunders, Manilla, Iowa, $250.

Karl Dietsch, Broken Bow, Neb.—Bull, C. W. Johnson, Redcloud, Neb., $400; bull, Martin Hamilton, Bostwick, Neb., $275; cow, C. A. Hauf, $500; cow, Blank Bros. & Kleen, Franklin, Neb., $425; cow, C. A. Hauf, $750.

W. A. Forsythe & Sons, Greenwood, Mo.—Bull, Frank Reno & Sons, Idaho Falls, Idaho, $300; bull, E. W. Patrick, $350; bull, Frank Reno & Sons, $400; bull J. H. Neal, Moffat, Colo., $1,025; cow, Wm. J. Hauf, $350; cow, G. W. Ball, Pierce, Colo., $375; cow, G. W. Ball, Pierce, Colo., $375.

Geo. L. Foxton, Glendo, Wyo.—Cow, Geo. Dagne, Virginia Dale, Colo., $225; cow, Pine Valley Dairy Herd, Colorado Springs, Colo., $225.

J. H. Hamilton & Son, Guide Rock, Neb.—Bull, E. W. Patrick, $210.

C. A. Hauf, Glendo, Wyo.—Bull, Walter H. Duff, Craig, Colo., $725.

A. L. Klopping, Underwood, Iowa—Bull, Frank Reno & Sons, $600; cow, A. M. Mitchell, Denver, Colo., $225; cow, G. W. Ball, $200.

Lawson & Rees, Long Pine, Neb.—Bull, C. A. Hauf, $225; bull, Frank Wagner, Wisner, Neb., $300.

John McCord & Son, Palos Park, Ill.—Bull, E. W. Patrick, $150; bull, D. A. Lawlor, Paxton, Neb., $700; bull, W. A. Gutche, Rock Springs, Wyo., $350.

P. W. Olson, Cokeville, Wyo.—Bull, W. A. Gutche, Rock Springs, Wyo., $400.

W. E. Pritchard—Bull, Wm. Henn, Kansas City, Mo., $500.

Quealy Sheep & Live Stock Co., Cokeville, Wyo.—Bull, J. W. Hay, Rock Springs, Wyo., $300; bull, J. W. Hay, Rock Springs, Wyo., $450.

H. Rees & Sons, Pilger, Neb.—Bull, C. A. Hauf, $500.

C. A. Saunders & Sons, Manilla, Iowa—Bull, C. A. Hauf, $525; bull, Allen Carnahan, Elbert, Colo., $1,075; cow, C. A. Hauf, $475; bull, C. A. Hauf, $500.

J. M. Steward & Son, Red Cloud, Neb.—Bull, Frank Reno & Sons, $375; cow, Allen Carnahan, $400; bull, C. A. Hauf, $325.

J. G. Stuart—Bull, F. C. Irwin, Ogden, Utah, $325; bull, G. W. Ball, $475; bull, C. B. Harmon, Cowdery, Colo., $400.

Shorthorn Breeders Meet

The annual meeting of the Western Shorthorn Breeders' Association was held during Stock Show week. A. J. Cornforth of Elbert was re-elected president and Willard Warnock of Loveland was made secretary-treasurer of the association. The meeting was a very interesting one, being addressed by a number of Shorthorn authorities, among them Frank D. Tomson, editor of the Shorthorn in America; T. W. Harding of Chicago; O. M. Plummer, Portland, Ore.; Prof. W. R. Cochel of Manhattan, Kans.; L. A. Nares, Fresno, Cal.; Colonel C. M. Jones of Chicago; Will Johnson, Fort Wayne, Ind., and others. The Shorthorn men were enthusiastic over the show and future prospects for the breed in the mountain states.

Planning a Hen House

We are planning on building a new hen and turkey house. Could you send me plan for one? We have a south hill side and place to dig in the hill a little ways.—Mrs. E. C., Larimer county, Colo.

Under separate cover we are sending you some bulletins on poultry housing which I think will help you in your plans. Your intention to build in the side hill should furnish you the best conditions in the world if you are careful to make it impossible for the water to seep through the roof. If you would allow me to make one suggestion, it would be that you make the place rather deep from front to rear and, of course, that you have a south exposure.

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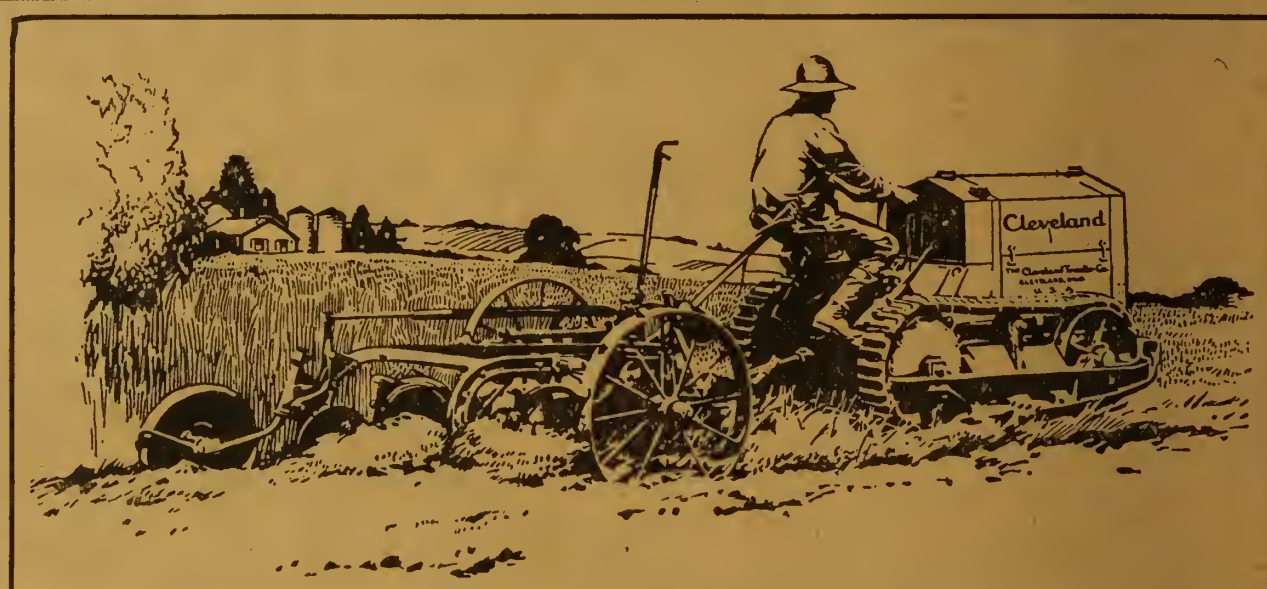

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In the important work of preparing the seed-bed, the Cleveland Tractor *does more than merely plow.*

Any tractor will plow.

But the Cleveland because of its track-laying construction travels *on top* of the soft plowed ground with harrow, seeder or other implements.

It does its work rapidly and economically *under conditions most difficult for the ordinary machine.*

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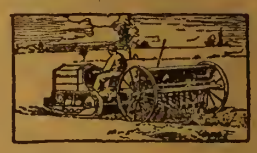
The Cleveland uses its power *to pull the implement*—not to pull *itself* out of the ground. That is one reason why it operates on so little fuel.

The Cleveland will pull a roller over your young wheat *without injuring the crop.*

It does the hauling, the manure spreading, the ensilage cutting, the stationary engine work and the hundred and one *other* things that every farmer expects a tractor to do.

And it does the work *better,* as well as faster than before.

Orders for spring delivery should be placed *now.* Write for booklet and name of nearest Cleveland dealer.



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A Fine Draft Horse Show

Colorado horse breeders were right up at the top in nearly all classes in the draft horse division at the National Western Stock Show. In the Percheron breed the string from Zang's Elmwood stock farm made a fine showing with 13 entries that captured championship on stallion and mare and were first in several other classes. C. V. Owens of Lucerne was awarded reserve championship on his mare Ona, Woods Bros. of Lincoln taking reserve championship on stallion.

In the French draft horse class the Jarosa ranch of Longmont made a clean sweep, besides being in the money on Clydesdales and Shires.

The Jarosa six-horse hitch again competed with Swift's team, the undefeated champions of the world in their line, and the Colorado team made a splendid showing in the arena. In no other show has the Swift six-horse hitch met as strong a rival for appearance as well as for ability at the reins.

Glendale Stock Farms, of Aspen, Colo., home of Irvindale Rowdy, the world-famous Belgian stallion, captured championship on stallion and championship and reserve championship on mare, and divided honors in all other classes of Belgians with Woods Bros. of Lincoln and Joseph Rousselle of Seward, Neb. There was lively interest in draft horses by farmers, who followed the judging as eagerly as they did in cattle, as the demand for heavy drafters is as active as ever.

The Colorado horse breeders formed a state association during show week for the purpose of securing more favorable legislation for the protection of the industry and for the general advancement of horses in quality and numbers on western farms and ranches. Officers were elected as follows: Adolph J. Zang, Denver, president; Lester Beveridge, Arapahoe, vice-president; Howard M. Jay, Longmont, secretary-treasurer. An executive committee was named, comprising the three officers and M. Sargent of Fort Morgan and W. H. Singer of Greeley. A committee was appointed to take up with the present legislature some needed amendments to the stallion law, and other legislation calculated to put horse breeding on a higher plane.

Following are the awards in the horse section:

Percheron

Champion Percheron Mare—Champion Betty, entry No. 51. Owned by A. J. Zang Inv. Co., Broomfield, Colo.

Reserve Champion Percheron Mare—Ona, entry No. 46. Owned by O. B. Owens, Lucerne, Colo.

Champion Percheron Stallion—Negro, entry No. 1. Owned by A. J. Zang Inv. Co., Broomfield, Colo.

Reserve Champion Percheron Stallion—Pierre, entry No. 15. Owned by Woods Bros., Lincoln, Neb.

Class 1—Percheron aged stallion: First, A. J. Zang Inv. Co.; second, Woods Bros. Co.,; third, Woods Bros. Co.

Class 2—Percheron stallion, 3 years old and under 4: First, Woods Bros Co.; second, Joseph Rousselle, Seward, Neb.; third, R. A. Chace, Ft. Morgan, Colo.

Class 3—Percheron stallion, 2 years old and under 3: First, Woods Bros. Co.; second, Woods Bros. Co.; third, Joseph Rouselle, Seward, Neb.

Class 4—Percheron stallion, 1 year old and under 2: First, A. J. Zang Inv. Co.; second, Woods Bros. Co.; third, A. J. Zang Inv. Co.

Class 5—Percheron mare, 3 years old or over: First, C. V. Owens, Lucerne, Colo.; second, A. J. Zang Inv. Co.; third, A. J. Zang Inv. Co.

Class 6—Percheron filly, 2 years old and under 3: First, A. J. Zang Inv. Co.

Class 7—Percheron filly, 1 year old and under 2: First, A. J. Zang Inv. Co.

Class 8—Percheron colt, under 1 year old: First, A. J. Zang Inv. Co.; second, R. A. Chace; third, A. J. Zang Inv. Co.

Class 9—Get of Sire: First, A. J. Zang Inv. Co.

Class 10—Produce of dam: First, A. J. Zang Inv. Co.

French Draft

Champion French Draft Mare—Entered by Jarosa Ranch.

Reserve Champion French Draft Mare—Entered by Jarosa Ranch.

Champion French Draft Stallion—Entered by Jarosa Ranch.

Class 13—French draft stallion, 2 years old and under 3: First, The Jarosa Ranch, Longmont, Colo.

Class 15—French draft mare, 3 years old or over: First, second and third, Jarosa Ranch.

Belgian

Belgian Champion Stallion—Entered by Glendale Stock Farm, Aspen, Colo.

Reserve Champion Stallion—Belgian. Entered by Woods Bros. Co., Lincoln, Neb.

Champion Mare—Belgian. Entered by Glendale Stock Farm, Aspen, Colo.

Reserve Champion Mare—Belgian. Entered by Stella Irindale, Glendale Stock Farm, Aspen, Colo.

Class 21—Belgian aged stallion. First, Glendale Stock Farm, Aspen, Colo.; second, Woods Bros. Co., Lincoln, Neb.

Class 22—Belgian stallion, 3 years old and under 4: First, Woods Bros. Co., Lincoln, Neb.; second, Glendale Stock Farm, Aspen, Colo.; third, Woods Bros. Co., Lincoln, Neb.

Class 23—Belgian stallion, 2 years old and under 3: First, Woods Bros. Co., Lincoln, Neb.; second, Joseph Rousselle, Seward, Neb.; third, Glendale Stock Farm, Aspen, Colo.

Class 24—Belgian colt, under 1 year old: First, Glendale Stock Farm, Aspen, Colo.

Class 25—Belgian mare, 3 years old or over: First, Glendale Stock Farm, Aspen, Colo.; second, C. V. Owens, Lucerne, Colo.

Class 26—Belgian filly, 2 years old and under 3: First, Glendale Stock Farm, Aspen, Colo.; second, Glendale Stock Farm, Aspen, Colo.

Class 27—Belgian filly, 1 year old and under 2. Entered by Glendale Stock Farm, Aspen, Colo. Class 30—Produce of dam, Belgian. Entered by Finch Bros., Joliet, Ill.

Clydesdale and Shire

Class 34—Clydesdale or Shire aged stallion: First, Joseph Rousselle, Seward, Neb.; second, Jarosa Ranch, Longmont, Colo.; third, Thorson & Nelson, Dix, Neb.

Class 35—Clydesdale or Shire stallion, 2 years old and under 3: First, Joseph Rousselle, Seward, Neb.; second, Joseph Rousselle, Seward, Neb.; third, Jarosa Ranch, Longmont, Colo.

Champion Stallion, Clydesdale or Shire—Entered by Joseph Rousselle, Seward, Neb.

Reserve Champion, Clydesdale or Shire—Entered by Joseph Rousselle.

Standard Bred and Grades

Class 41—Standard bred stallion, 3 years old and over: First, John R. Thompson, Chicago, Ill.

Class 42—Thoroughbred atallion, 3 years old or over: First, J. St. A. Boyer, Denver, Colo.

Class 43—American saddle stallion, 3 years old or over: First, James D. Buford, Paris, Mo.; second, A. L. Allen, Pueblo, Colo.; third, J. O. Marshall, Irving, Colo.

Class 44—Grade draft mare or gelding, 3 years old or over: First, C. V. Owens, Lucerne, Colo.; second, C. V. Owens, Lucerne, Colo.; third, Jarosa Ranch, Longmont, Colo.

Class 47—Pair grade draft horses in harness: First, C. V. Owens, Lucerne, Colo.

Class 48—Jack, 3 years old or over: First, J. W. Clark, Lupton, Colo.; second, A. R. Lawa, Denver, Colo.; third, Joe Eckery, Denver, Colo.

Class 50—Mule, 3 years old or over: First, John H. Farmer, East Lake, Colo.

Class 51—Mule, 2 years old and under 3: First, John H. Farmer, East Lake, Colo.

Class 55—Percheron stallion, 3 years old or over (Stallion Fund Special): First, R. A. Chace, Ft. Morgan, Colo.; second, B. D. Townsend, Littleton, Colo.

Class 50—American Saddle Bred Stallion, 3 years old or over (Stallion Fund Special): First, A. L. Allen, Pueblo, Colo.

National Western Sheep Show

(Continued from page 9)

Agr. College; 2 and 3, A. W. Arnold, Galesville, Wis. Ewe, 1 year old, 1 and 2, Colo. Agr. College; 3, A. W. Arnold. Ewe, under 1 year old, 1, Colo. Agr. College; 2 and 3, A. W. Arnold. Champion ram and champion ewe, Colo. Agr. College.

LEICESTER & LINCALN, aged ram, 1 and 2, F. S. King Bros., Laramie, Wyo.

HAMPSHIRE, aged ram, 1, Sherwood Bros., Shelbyville, Mo.; 2, A. W. Arnold; 3, Harry petrie, olden. Ram, 1 year old, 1, A. W. Arnold; 2, Sherwood Bros.; 3, Harry Petrie. Ram lamb, under 1 year old, 1, 2 and 3, Sherwood Bros. Ewe, under 1 year old, 1, Harry Petrie; 2 and 3, Sherwood Bros. Four lamba bred by exhibitor, 1 and 2, Sherwood Bros.; 3, Harry Petrie. Four lambs, get of one sire, 1 and 2, Sherwood Bros.; 3, Harry Petrie. Champion ram and champion ewe, Sherwood Bros.

OXFORDS, ewe, under 1 year old, Sherwood Bros.

SHROPSHIRE, ram, 1 year old, Kansas Agr. College, Manhattan, Kan. Ram lamb, under 1 year old, 1 and 2, R. Eggleston, Mount Morrison; 3, Spencer Penrose, Colorado Springs. Ewe, 1 year old and under 2, 1, 2 and 3, Spencer Penrose. Ewe, under 1 year old, 1, 2 and 3, Colorado Agr. College. Pen of four lambs bred by exhibitor, 1, Colo. Agr. College; 2, Spencer Penrose. Four lambs, get of one sire, 1, Colo. Agr. College; 2, Spencer Penrose. Champion ram and champion ewe, Colo. Agr. College.

SOUTHDOWN, ram, 2 years old; 1 and 2, Kansas Agr. College; 3, A. W. Arnold. Ram, 1 year old, 1, R. G. Maxwell & Sons, Fort Collins, Colo.; 2, Kansas Agr. College; 3, A. W. Arnold. Ram lamb, under 1 year old, 1, A. W. Arnold; 2, Kansaa Agr. College; 3, R. G. Maxwell & Sons. Ewe, 1 year old, 1, R. G. Maxwell & Sons; 2 and 3, A. W. Arnold. Ewe lamb, under 1 year old, 1, Kansas Agr. College; 2, R. G. Maxwell & Sons; 3, A. W. Arnold. Pen of four lambs, Arnold. Champion ram and champion ewe, Maxwell.

RAMBOUILLET, ram, 2 years old, 1, F. S. King Bros.; 2, Colo. Agr. College. Ram, 1 year old, F. S. King Bros. Ram lamb, under 1 year old, 1 and 3, F. S. King Bros.; 2, Colo. Agr. College. Ewe, 1 year old, 1, 2 and 3, F. S. King Bros. Ewe lamb under 1 year old, 1, 2 and 3, F. S. King Bros. Four lambs bred by exhibitor, 1, F. S. King Bros.; 2, Colo. Agr. College. Four lambs, get of one sire, 1, F. S. King Bros; 2 Colo. Agr. College. Champion ram and champion ewe F. S. King Bros.

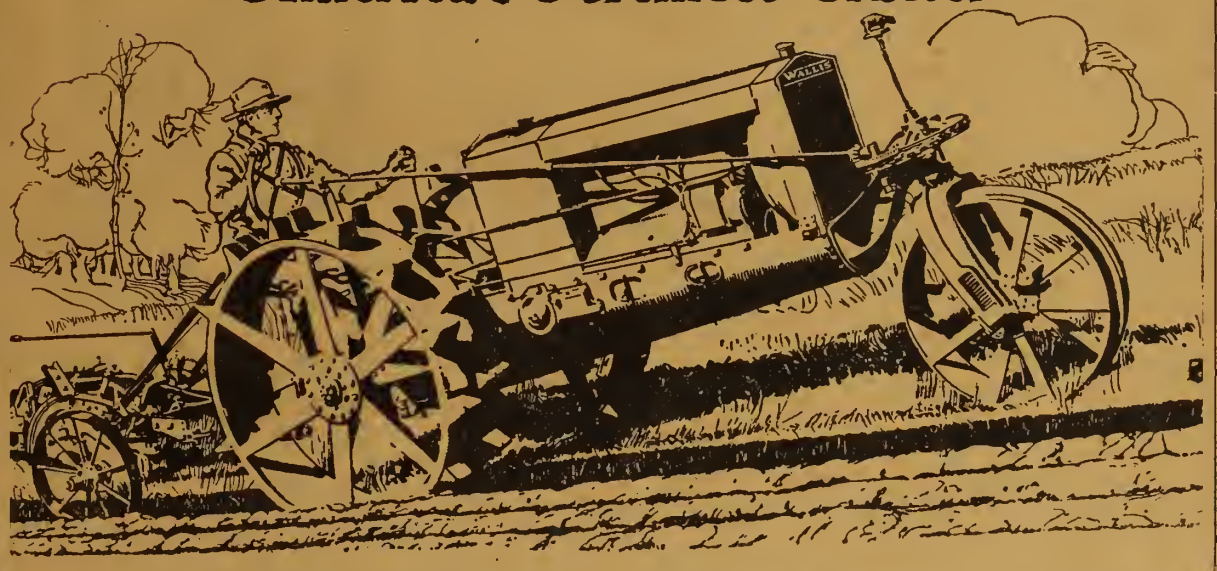
FAT SHEEP, yearling wether, 1 and 3, Kansas Agr. College; 2, A. J. Knollin, Pocatello, Idaho. Fat lamb 1, R. G. Maxwell & Sons, Fort Collins; 2 and 3, Kansas Agr. College. Pen of five lambs, 1, Kansas Agr. College; 2 and 3, Knollin.

Poultry at the Stock Show

There were 1,700 entries in the poultry division of the National Western show which has grown so that its quarters are badly overcrowded. One hundred and sixty-five exhibitors took part. One of the sensational features of the show was the sale of the prize-winning Rhode Island Red hen, pronounced the most perfect specimen of her type in the world, for which D. B. Townsend of Denver paid $500. The show was again managed by Mr. W. C. Schuman, who has been in charge since its establishment, and built it up until it is the biggest show of fancy and utility stock west of the Mississippi river.

WALLIS

America's Foremost Tractor



WHETHER plowing, threshing or doing other farm work, the Wallis Tractor gives true economy.

Wallis first combined light weight, great power and durability in a tractor; built a tractor weighing 1000 to 5000 pounds less than others of equal power.

This was accomplished by replacing heavy cast and malleable iron with strong, light steel; by designing light-weight, sturdy drive wheels; by introducing the simplified "U" frame—the lightest, yet strongest construction known to mechanics.

Wallis first enclosed all gears, including the final drive—thus saving power and protecting vital parts. The Wallis motor and transmission are as perfectly finished as an automobile motor.

The result is a tractor that burns one-third to one-half less fuel per acre plowed; that cuts the cost-per-acre of plowing to the lowest figure ever known. It made the Wallis America's Foremost Tractor.

The latest Wallis catalog tells all about this tractor. Write for a copy and for name of nearby Wallis dealer.

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Pig Clubs Made Fine Showing

Under the management of J. T. Tingle, Pig Club specialist for the Department of Agriculture, great progress has been made in the state in club organization among boys and girls. The National Western Stock Show furnished the young people an opportunity to show what could be done with purebred hogs, under scientific management. There were nineteen exhibits, this class being officially recognized for the first time by the Stock Show association, which donated liberal premiums.

The youthful exhibitors were assisted in defraying expenses of shipment by the American Beet Sugar Company and Great Western Sugar Company, who paid the express charges one way on each shipment. Some of the breeders offered to help out in the same way, but it was not necessary to call on them. Most of them have been extremely liberal on prices in furnishing foundation stock to the boys and girls, realizing the great value to the industry of the intensive work in hog production that has thus been started.

The fat hogs sent in by the clubs for market were bought by Swift & Company at $18 per cwt., topping the market for the day by a dollar. The commission firm handling the shipment made no charge for its services. "Billie the Hog Man" Swearingen of Prey Brothers handled the matter for the young people.

Mr. Tingle was sent to Colorado by the Bureau of Animal Industry in November, 1917, in line with the policy of the government to push pork production for war purposes. He has been so successful in his organization of clubs, which now number some 800 members in the state, that it is hoped hi services can be permanently retained. He works in co-operation with the Extension department of the Agricultural college. Over 2.300 hogs have been handled by club members in the year, about 65 per cent of the animals being purebreds.

Following is a list of the stock show awards in this class:

Best Club Exhibit

First, Weld Co., Prof. F. A. Ogle, Greeley, Colo., in charge; second, Larimer Co., D. C. Bascom, Fort Collins, Colo., in charge; third, Sedgwick Co., W. J. Ott, Julesburg, Colo., in charge.

Individual

DUROC-JERSEY PUREBREDS

Class 1—Boar farrowed since June 1, 1918: First, Max Ogle, Greeley, Colo., on Golden Beauty; second Max Ogle, on Ogle's Choice.

Class 4—Sow farrowed since Feb. 1, 1918: First, Clarence Sellers, Sedgwick, Colo., on State Line Duroc; second, Millie Sellers, Sedgwick, Colo., on Liberty Duroc; third, Ernest Gill, Atwood, Colo., on Genevieve's Choice No. 287714.

Champion Sow $10.00: Clarence Sellers, Sedgwick, Colo.

Champion Boar $10.00: Max Ogle, Greeley, Colo.

POLAND-CHINA

Class 1—Boar farrowed since June 1, 1918: First, H. D. Mathias, Greeley, Colo., on Vernon Boy, No. 96228; second, H. D. Mathias, on Royal Joe No. 94593.

Class 4—Sow farrowed since Feb. 1, 1918: First, Wilbur Maxwell, Fort Collins, Colo., on Liberty Bell No. 716880; second, Myrle Stockon, Fort Collins, Colo., on Liberty Queen No. 753836.

Champion Sow, $10.00—Wilbur Maxwell, Fort Collins, Colo., on Liberty Belle.

Champion Boar, $10.00—H. D. Mathias, Greeley, Colo., on Vernon Boy.

BERKSHIRE

Class 1—Boar farrowed since June1, 1918: First, Clarence Boyd, Greeley, Colo., on Long Vindicator; second, Clarence Boyd, on Boyd's Successor.

Class 2—Boar farrowed since Feb. 1, 1918: First, Ellis Reeves, Florence, Colo., on Superior.

Class 3—Sow farrowed since June 1, 1918: First, Clarence Boyd, on Boyd's Lady.

Champion Sow, $10.00—Clarence Boyd, Greeley, Colo., on Long Vindicator.

Champion Boar, $10.00—Ellis Reeves, Florence, Colo., on Superior.

HAMPSHIRE

Class 4—Sow farrowed since Feb. 1, 1918: First, Floyd Wheeler, Otis, Colo., on Beauty No. 119032.

GRADE OR CROSS-BRED

Class 1—Sow farrowed since Feb. 1, 1918: First, Donald Plumb, Greeley, Colo., on Long Princess.

Class 3—Barrow farrowed since Feb. 1, 1918: First, Donald Bliss, Greeley, Colo., on Over the Top; second, Donald Bliss, on The Porker's Favorite.

Champion Sow, $10.00—Donald Plumb, Greeley, Colo., on Long Princess.

Sweepstakes Sow, any breed, $10.00—Clarence Sellers, Sedgwick, Colo., on State Line Duroc.

Sweepstakes Boar, any breed, $10.00—H. D. Mathias, Greeley, Colo., on Vernon Boy.

Poland China Men Organize

Realizing that interests of the breed demand closer organization, the Poland China men from the territory west of the Missouri river have formed what is known as the Western Poland China Breeders' Association. Colorado, Kansas, Nebraska and Wyoming are represented and other states will be included as the association develops its plans. The organization was formed at Denver during Stock Show week and officers were elected as follows: Eleck Baldwin, Dickens, Neb., president; J. A. Davidson, Longmont, Colo., vice-president; J. T. Tingle, Fort Collins, Colo., secretary-treasurer.

This movement is a direct result of the impetus given the hog industry by the National Western Stock Show. The Poland China breeders felt that they were being overshadowed by the Duroc Jersey men and they decided this year to give the red hogs a run for their money. The result was that the Poland China show lacked only four animals of being as large as the Duroc show. In the latter breed 234 animals were exhibited; there were 230 Polands, 40 Hampshires and 14 Berkshires. This was by long odds the biggest hog show ever held in the intermountain country, but from present indications the 1920 show will outclass it in number of entries. It will be difficult to beat the show in quality.

The first action taken by the Association was to address a communication to the Stock Show Association asking that the breed be put upon an equality with the other breeds in prizes. The classification shows the Poland China breed with 1, 2, 3 money, while the Durocs have come in for 5 or 7 prizes.

Another good move made by the association is the proposal to establish a futurity class for next year's Stock Show. This matter was left in charge of A. D. McGillvray of Boulder, Colo.

The association recommends to the Stock Show management as their first, second and third choices for judge of the 1920 Poland China show the following breeders: Henry Dorr, Remsen, Iowa; Sam McKelvie, Fairfield, Neb.; Tom Shattuck, Hastings, Neb

The judging of W. P. Snyder of North Platte, Neb., gave universal satisfaction, but because of the great size of the show he was unable to handle it alone.

Fortunately Mr. E. Z. Russell, secretary of the National Swine Show, who is now in the service of the Bureau of Animal Industry at Washington, attended the show, and he was drafted as an assistant to Mr. Snyder, taking over the Poland China classes.

An effort will be made to build up a large membership in the new association so that the breed will be placed upon a sound business footing. The membership fee has been fixed at the nominal sum of $1.00, the proceeds to be used exclusively for the promotion of breed interests.

What Stock Show Means to Western Agriculture

(Continued from page 3)

them of lower beef prices during the coming months. And it gave the cattle producers the best money they have yet received for stuff right off the range. It is better stuff than was offered here during the years when the National Western show was young. It reflects the influence of the show, and costs are not altogether due to abnormal world conditions, but to some extent also to the better quality of beef that naturally follows good breeding practice on the range.

Champion Car of Bulls

In competition with 68 carloads of breeding bulls L. G. Davis of Saratoga, Wyo., won grand championship on a carload of registered yearling Herefords, in the strongest competition in the history of the show. The reserve load was shown by Fulscher & Kepler of Holyoke, Colo.

The champion load of breeding heifers was shown by Johnson Brothers of Eagle, Colo., and the reserve load by the Hereford Corporation of Wyoming.

Championships in Fat Classes

Grand championship for single steers went to the Western Meat Company of San Francisco on an Angus which later sold to the Brown Palace Hotel Company of Denver for $60 per cwt. The reserve champion steer, a Shorthorn, fed and exhibited by Klopping & Saunders of Manilla, Iowa, sold to Swift & Company for $37.50 per cwt. The California steer was fed and finished on the University of California farm.

M. E. Rhinesmith of Centennial, Wyo., got the grand championship on carlot of fat steers. These were well finished Herefords. The load sold to the Brown Palace Hotel Company for $27.50 per cwt.

The American Beet Sugar Company secured grand championship on carload of fat hogs, Duroc Jerseys, finished in their yards at Lamar. They were sold to the Coffin Packing & Provision Company at $30 per cwt.

Grand championship on carload of fat lambs, Shropshires, went to A. J. Knollin of Pocatello, Idaho, and sold to the Brown Palace Hotel at $35 per cwt.

Henry Hoffman of Berthoud, Colo., won first prize on Colorado-fed lambs, his carload bringing $17.50 per cwt. in the sale.

O. C. Joseph of Cambridge, Neb., won grand championship on barrow.

In the Hereford steer class Kansas Agricultural college won championship and reserve. The best grade or crossbred Hereford by Colorado or Wyoming exhibitor (a Gano-Downs special prize) went to the Hereford Corporation of Wyoming.

In the Shorthorn steer class Saunders & Klopping of Manilla, Iowa, won championship, with University of Nebraska reserve.

Naturalists have discovered that a cat's whiskers are absolutely necessary. If the same naturalists have nothing urgent to attend to now, let them direct their skill to the mustaches that grow on second lieutenants.—H. W. D., in Kansas Industrialist.

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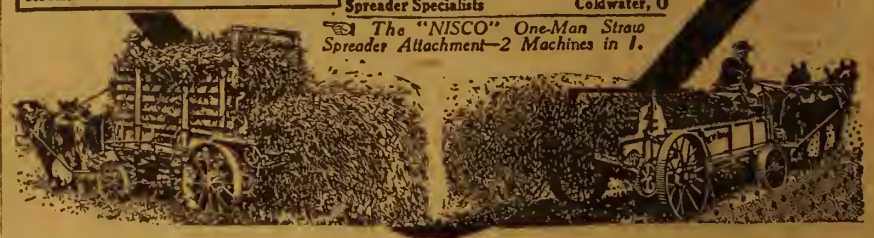

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STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "The Bondboy," "The Crucible of Courage," "Cowardice," Etc.

A TALE OF LOVE AND LOST TREASURE, AND AN ABSORBINGLY UNCANNY MYSTERY IN THE HUNT FOR A WRECK BURIED IN QUICKSAND

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CHAPTER VII
JULIET MOORE

Somber thoughts pressed upon Randolph as he sat silent beside the man whose hope the river could bring back to him never more. The treasure in the safe of the Morning Star seemed a small consideration to him then, for the taste of life was on his tongue like the miasma that sends a shudder through a man when he rises from drinking at a swampy spring.

He could not remember, out of his varied experience, such a complete collapse of spirits as he suffered that minute. Was it the loneliness of the place, he asked himself, or the warning of that mysterious guardian over the treasure that had lured him so far and long? He found himself turning to look about him into the shadows, with the indeterminate sense of fear that belongs only to the dark. It came over him in that moment that he had made a mistake in expending so much energy and centering so much expectation on that buried gold. The desire laid hold of him to steal down the steps and run away, like a boy afraid of the night, and leave Caleb Moore with his treacherous sad river, and the mysteries which bore on him so and made his last days bitter as the gall of death.

Somebody in the house began to sing, a slow, plaintive Southern melody in voice of rare sweetness and sympathy with the simple air. The sound came to Randolph like a reviving breeze, moving him with such a strong emotion of surprise and relief that he gathered his muscles to rise to his feet. He had not expected to hear the voice of youth rise out of that gloomy gray house.

"My granddaughter," the old man said. The gloom was too thick in the shadows to see his face, but Randolph knew from the tenderness of his words that his stern features were softened by a smile.

"I didn't know Gregg didn't say anything about—" Randolph hesitated.

"My only son's child, Mr. Randolph. He was a ship's captain in the Hondurian trade; he was lost at sea. She lives here alone with me, and has so lived these seven or eight years. Don't you wonder that she has any heart left in her to sing?"

"The waters have taken their toll from you, sir," Randolph returned, moved by the pain of that loss which Moore's voice betrayed. He said no more, but unexpressed in his mind lay the thought that only sorrow and lonely days, and longing to wing away from that sad isolation, could have given that woman's voice such yearning sweetness as it held.

"You must come in and meet the singer," said Moore, bestirring himself; "she is my first lieutenant, and will have her word in this business that has brought you to me. She thinks you have gone, or she wouldn't be singing, she's as shy as a redbird with her songs."

"One is seldom prodigal of a treasure," Randolph said, with such evident sincerity and feeling that Moore placed a hand on his shoulder again in that paternal way which spoke of old habit, and became his prophetlike bearing so well.

"Yes, it's a treasure to me, so dear that I am jealous of the Almighty, almost, in the thought that He may rive her from my side before my years are finished."

The song fell away with caressing tenderness in the soft cadenza, as a mother's voice hushes when she stoops to lay her sleeping child upon its couch.

"Grandpére?" the voice called, with respectful inquiry, a little nearer the door.

"She thinks you've gone, our silence fooled her," the old man chuckled. "Come in—walk softly—we'll give her a surprise. Yes, Juliet, I'm coming, honey."

As they entered, the girl, busily spreading the table for the late evening meal, began to scold the old man in pretty terms of endearment, like one lovingly correcting a child of whose wilfuiness he is proud at heart. Moore nudged his guest in appreciation of the joke, and led him in softly, stopping just outside the dining-room door.

"That's right, larrup me all around with that sharp little tongue of yours, honey, I deserve it," he said, in mock contrition. "I know I ought to have come in half an hour ago."

"You've been sitting out there dreaming," she chided. "Haven't I warned you, time without end, that dreams are dangerous?"

Randolph could see her, polishing each piece of silver with a napkin before she laid it in its place, the light of the big, shaded lamp on her young body. Her face he could not see, for it was in shadow, and her head was bent pensively, as if there was more than banter in her heart on the matter of Caleb Moore's old dreams. She was a fair white figure there beside the table, her short-sleeved muslin dress giving her flashing arms free play as she leaned to place the silver on the cloth.

"I've been scheming more than dreaming this evening, child," Moore said, as he stepped into the light; "and I've brought my fellow-conspirator in so you can scold both of us together and save breath for your song after supper."

The girl started at sight of Randolph bowing before her in the door, and lifted her hands in a quick little gesture of helpless surprise, like a hostess caught unprepared and fearful for her housewifely reputation. This unvoiced protest was but a breath in passing, and in its place a little shy smile came to her lips, a gleam of laughter to her eyes.

She gave him her hand as Moore presented him, and he bowed over it, wondering at his own gallantry, feeling himself an actor in some comfortable social drama of a time long past.

"He's Captain Randolph's boy—you've heard me speak of him," Moore said, a glow in his face as of pleasure over the return of somebody long-wandering and dear.

"Captain Randolph, of the Morning Star?" She looked up quickly, her lips apart, her lively eyes glowing.

"The very one," said the old man, proud of her quick memory.

"And I thought you were some kind of an agent!" said she, her self-rebuke lightened with laughter.

"How an old trade will betray itself!" said Randolph, infected by her laughing way.

"Oh, have you been an agent, Mr. Randolph?"

"I sold books in Oklahoma one time, 'Great Events of a Thousand Years,' was the title. I sold four of them in seven weeks."

"Napoleon sold books," said she, that play of teasing laughter in her eyes.

"And Washington, if I remember the instructions, as well as Lincoln and others on down the ladder of famé."

"'A book-agent is a benefactor to mankind,'" she quoted, nodding sagely; "'his calling is one of the most lofty and respectable. He carries the torch of knowledge into places of darkness, and'—do you remember the rest?"

"I'm fraid I never learned it all from the yellow paper in the front of the prospectus; they said that was why I failed."

"Agents are about the only ones that ever penetrate from the world to this place," Moore explained, "and Juliet regards them as the mediaeval ladies did the troubadors, as entertainers to be welcomed at all hours of the day and in all kinds of weather. Shall we sit up, Juliet?"

"Yes, Rhody has been growling around about her biscuits getting cold—as if anything could really get quite cold this weather—for a quarter of an hour. Sit here, Mr. Randolph."

Randolph had stood debating with himself means of getting out of it, much as he wanted to remain and share the meal, for it seemed almost a profanation of that white linen and the dainty presence of Juliet to sit to table in his rough boots, coatless as he was and shaggy and dust-stained from the activities of the day. He fumbled with his necktie and began an apology, which Moore put an end to by gently forcing him into his designated chair.

"I had supper at Captain Gregg's, so you must not think that I—"

"Oh, that was a long time ago," said Juliet, dismissing it so.

She sighed as if in relief and contentment, as she seated herself opposite him, her elbows on the cloth, her face turned to him in ingenuous expression of pleasure.

"I thought you'd get away from us!" she said, so seriously that Randolph could not repress a smile.

Randolph felt that he had discovered one treasure at least, even if his search should be barren of any other reward. This one, certainly, was not of the kind that a man might tuck into his strong-box and carry away and hide jealously from covetous eyes, but one that would warm itself into a man's heart and wrap the folds of it around her, to his eternal joy or everlasting pain. Somebody's treasure, indeed, to lend luster to his life as she was brightening the shadowed afternoon of that gray old man's.

Not so tall as to be stately, not grave enough to be cold, but lit with a spark of life that made her presence warm against the sophisticated, grave, slow stranger's heart; not so light as to be frivolous, nor so solemn as to be severe, but a sweet melancholy in her face that explained the feeling sympathy of her song. Her wings had beaten the bars; her soul had strained to be away. Duty had made her blue-gray eyes serious when the laughter was not twinkling in them as the sun flashes on broken water. Her dark hair carried back from her low forehead like a rippling pennant, and lay massed on her strong, fair neck; a little red flower, wilted now and drooping, was bright against it as coral in wet seaweed.

She was a gleam of light and young sweet life there at the table, and only when the smile left her face pensive and her eyes grave Randolph was able to harmonize her with the struggling pathos of her song.

Rhody, a great waddling, solemn negress, came in with a softness in her tread that betrayed bare feet, and served her biscuits and ham, okra and chicken, honey and pickled beets. She rolled her eyes at the stranger with suspicious distrust and not well concealed contempt, and hung around her pretty mistress with a protective hovering.

Moore allowed Juliet to chatter on through the meal, realizing, perhaps, better than herself, how greatly her tongue needed stretching. Unbroken months of that solitude, with no more than an agent here and there, and her domestic duties to relieve the blank routine of life, had stored up a flood of talk which now poured over Randolph with the sprightliness of relief.

"Nobody ever stays long in the Narris," sighed Juliet, her eyes following Rhody as she bore off the plates, leaving the cloth clear. "I suppose you'll be going on again tomorrow, Mr. Randolph?"

"That depends on you," he said, unable to forego a smile at her expense, seeing her start and flash scarlet at what seemed to be such hasty and irrelevant courtship. "If you say that I may stay, then I shall remain; if you say go, I must march along."

"I'm sure I shouldn't like to stand as the arbiter of your coming and going in our pleasant valley, Mr. Randolph," she returned, her composure and humor coming back as quickly as they had fled her in her consternation of a minute before.

"Mr. Randolph has come to dig for the golden key of the world," said the old man gravely; "he has come to search for the wreck of the Morning Star and make us rich again out of what he hopes to find buried there."

"Oh, treasure!" she whispered, her face growing white and her eyes round. "Now! what did I tell you, grandpére? I always said there was a treasure buried in the wreck of the Morning Star."

"Why, so you did, child," he admitted.

"And I always knew you'd come for it," she declared with new animation, turning again to Randolph, reaching out her hand toward him across the table in a speaking little gesture of sincerity.

"You knew I'd come?" said he, wonderingly. "How could you know?"

"The river is full of whispers and prophecies," she told him, nodding with great gravity, that inscrutable mask of melancholy flitting over fresh young face, darkening on it like a cloud.

"Yes, it looks like a mysterious and secretive stream," said he, as if speaking to himself a thought that had been with him since he saw the river for the first time that day.

"But I expected you'd be older," she said; "much older, with gray hairs and weathered face."

"Give me time, Miss Moore, and I will come to them," he said.

Moore sat in his place at the head of the table studying them thoughtfully. They seemed to have taken the matter out of his hands between them, and to have forgotten his presence. Perhaps there was a coldness of loneliness in his breast at seeing this apparent selfishness, for his face was sad, and he shook his head as in gentle reproof, or depreciation of the precipitancy of youth.

"You know it's mostly old men who have the charts of sunken wrecks and treasures," she spoke defensively, yet with a little apology for any injustice that she may have done him in her expectation; "one of the crew, or somebody who was with the captain when—"

She caught herself sharply, on the margin of a blunder.

"When he died," nodded Randolph, finishing for her gravely. "But I knew the secret of the Morning Star long before that day."

"It's the one romantic thing in the Narris, Mr. Randolph—you ought to hear the horrible stories that Mystery Gregg can tell about it, full of ghosts and tragedies. Most of them had their origin in the fancy of these superstitious people in the Narris, I suppose."

"Not all of them," Moore corrected, shaking his head sadly. "That story began and ended before you came here into the silences to abide with me. If Mystery has put any ghosts into the tales she has been telling you, then I will grant they are her own, but there has been tragedy enough without coloring, as I have told you myself."

"It's a regular medieval mystery," she whispered, leaning toward Randolph, her serious eyes grown large; "there must be gold at the bottom of it. Are you going to let him dig it, grandpére?"

Moore did not answer. Randolph turned to him, eager for the word that must open or close his business with that mysterious wreck. The old man was sitting stiff in his chair, the glass of water that he had lifted from the table poised half-way to his lips, his mouth slightly open, his eyes set and staring with a look in them of the profoundest amazement and horror. He peered hard at the window, which he sat facing, as rigid as if he had been struck by a sudden paralysis.

Strangely moved by this quick and unaccountable transformation, Randolph turned from his host to look toward the window and discover if he might, the cause of the old man's disturbance. In turning he met the appealing, wildly strained eyes of Juliet, who shook her head with almost imperceptible appeal. Her face was white; she sat straining as if to spring to the old man's side.

In a moment Moore sighed, the rigor passing out of his limbs, the distortion of transcendental fright out of his features and eyes. He put down his glass and rose.

"We will talk of this tomorrow," he said, his voice hollow and shaken. "I think there will be a storm before long, I feel the slackness in the air that falls ahead of it."

"And I must be tracking back to Captain Gregg's, he has a bed spread for me tonight," Randolph said.

"No, no!" Juliet interposed, putting out her hand quickly as if to stop him, "not the river road tonight—you can't go the river road—"

"You are our guest tonight, Mr. Randolph," the old man broke in calmly. "Juliet means that the river road is dark, and easily lost by strange feet."

CHAPTER VIII
A SPECTRAL VISITOR

The first assault of the storm had disturbed Randolph in his sleep, for it had come in a splintering crash of thunder and wild-shrieking wind. After its first wrenching blasts it had settled down to twinkling lightning and far-roiling thunder, and a drumming of rain that was soothing and assuring, like a penitential offering to repay the strain of its boisterous arrival. He had fallen asleep with the spray of the drip blowing through the open window upon his face.

He roused from this refreshing sleep with an upheaving, sudden start, like a diver breaking water after a deep plunge. His heart was laboring in thick strokes, sweat beaded his forehead. His lungs seemed empty, as if some heavy compression had pressed the breath out of them; he panted and gasped, unable to satisfy his need for air at once. His throat pained him, with an aching dry dulness, as if it had been gripped in a strangling hand.

In one second he was wholly awake, stirred by that primitive sense of danger which sets the faculties all whirring like an alarm. Dreams and perils sometimes move this subtle, deep-hidden sense, but Randolph had experienced no disturbing

PRECEDING CHAPTERS BRIEFLY RETOLD

John Randolph, son of Captain Walt Randolph, of the Missouri River steamboat Morning Star, which was snagged and sunk in 1864, learned from his father that, unknown to any one but himself and one other, there was one hundred thousand dollars in gold in the steamboat's safe. As soon as his duties as mining engineer would permit, John started west to the town of New Bend, near which the Morning Star—due to a shift in the river channel—lay buried under many feet of silt. There he met, first, Captain Moss Gregg, his father's pilot at the time of the sinking; Gregg's daughter, Mystery, and his son, Arkansaw; also a strange character, a sort of lawyer and office-seeker of the neighborhood, Joel Langworthy by name.

From Gregg John learned that four men in the last twenty-five years had come to get the treasure of the Morning Star—which Gregg and every one else in the neighborhood supposed to be the nine hundred barrels of whisky in the steamer's hold, since they knew nothing of the gold—but one of them had been found dead and badly clawed, and the other three simply disappeared without a trace. He also learned that Caleb Moore, an old storekeeper who had been almost ruined by the shifting of the channel, which left his big store a mile or more from the river, now owned the land where the Morning Star lay, and had always refused permission to excavate.

Nevertheless, John went to see him. Moore's objection, he found, was because of his hatred of whisky, which he would not allow to be turned loose on the world; but when he heard of the gold he was inclined to relent, though strongly advising against touching the stuff, which was stained with blood and crime.

dream and danger he could not reconcile with the peace of his secure chamber.

Still he sat there in the dark, gulping great drafts of air to relieve the oppression of his lungs, straining and listening, prickling with the electrical emanations which made his whole body as sensitive as an eye. There was no sound but the soft rain. and the plash from the eaves under his window. The low, cool wind came in rich with the scent of honeysuckle; the house was as still as untroubled sleep.

But the feeling was a certainty upon him that somebody had been in that room; that a knee had pressed his chest, a hand had throttled him with murderous intent. Which way had the assailant entered, in what direction fled? It rested between window and door.

Reluctant to believe that any harm could have threatened him out of the interior of that hospitable house, he leaned over and felt into the window. The screen was unhooked at the bottom and swinging. There was relief in the discovery. It absolved in one second his host. and all under that roof, of suspicion.

He was certain that the screen had been fastened when he went to bed, for he was sensitive to mosquitoes. But his bed was so near the window that one with long reach could have leaned through and touched him easily. It had not been a knee that pressed his chest, but an elbow. The assailant had stood outside, perhaps was standing there yet.

At the thought he leaped out of bed. He was feeling for the matches which he had left beside the lamp when he heard something start as if from concealment close beside the window and run swiftly across the lawn. It went with the quick softness of a two-footed creature, with a swishing as of bare feet over the wet grass.

Randolph strained out of the window with eyes and ears, but could see nothing, for the night was totally obscure. The swift feet had passed on, whether of man or beast, and all was quiet but the dripping trees on the lawn.

Greatly disturbed, that choking, aching pain still in his throat, he turned to his bed and sat on it, still in the dark. Sleep was snapped like a broken line in his hand. Why should a prowler come there and seek him out with such sure and violent hand? Could it be that the devouring force that guarded the wreck of the Morning Star was reaching out for his life, as it had smothered the lives of those who had come before him?

It seemed incredible. It might have been the wind, and a little play in the frame, that had loosed the hook of the screen, imagination supplying the rest. Perhaps a dog had run across the lawn, frightened by his appearance at the window.

Dawn came as he lay struggling to join the ends of his broken sleep, and with the spreading light the tranquility and assurance which he would not confess in the dark he lacked to restore his repose. He slept again.

His first care on waking was to look under the window for tracks, a useless search, for the grass grew close against the wall. He could have set the experience down to a dream, induced by the melancholy reflections on all that he had heard the day before, but for the evidence presented by the window screen. The wire had been cut and forced apart far enough to admit a slender hand, a particular undiscovered by his nervous fingers in the dark.

He concluded to say nothing to Moore about the occurrence. It would be an impeachment of his hospitality, at the least, and the greatest danger that could grow out of it would be the quickening of the old man's fears for the treasure hunter's safety, which might readily influence him to withhold his consent to the exploration of the wreck.

Moore appeared reluctant to resume discussion of the treasure hunt when Randolph joined him in what seemed his ceaseless vigil on the porch. He deferred broaching the matter with studious circumvention, talking crops, and the benefits which would heap in the farmers' cribs from the rain of last night, which had tempered the dead air and brought in the morning sparkling and sweet.

Randolph did not press the issue, but waited with what calmness he could draw over his inner tumult of doubt and anxiety, while Moore, who excused himself punctiliously, was seeing about sending his men to the hayfield, and other details of the day's work on his carefully attended farm. Randolph walked the long veranda, clouded in spirit by a hovering of unaccountable oppression which was like the sickness of failure or a foretaste of disappointment mingled with a feeling that a threat hung over him, or some elusive danger.

Juliet found him marching gloomily there, and hailed him from the door with a glad good morning, and came forward with hand outstretched, her eyes clear and untroubled as the rain-washed sky.

"It's something different from yesterday,'s dust," she said, lifting her chin, dilating her sensitive nostrils as she breathed the cool air like a thirsty drinker.

"I've seldom seen so rare a sky," said he thoughtfully, looking at her eyes.

She crossed to the porch rail, and stood turning her gaze about the refreshed green world.

"It's seldom like this in summer," she said, "but in spring and fall there are days and days when it is so clear it seems to come right down and rdaw you into it. It's so beautiful sometimes that it almost hurts."

"There is nothing like a sky to transform a landscape, Miss Moore. Yesterday it was dim around the edges and glaring in the center, like a smoked lantern globe."

"Almost hateful," she nodded, her eyes fusing their own wonderful color with the deep indigo of the zenith.

"All things are balanced by their compensations, it is said," he remarked.

"Well, there are watermelons," said she, quite seriously, "and hazelnuts. But

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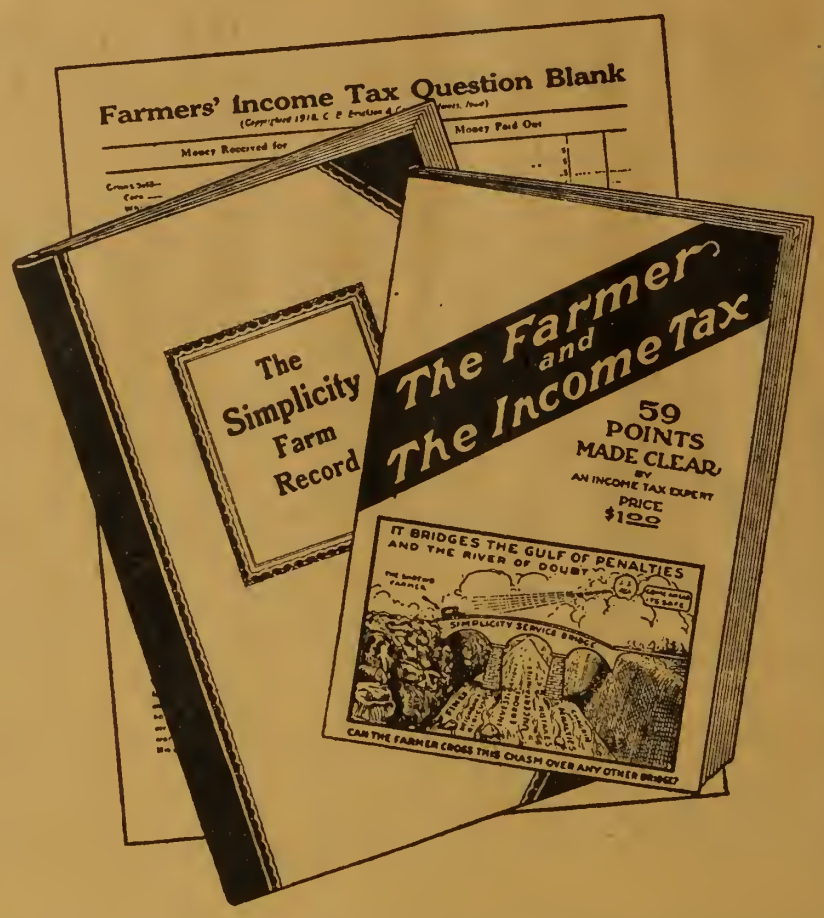

IGNORANCE of law excuses no one. Laws are made to be obeyed, and for those who do not willingly comply, a penalty is imposed.

A majority of farmers and stockmen are subject to this tax this year, and there is no use in trying to dodge it, for each one will be checked up some day.

Government tax is as sure as fate.

Because a farmer did not keep any books or did not make out a return as required by law, does not mean that the Government cannot check him up. If the Revenue Officer decides that he wants to know what you made he will find out regardless of the expense or effort he is put to.

Penalties ranging from 50 per cent to 100 per cent increase in taxes, and also heavy fines may be imposed for neglecting to file your report. If you have no written record of your transactions you will have to make up one from memory. This means uncertainty, and probably financial loss. The only sure way is to have it all down in "black and white."

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Simplicity Income Tax Service is made up of "The Simplicity Farm Record," "The Farmer and the Income Tax," and the "Tax Question Blank."

"The Simplicity Farm Record" is a 6x9-inch, 68-page record book. There is a place to put down every kind of transaction you would make on the farm or ranch, together with instructions just how to do it. The book is so simple and the instructions so clear that you can keep the most accurate accounts, even though you know nothing about bookkeeping. It will take only a few minutes to keep the Simplicity Farm Record absolutely correct. Then when Uncle Sam's revenue man comes around you can smile and show him your record book. Your work is all done—no trouble, no work, and no worry trying to remember and figure out just what you have done for the past year. Then, too, you can tell at the end of the year just how much money you have made for that year. By studying your record you can see where it is possible for you to save money, and also where you can increase your production. It is to your interest to get a Simplicity Farm Record Book.

"The Farmer and the Income Tax," or "59 Points Made Clear," is a 16-page booklet that is worth its weight in gold to the farmer or stockman. It was written by Clayton B. Stiver, a recognized Income Tax Expert. Mr. Stiver has had more than fifteen years' experience in the service of the United States Treasury, having served in all departments of the Internal Revenue Bureau from storekeeper to Revenue Agent in charge. He has this year examined th statements and made out the returns for more than 3,500 farmers and stockmen. He gives you the benefit of his experience in this valuable little book. He has taken up the 59 points or questions which vitally affect every farmer and stockman, and explains how each is affected by the Income Tax Law. After reading this little book the workings of the law will be perfectly clear to you. If, however, there is any point about this law that is not quite clear to you, just write the Service Bureau of Western Farm Life, and your question will be answered promptly. There is no charge for this service.

"The Tax Question Blank" is a legal form which contains the questions that you will have to answer before your tax return can be made out correctly. By having all these questions filled out beforehand, you will have no trouble at all in making out your report.

Uncle Sam says that you MUST make out a report and have it ready by MARCH 1, 1919. You don't want to spend a lot of time and go to a lot of trouble and work in doing this. Therefore, we have secured this Simplicity Income Tax Service for Western Farm Life readers. We believe it to be the best and shortest forms that you can get.

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it leaves quite a compensation deficiency, after skies and all."

There was an underlying harshness in her words, as of resentment, or a deep bitterness against the circumstances which bound her in that place. He looked at her inquiringly. She was still sounding the sky-depths with her wistful gaze and did not see him. She would be away, if she could, seeking out the world's pleasant places on her young wings. He would have questioned her, curious to have her estimate of life in the gray solitude of the Narris, made doubly lonely in her case by the shadow that hung always over Caleb Moore's avoided home, but Moore himself came up at that minute.

At breakfast the old man was so silent and thoughtful that Randolph believed him to be formulating his decision on the exploration of the wreck. He could not hope for much light out of a countenance so gloomy and dark as Moore's, and his own spirits, which had enjoyed a transitory warming in the fresh, ingenuous presence of Juliet, sank again and left him cold in hope.

After breakfast Moore begged another day to consider it. which Randolph agreed to with as much heartiness as his failing expectations could arouse. The old man went to the gate with him as he set off to return to Gregg's, and from the veranda Juliet looked after him with disappointment in her eyes. He knew that in her he had an ardent advocate, for the golden key of the world, of which Moore had spoken as lying in the rotting wreck, would open the gate for her upon a freedom for which her loyal soul was aching.

CHAPTER XI
ARKANSAS SPINS A YARN

It was still early, for the summer lassitude did not bind the activities of Caleb Moore's farm, and the sun had not yet kindled into a withering blaze. Shadows were cool and deep along the river road, where the wayside poke-berry and hazel stood as fresh as morning school-children after their long-waited bath. Randolph's mind was flicked with the shadow of many speculations, like the changing sunlight through the leaves upon the road as he passed.

Why had Juliet spoken with such sharp haste and evident dread about this same river road last night, warning him that he could not go that way? What had Caleb Moore seen at the window that froze him with fear, changing him in a moment from a warm-hearted host to a hoarse-voiced, unsteady old man? What ghost had come up out of his past to give him such a sudden qualm, and bind his tongue, and put the glaze of death into his eyes? Had that fleeting apparition at the window any connection with the skuiker who had fled away from his own chamber later in the night?

There was nobody in sight as Randolph approached Gregg's place, but the dripping bucket on the curb and the gray smoke rising straight in the calm air from the kitchen chimney proclaimed that Mystery, at least, was astir, and under steam for her day's activities. Doubtful whether anybody but Mystery was even out of bed, Randolph drew under the elm tree, whose shade was creeping like the benediction of a loving hand over the curb of the wayside well.

After a little while of meditation Randolph turned toward the river and stood on its crumbling shore. More than on yesterday it seemed to be revealing itself, the sun aslant in its dark waters, its heavy ebullitions rising like upshooting plants and bursting into foui florescence. Here sodden driftwood whirled in a slow eddy, low-floating, heavy with its water-bound years. Old logs slogged by, worn rounded of ends and smooth as polished cabinet work by contact with banks and bars and other drift; now lifting a little on a boiling upburst, now sucked out of sight and held long in the down-draft of a sulky slow whirlpool.

Strangely, tragically, the driftwood seemed to illustrate the grasping trait which Moore had spoken of with such sad bitterness. The river had taken its toll; its flood had snatched those trees, green and wide-stretching, anchored by a thousand grappling roots, and flung them like debauched beauties into its polluted tide. Years ago it had gathered them from its banks; it kept them still. What the river reaped it held, wearing its trophies in such melancholy adornment as this, or burying them deep in the satisfaction of its greed, as it had buried the Morning Star.

No wonder that the Missouri river had bred a poet on its shores, silt-laden, mournful, uncommunicative stream! There was no color in it, no sweet murmur over pebbly strands to move the measure of a song; no clear depth, no cool, grassy shores—nothing to kindle the fire of loyalty or the fancies of beauty upon which the heart of a poet feeds.

Slimy logs, circling on the slow swing of a never-ending journey; tall sedge in the muck of its swampy margins and slime-discharging sloughs; young cottonwoods springing, quick-growing and rank, on its tow-head bars to be reamed out in the first grim-plowing of the flood; wild grape and greenbrier in choking tangle on its forest limbs. Across the river, miles up-stream and down, he could see the white bank, as white as a bone. The timber had been stripped from it, save only the willows by the water's edge.

Arkansaw appeared from the house presently, carrying oars. He quickened his leisurely approach when he saw Randolph standing on the river bank as if waiting for him, and passed the greetings of the day, his face sunned over by grins. But he was a much more wholesome appearing Arkansaw than on yesterday. Now the caterpillar fuzz was gone from his face, which was lean, tough and brown, not the aggravated and inflamed red of the general run of faces which Randolph had seen in rural Missouri. Especially there in the moist heat of the valley the men looked mainly as if they had been scourged with nettles and boiled in oil.

Arkansaw was a strong-framed man, with an easy slouch to his pliant shoulders as he walked, and sparkling humorous eyes which seemed to offer friendship to all whom he met upon the road. His blue shirt and overalls were clean from the line, and Arkansaw looked as fresh in his rustic handsomeness as a hollyhock beside the fence.

He said that his father had been drawn for jury service, and had left at daylight on his ride of fifteen miles to the county-seat. Arkansaw lifted his worn, nicked-bladed oars from his shoulder and leaned on them with comfortable adjustment of his sinewy frame, and offered a chew of tobacco from his twist. Randolph declined the favor, with the excuse that it appeared too strong for his degenerate taste. Arkansaw turned the brown dry twist, whittled and gnawed as if a tobacco-chewing cockroach had been at it, and eyed it as if searching for some spot offering a greater promise of succulence than was apparent at casual inspection.

"Shucks!" said he, in tone of self-disparagement, "what 'd I want a chaw for, anyways? I aimed to smoke when I pulled that t'backer out of m' pocket, dang my fool head!"

While his voice was charged with derision of his own instability of mind, his merry eyes told that there was no sincerity in it, nor any guile in him, nor ill-feeling toward the meanest shadow of man that encumbered the earth that rejuvenated day. He drew his cob pipe from one pocket, patted himself over until he located the stem in another, coupled the two together, and disposed of his oars against the curb while he cut off a filling and milled it between his palms.

Randolph produced his own stubby pipe and shared the twist, which was as strong as the mule-leg from which it took its name. Arkansaw made no inquiries, restrained by his natural courtesy, although it was plain that he was eager to learn how Moore had received the proposal to unearth the Morning Star.

"Well, I've got the day before me," said Randolph, hastening to relieve him; "my business with Moore is still up in the air."

Arkansaw, fully satisfied, shouldered his oars again.

"Well, I was just goin' out to run m' trot-lines," he said; "maybe you'd like to go along, it's cool on the river this morning."

Randolph was glad to go, for aside from helping him to fill in the day, which was sure to be full of vexatious chafing to make it long, he wanted to question Arkansaw about the river road, and what menace to travelers there lurked in its shadows by night, leaving it harmless and clear by day.

Arkansaw drove his skiff across the snarling current as gracefully as man ever handled boat, with regular sweep of his long oars, feathered to glide above the water like low-skimming wings. Commonplace on land, on the river he became at once romantic and promising, a battery of interest, a blood kinsman of the yellow-brown stream itself.

Randolph sat facing him in the stern, watching the rhythmic motion of his arms and oars, content for the time to remain silent among the new wonders in which he found himself. The river had seemed to broaden amazingly with the launching forth upon it, and its dangers to multiply. Its current, so sluggish and slow to watch from shore, now seemed to rush in almost torrential rapidity, the murmur of it always distinct, deep, threatening.

No longer mean and despicable the Missouri seemed to him, nor ever could it so seem again. Here, upon the bosom of it, the strength of it under his eyes, its mystery more inscrutable than from afar, a dread of it laid hold of him, impelling him to grasp the gunwales of the skiff and cling with rigid hands.

Only after Arkansaw had taken the fish from his lines, rebaited his hooks, and cast them forth again into the turgid waters. he found interest enough in the river road reviving to make inquiry about it.

"What's the matter with the river road between here and Moore's that people say you can't travel over it at night?" he asked curiously.

Arkansaw paused in his rowing, letting the boat drift, while he looked at Randolph with startled eyes, as a man might look whose family secret was being pried into by one who could not, in any reasonable conjecture, be suspected of having the means of coming to it.

"The river road?" he repeated vacantly.

"I was told I couldn't travel it at night," Randolph returned, watching Arkansaw's changing face.

Arkansaw dipped his oars, pulled a lusty stroke, looked over his shoulder for his landing marks, and laid himself again to his work. He pulled on a little while, saying nothing, his face troubled, his breath coming faster than his labor would permit him.

"Was it Moore, or the nigger woman told you?" he asked presently.

"It was Miss Moore. What did she mean?"

"Oh, I reckon she didn't mean nothin' —only it's mighty dark, maybe."

(To be continued)

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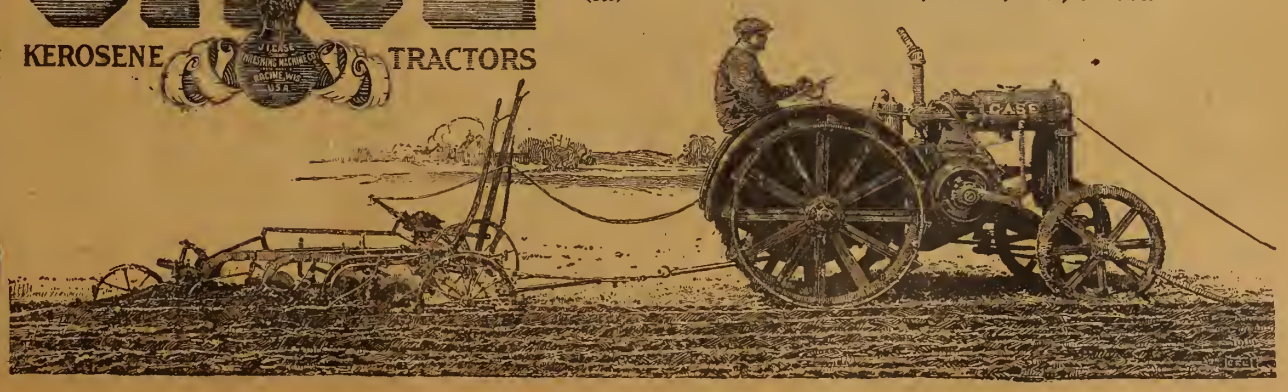

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The Dairy Cattle Show

Like other departments of the National Western Stock Show, the dairy division showed great growth over previous years. There was not room enough to accommodate the entries, which were split up into three sections. The Holsteins had a floor over the hog division, and while badly cramped, the quarters were light enough so that the stock could be viewed. However, the Milking Shorthorn and Jersey herds, on the floor below, and the Guernseys in another building, widely separated from the dairy barn, did not fare so well. The Stock Show management has promised a dairy building for the 1920 show; it would have been put up last year, but for war conditions, which put a stop to all projects of this sort.

W. H. Standish of Lyons, Ohio, judged the dairy cattle and there was general approval of his decisions in every class. The judge was astonished at the character of the entries and declared that the East "had nothing on" the mountain states when it came to fine dairy cattle.

The Holsteins were the life of the show in numbers, and, while herds of other breeds are not so plentiful, there was no lack in quality of either Jerseys, Guernseys or Milking Shorthorns. There was some disappointment because not more of the excellent Jersey herds of Colorado and New Mexico were in evidence. There are good opportunities for the development of this breed if the breed interests will get behind the Colorado Jersey boosters and help persuade the owners to bring their show stock to Denver.

Following is a list of the dairy department awards:

Holstein Awards

Grand Champion Bull—Holstein-Friesian. Entered by Hall Brothers, Denver, Colo.

Senior Champion Bull—Holstein-Friesian. Entered by L. C. Donley.

Reserve Champion Bull—Holstein-Friesian. Entered by L. C. Donley, Mt. Morrison.

Junior Champion Bull—Holstein-Friesian. Entered by Hall Brotbers.

Holstein-Friesian Senior Champion Cow—Won by L. C. Donley.

Holstein-Friesian Junior Champion Heifer—Won by Colorado Agricultural College.

Holstein-Friesian Grand Champion Cow or Heifer—Won by L. C. Donley.

Reserve Champion Cow or Heifer—Holstein-Friesian. Won by Colorado Agricultural College.

Class 105—Holstein-Friesian aged bull: First, L. C. Donley; second, Colorado Agricultural College.

Class 106—Holstein-Friesian bull, 2 years old and under 3: First, J. J. Kalberer, Broomfield, Colo.; second, Spencer Penrose, Colorado Springs, Colo.; third, J. F. Little, Hudson, Colo.

Class 107—Holstein-Friesian senior yearling bull: First, Hall Bros.; second, L. M. Boston, Mt. Morrison, Colo.

Class 108—Holstein-Friesian junior yearling bull: First, Arkansas Valley Sugar Beet & Irrigated Land Co.

Class 109—Holstein-Friesian senior bull calf: First, Hall Bros.; second, Arkansas Valley Sugar Beet & Irrigated Land Co., Holly, Colo.; third, Colorado Agricultural College.

Class 110—Holstein-Friesian junior bull calf: First, Smyser Stock Powder Mfrs., Sterling, Kan.; second, Smyser Stock Powder Mfrs., Sterling, Kan.; third, L. C. Donley.

Class 111—Holstein-Friesian aged cow: First, L. C. Donley, Mt. Morrison, Colo.; second, Ben F. Simpson, Denver, Colo.; third, Ben F. Simpson, Denver, Colo.

Class 112—Holstein-Friesian cow, 2 years old and under 3: First, L. C. Donley, Mt. Morrison, Colo.; second, L. C. Donley, Mt. Morrison, Colo.; third, Spencer Penrose, Colorado Springs, Colo.

Class 113—Holstein-Friesian senior yearling heifer: First, L. C. Donley; second, Smyser Stock Powder Mfrs.

Class 114—Holstein-Friesian junior yearling heifer: First, Ben F. Simpson, Denver, Colo.; second, Spencer Penrose; third, L. C. Donley.

Class 115—Holstein-Friesian senior heifer calf: First Colorado Agricultural College; second, Hall Brother; third, L. C. Donley.

Class 116—Holstein-Friesian junior heifer calf: First, Ben F. Simpson, Denver. Colo.; second, Ben F. Simpson; third, Hall Brothers.

Class 117—Holstein-Friesian aged herd: First, L. C. Donley; second, Spencer Penrose.

Class 118—Holstein-Friesian young herd (R. F. Special): First, L. C. Donley; second, Spencer Penrose; third, Arkansas Valley Sugar Beet & Irr. Land Co.

Class 119—Holstein-Friesian calf herd: First, Hall Bros.; second, L. C. Donley; third, Spencer Penrose.

Class 120—Holstein-Friesian get of sire: First, Smyser Stock Powder Mfrs.; second, L. C. Donley; third, Hall Bros.

Class 121—Holstein-Friesian, produce of dam: First, Hall Bros.; second, L. C. Donley; third, Smyser Stock Powder Mfrs.

Holstein Specials

Grand Champion Holstein-Friesian cow or heifer (Great Western Sugar Co. special)—Won by L. C. Donley.

Best aged herd of Holstein-Friesian cattle Great Western Sugar Co. special)—Won by L C. Donley.

Best breeder's young herd (Holstein-Friesian Ass'n special)—Won by L. C. Donley.

Best display of Holstein-Friesian cattle (Holstein-Friesian Ass'n special)—L. C. Donley.

Best exhibit of Holstein-Friesian cattle (Swift & Co. special)—L. C. Donley.

Jersey Awards

Senior Champion Bull, Jersey—Won by Colorado Agricultural College.

Junior Champion Bull, Jersey—Won by Colorado Agricultural College.

Grand Champion Bull, Jersey—Won by Colorado Agricultural College.

Reserve Champion Bull—Won by Colorado Agricultural College.

Senior Champion Cow, Jersey—Won by A. M. McClenahan, Greeley.

Junior Champion Heifer, Jersey—Won by A. M. McClenahan, Greeley, Colo.

Grand Champion Cow or Heifer—Won by A. M. McClenahan.

Reserve Champion Cow or Heifer—Won by A. M. McClenahan.

Class 100—Jersey, aged herd: First, A. M. McClenahan.

Class 101—Jersey, young herd: First, A. M. McClenahan.

Class 102—Jersey, calf herd: First, A. M. McClenahan.

Class 103—Jersey, get of sire: First, A. M. McClenahan.

Class 104—Jersey, produce of dom: First, Colorado Agricultural College; second A. M. McClenahan.

Best Exhibit of Dairy Cattle (Swift & Co. special)—First, A. M. McClenahan.

Class 88—Jersey aged bull: First, Colorado Agricultural College; second, W. A. Kerr & Son, Berthoud, Colo.; third, A. M. Gardner, Denver, Colo.

Class 89—Jersey bull, 2 years old and under 3: First, A. M. McClenahan.

Class 90—Jersey senior yearling bull: First, Colorado Agricultural College.

Class 92—Jersey senior bull calf: First, A. M. McClenahan.

Class 93—Jersey junior bull calf: First, Hinman Silo Co.; second, A. M. Gardner, Denver, Colo.

Class 94—Jersey aged cow: First, A. M. McClenahan; second, Colorado Agricultural College.

Class A—Cow having a register of merit record for one year (Amer. Jersey Cattle Club specials). Won by Colorado Agricultural College.

Class 95—Jersey cow, 2 years old and under 3: First, A. M. McClenahan.

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Class 97—Jersey junior yearling heifer: First, A. M. McClenahan; second, A. M. McClenahan; third, Colorado Agricultural College.
Class 98—Jersey senior heifer calf: First, A. M. McClenahan; second, A. M. McClenahan;

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Class 99—Jersey junior heifer calf: First, A. M. McClenahan; second, A. M. McClenaban; third, A. M. McClenahan.

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Class 144—Senior bull calf, Milking Shorthorn: First, Kansas Agricultural College, Manhattan, Kans.; second, The Otis Herd; third, The Otis Herd, Willoughby, Ohio.
Class 145—Milking Shorthorn junior bull calf: First, Pine Valley Dairy & Farm Co.; second, Pine Valley Dairy & Farm Co.; third, Bonvue Farms Co.
Class 146—Milking Shorthorn aged cow: First, Bonvue Farms Co.; second, Bonvue Farms Co.; third, Pine Valley Dairy & Farms Co.
Class 147—Milking Shorthorn cow, 2 years old and under 3: First, Pine Valley Dairy & Farms Co., Colorado Springs, Colo.; second, The Bonvue Farms Co., Denver, Colo.
Class 148—Milking Shorthorn yearling heifer: First, Pine Valley Dairy Farms Co.; second, Bonvue Farms Co.; third, Bonvue Farms Co.
Class 149—Milking Shorthorn senior heifer calf: First Pine Valley Dairy & Farms Co.
Class 150—Milking Shorthorn junior heifer calf: First, Bonvue Farms Co.; second, Pine Valley Dairy & Farms Co.; third, Bonvue Farms Co.
Class 151—Milking Shorthorn young herd: First, Pine Valley Dairy & Farm Co.; second, Bonvue Farms Co.
Class 152—Milking Shorthorn calf herd: First, Bonvue Farms Co.; second, Pine Valley Dairy & Farms Co.
Class 153—Milking Shorthorn, produce of dam: First, Pine Valley Dairy & Farms Co.
Class 154—Cow or heifer eligible to entry in the record of merit list (American Shorthorn Breeders Ass'n specials): First, Bonvue Farms Co.; second, Bonvue Farms Co.
Milking Shorthorn cow making best record (Midwest Creamery Co. special)—Bonvue Farms Co.
Best exhibit of Milking Shorthorn cattle (Swift & Co. special)—Pine Valley Dairy & Farms Co.
Grand Champion Milking Shorthorn cow or heifer (Great Western Sugar Co. special)—Bonvue Farms Co.

Guernsey Awards

Senior Champion Bull, Guernsey—First, H. D. Parker, Greeley, Colo.
Junior Champion Bull, Guernsey—First, Mary McLane Bancroft, Evergreen, Colo.
Grand Champion Bull, Guernsey—Won by H. D. Parker, reeley, Colo.
Reserve Champion Bull, Guernsey—Won by Mary McLane Bancroft, Evergreen, Colo.
Senior Champion Cow, Guernsey—Won by H. D. Parker.
Junior Champion Heifer, Guernsey—Won by H. D. Parker.
Grand Champion Cow or Heifer, Guernsey—Won by H. D. Parker.
Reserve Champion, Guernsey—Won by H. D. Parker.
Class 122—Guernsey aged bull: First, H. D. Parker; second, Bertle Wind, Jr., Hillrose, Colo.
Class 125—Guernsey junior yearling bull: First, Mary McLane Bancroft.
Class 127—Guernsey junior bull calf: First, H. D. Parker.
Class 128—Guernsey aged cow: First, H. D. Parker; second H. D. Parker; third, Mary McLane Bancroft.
Class 129—Guernsey cow, 2 years old and under 3: First, H. D. Parker; second, H. D. Parker.
Class 130—Guernsey senior yearling heifer: First, H. D. Parker.
Class 131—Guernsey junior yearling heifer: First, H. D. Parker; second, H. D. Parker; third, Mary McLane Bancroft.
Class 132—Guernsey senior heifer calf: First, H. D. Parker.
Class 133—Guernsey junior heifer calf: First, H. D. Parker; second, Bertle Wind, Jr.
Class 134—Guernsey aged herd: First, H. D. Parker.
Class 135—Guernsey young herd: First, H. D. Parker.
Class 136—Guernsey calf herd: First, H. D. Parker.
Class 137—Guernsey, get of sire: First, H. D. Parker.
Class 138—Guernsey, produce of dam: First, H. D. Parker.
Class 139—Best 2-year-old heifer in milk, bred by exhibitor (American Guernsey Cattle Club special): First, H. D. Parker.
Class 140—Best yearling heifer not in milk, bred by exhibitor (American Guernsey Cattle Club special): First, H. D. Parker.

Guernsey Specials

Best exhibit of Guernsey cattle (Swift & Co. special)—Won by H. D. Parker.
Best aged herd of Guernsey cattle (Great Western Sugar Co. special)—Won by H. D. Parker.
Grand Champion Guernsey cow or heifer (Great Western Sugar Co. special)—Won by H. D. Parker.
Best individual exhibit of purebred dairy cattle (Great Western Sugar Co. Challenge Cup)—H. D. Parker.

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If you have any use for a cream separator, it's only a question of time before you buy a De Laval.

Many buy a De Laval to start with and so avoid a lot of "separator grief."

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Colorado Holstein Sale

The third annual consignment sale of the Colorado Holstein Cattle Club, which was one of the features of Stock Show week, resulted in the dispersion of nearly 60 head of registered males and females, the animals going to bidders from Colorado and New Mexico. One thousand dollars was the top price of the sale, this being paid by Mrs. R. D. G. Douglass of Rush, Colo., for a splendid individual from the M. E. Penrose herd of Denver, Fanny Lilu Segis 199465. This cow is not only a great producer but an animal of splendid individuality and excellent ancestry. She traces back on both sides to some of the greatest producers of the breed.

A number of other cows sold upward of $600. The average on females for the sale was $367, while the average for bulls was $198. The consignors were well satisfied with results, although no record-breaking prices were secured. The object of

Five Cows Yielded 11.58 Lbs.

Butterfat in 24 hours and 25.65 lbs. of solids not fat.
These were the Holstein-Friesians that won the Sweepstakes Prize of the Ohio Agricultural Society. The nearest competitor made 10.05 lbs. fat and 14.34 lbs. solids not fat.
The Holsteins always lead in production.
If interested in

Holstein Cattle

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Dept. 104, 12th St. & Central Ave., Chicago, Ill.

the sale was accomplished, namely, the dispersion of excellent blood among the dairy farmers of the intermountain section.

The sale was managed by Carlos W. Hall and cried by Colonel G. M. Banks. Following is a complete list of sales, arranged according to the herds from which these offerings came.

C. W. Crews, Fowler, Colo.

Males:
Crewsdale Abbebaker, Dan E. Peterson, Alamosa, $225.
Crewsdale Beets Spofford Artis, Wm. F. Dunham, Denver, $160.
Crewsdale Chesterfield Abbebaker, Lee A. West, Golden, $125.
Crewsdale Tommy Atkins Spofford, R. Burry, Denver, $150.
Woodcroft Pontiac Spofford, J. W. Hall, Golden, $210.

Females:
Abbebaker Pietertje, M. N. Mikesell, Springer, N. M., $485.
Colanthus Walker, M. N. Mikesell, Springer, N. M., $300.
Crewsdale Beauty Spofford Gem, P. A. Wilmoth, Fort Lupton, $275.
Crewsdale Korndyke Gem, W. C. Sauer, Fort Lupton, $525.
Crewsdale Lavinia, W. C. Sauer, Fort Lupton, $525.
Crewsdale Snowflake Lavinia, Dunaway & Brigham, $325.
Crewsdale Spofford Walker, W. C. Sauer, Fort Lupton, $300.
Patti of Rosemont, Redlands Realty Co., Denver, $450.
Woodcroft Pontiac Johanna, Redlands Realty Co., Denver, $425.

Hall Brothers, Denver, Colo.

Males:
Western Champion Sir Fayne, Thos. Lomas, Eaton, $250.
Western Colantha Sir Ormsby, Jno. R. Brown, Golden, $100.
Western Sir Ormsby, J. C. Wright, Edgewater, $250.

Females:
Western Colantha Vernon, H. E. Grutsch, Marvin, $240.
Western Esther Colantha, R. Young, Parker, $210.
Western Evelyn Ormsby, W. C. Sauer, Fort Lupton, $260.
Western Jasamine Colantha, J. W. Kalberer, Broomfield, $220.
Western Lady Ormsby, R. Young, Parker, $210.
Western Ruth Colantha, R. P. Lamont, Jr., Larkspur, $260.

L. C. Donley, Mt. Morrison, Colo.

Females:
Colantha Queen De Kol 2d, Russell Young, Parker, $205.
Daisy Mink Star, J. C. Wright, Edgewater, $325.
Eva Clothilde Tehee, W. C. Sauer, Fort Lupton, $225.
Heifer calf, sire 173954, dam 212132, Russell Young, $325.
Heifer calf, sire 173954, dam 335960, Thos. Lomas, Eaton, $325.
Heifer calf, sire 173954, dam 330583, Thos. Loman, Eaton, $325.
Bull calf, N. P. Swanson, Berthoud, $210.
Johanna Snowball Queen 2d, Joe Richardson, Yuma, $500.

M. E. Penrose, Denver, Colo.

Females:
Bos Princess, Redlands Realty Co., $185.
Fanny Lilu Segis, Mrs. R. G. D. Douglass, Rush, Colo., $1,000.
Frances Windsor, N. M. Mikesell, Springer, N. M., $375.
Gypsie Rag Apple, R. P. Lamont, Jr., Larkspur, $700.
Wilda Pontiac Lass, Lee Gaiser, Denver, $650.
Hopes Brown Hill Minnie 2d, Redlands Realty Co., $300.
Lena Inka Fayne, Arthur Ponsford, Mt. Morrison, $625.
San Jose Lyons Netherland, Redlands Realty Co., $350.

L. M. Boston, Mt. Morrison, Colo.

Male:
King Walker of Myerdale, J. Teppe, Edgewater, $225.

Females:
Sunny Flatts Birdie, Mrs. Schneider, Denver, $175.
Sunny Flatts Nellie, H. E. Grutsch, Marvin, $285.

Columbine Herd, Lytle, Colo.

Male:
Columbine Johanna Korndyke, R. P. Lamont, Jr., Larkspur, $180.

Females:
Columbine Beets Ormsby, R. P. Lamont, Larkspur, $400.
Lady William Abbekerk, Carlos W. Hall, Denver, $475.

Sam Hansen, Englewood, Colo.

Male:
Celosade Bessie Hengerveld, Mrs. Schneider, Denver, $300.

Females:
Pauline Karel, Dunaway & Brigham, Fort Lupton, $235.

J. F. Little, Hudson, Colo.

Females:
Countess Cornucopia, R. P. Lamont, Jr., Larkspur, $350.
Groveland Johanna Witkop, Redlands Realty Co., $350.

Male:
Saucy Joe De Kol, S. E. Anderson, Derby, $200.

State Grange Meeting

Announcement has been made that the annual session of the Colorado State Grange will be held at Denver March 4, 5 and 6. Postponement was necessary from the original dates, because of the influenza, which was prevalent at that time over the greater part of the state. An interesting program has been prepared and many important matters are to come up for discussion.

The general sessions will be held in Fraternal Union hall the same as last year. The drill contest will take place Tuesday evening in El Jebel temple, and it promises to be a good one, as the contesting teams have had plenty of time to prepare. The annual banquet will be held at the Brown Palace hotel on Thursday evening. The Grange Mutual Insurance department will hold its session on the first of the three days. There are about 225 Granges in the state and every Grange is urged to send a representative; some will have several in attendance. consequently the sessions will be well attended.

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Denver, Colorado.

Gentlemen: You will please find enclosed $1.50, which I believe pays up my back subscription and two years in advance. The fact that I have not renewed before is merely an oversight, as I appreciate your paper very much and do not care to be without it. I seldom read a copy without being fully repaid for the subscription price.

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GEO. J. ROBERTSON.

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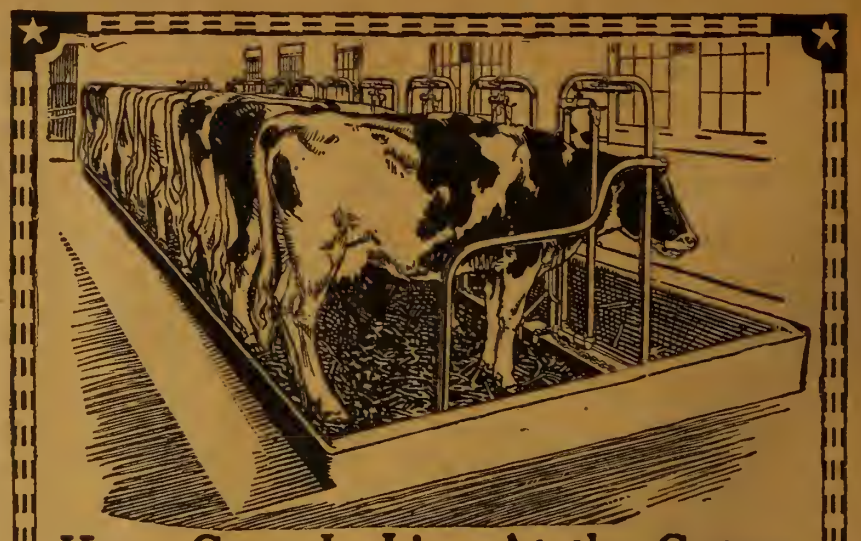

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THE cow in a STAR Stall can be always kept in line at the gutter. This means a clean cow-bed and a clean cow; it saves you much of the work in cleaning out the barn day after day. The litter falls in the gutter, where it's easily taken care of. The STAR Alignment Device provides for this. It lengthens or shortens the cow bed instantly. As easily operated as locking the Stanchion.

This shows the STAR Alignment Device with Stanchion in center position

This is just one of the many big work-saving features in STAR Equipment.

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and learn how easily and economically you can put STAR Equipment in any style barn. If you are thinking of building or remodeling, let the STAR Master Barn Designers send you free barn plans.

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SCHROCK KAFFIR is an early forage crop of wonderful drought resistance—germinates readily in cold ground and does not easily shatter in handling. Black birds will not bother it in the fields—a distinct advantage over the usual grain crops. Has given the utmost satisfaction wherever used.

Pink Kaffir Sure to mature. From two three weeks earlier than white. Has yielded 40 to 50 bushel per acre the past two years where white kaffir planted at the same time did not mature a bushel.

Sweet Clover and Seed Corn

Easy to get a stand of Barteldes' Scarified Sweet Clover. Grows on poor soil, makes a heavy crop and is a wonderful fertilizer.

Barteldes' Seed Corn is known for its quick germination and production of large, even-rowed ears. A money-maker in every sense of the word.

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Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

I'm just a-guessing—but it's a safe guess—that not enough brooders will be bought by our readers this season. The increase in the number of incubators used each year is gratifying, but I always hate to see an incubator unloaded at a station unless there is also a brooder, or better yet, two or three brooders, unloaded also as companions. An incubator is like Farmer Putnam—good as far as it goes, but mighty incomplete without Josephine.

We are, many of us, still bound to makeshift ideas of the days of necessity, and I am saying nothing against the use of makeshifts when really necessary, but I do protest against the use of makeshifts when they are continued because, "Oh, well, they do well enough." I think readers of Western Farm Life will agree with me when I say that incubators are a real necessity in the poultry business. We can do without them, hatch a lot of chicks, make more or less money, etc., but in the poultry business, meaning a regular, systematized, organized business of getting broilers on the market when prices are highest, getting pullets matured for winter laying, doing the right thing at the right time, incubators are absolutely necessary.

But brooders are as necessary; you can get along without them if only a hundred or two chickens are desired, but you are economically wasteful as the merchant who delivers his goods by use of a team. I've raised a good many chicks in boxes behind the stove, in fireless brooders somewhere else, by use of hot bricks and hot water jugs, in brooders warmed by a tank of hot water, no applied heat. I can excuse myself for doing this when I had to, but feel now that I had better paid big interest on money invested in brooders. A person's time, patience, rest, health, religion, comfort and happiness are worth something, and should be considered, but all of them are going to suffer during the season of boxes, jugs, bricks, etc. Not only so, but the awful mortality caused by these makeshifts is too costly—brooders cost less. It is as easy to care for fifty or one hundred chicks in a brooder as it is to care for one brood in a box with a jug, and it is infinitely more satisfactory to find an occasional dead one in the brooder than to find a half dozen or twenty dead in the box, because of crowding, which is the direct result of chilling.

I think (I am guessing again) that the enforced or imagined necessity of getting along with substitutes—that is, doing without really necessary things—has done more than any other one thing to keep the poultry business in the kindergarten stage. This poultry game is going to be a mighty big thing during the next few years, and the one who is going to get the most out of it is the farmer who will intelligently care for a good-sized flock. What poultrymen as a whole have been doing in the past has been to agitate for higher prices and greater production; now that prices are good and production is reasonably good, why not get after the cost of production? Time must enter into the account and to say the least the incubator and brooder are wonderful savers of time.

The first requisite in a brooder is heat—not all brooders furnish enough. Beware of the manufacturer who says that the brooder should be heated to 90 degrees before chicks are placed therein; perhaps his brooder cannot be brought to a higher temperature. A chick is hatched at about 103 degrees; to suddenly subject it to a temperature 13 degrees or more lower is going to start something. We don't need science to tell us that—it's good horse sense. So be sure that your brooder can be heated to MORE than the incubator temperature, then make it possible for the chicks to go to or away from the heat at will. For this purpose the hover type, round in shape, open on all sides, is desirable. These brooders are made to hold from fifty chicks (heated by lamp) to several hundred, the latter heated by hard coal or oil.

The brooder should be roomy enough to prevent crowding; it should be airy, clean, the floor covered with chaff, to make a comfortable sleeping place.

Something more about heat: I'm a hopeless crank on this one thing; would rather have heat in plenty for my chicks and sawdust to feed them than balanced rations in a cold place. A few years ago—perhaps ten or a dozen, the whole country went wild over the discovery of a bug which was christened bacillus pullorum. He was the fellow responsible for white diarrhea in chicks. The loss among poultrymen caused by this little germ has been alarmingly great and I think I am safe in saying that this loss, and the fear that the disease was incurable or unpreventable, put many a man out of the game. But when our investigators found the germ that did the damage we were shown his latest photograph, a full description was scattered broadcast and we were warned to keep the gate closed against him and to sick the dog on him if he tried to get over the fence.

There isn't a doubt in my mind about the findings of our investigators; I am quite sure Mr. Bacillus Pullorum brings on the dread disease; that any cure has been found I doubt in spite of all the dope advertised. I wish, however, that after the bug was found more time, thought and effort had been put into the matter of helping to prevent the disease. But perhaps this is the business of someone else, and until someone can do better by the readers of Western Farm Life I am going to tell them how it is possible (I may be guessing again) to

(Turn to page 27)

Scene of the Fowler Egg Farm, Fowler, Colo. Headquarters for bred-to-lay Leghorns. Tom Barron stock—282-egg blood.

15,000 BABY CHICKS and 30,000 SELECTED HATCHING EGGS for 1919

If you want eggs and big profits, come to headquarters and get the bred-to-lay kind—tested 9 years for egg production. They lay and pay. They make money for us; they will for you. Get our big illustrated circular before you buy eggs or chicks. It tells all. It's free. Write.

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"VICTORY" OATS

100 Bushels to the Acre!

A REVELATION to farmers of the mountainous districts where rains and winds are liable to damage the crops.

The straw averages about the size of a lead pencil the stiffness of which prevents it from falling down during storms. Is green when the grain is ripe. Does not lodge. Close growing head without long straggles. Leaf blade one to one and one-quarter inches wide.

The yield last year was 100 bushels to the acre—the grain averaging over 40 pounds to the bushel.

Barteldes Victory Oats are grown under our personal supervision by one of the most reliable growers in the mountain section. We would suggest sowing from 3 to 3½ bushels to the acre.

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For Prairie Dogs, early season best. Put tablets outside holes.

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ALL STYLES, 160 ILLUSTRATIONS. Send 10c. Inland Poultry Journal, Dept. I, Indianapolis, Ind.

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SIXTY DAYS' TRIAL—PAY IF SATISFIED. To those who agree to use as directed and pay if satisfied, we will send GERMOZONE first time on 60 days' trial, postpaid, without preliminary charge. Write today, stating how many hens you have. Germozone is sold by drug and seed stores in 75c and $1.50 sizes.

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YOUR HIDES AND SKINS TANNED and made up to your order at a price that suits. DEAL DIRECT WITH THE FACTORY—Send today for handsomely illustrated style book—FREE. Also contains full information on care of hides and skins. Ask for shipping tags. Write today.

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FURS

We pay highest cash prices for furs of all kinds. No commission charged. Write today for our latest Price List, Fur Tags and Trappers' Guide.

The Old Reliable Raw Fur House

CHAS. FRIEND & CO., Inc.

The Largest Handlers of Raw Furs in the West.

917 Wazee St., Dept. 80 Denver, Colo.

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Friend Solomon once remarked (perhaps after the advent of wife 599) that "there is no new thing under the sun, no not one, and whatsoever hath been, the name thereof was given long ago." That may very well be, but nevertheless we got some new ideas from those "old things" at the Stock Show, and the names don't matter a great deal anyway. Even Solomon would admit that.

We found many points of interest there in the Home Economics exhibit from the Agricultural College worth passing on, but have only space for one or two. One concerned a point we have all had to face this winter in our own homes or those of our neighbors, preparation for illness. A tiny model bed excited envy in the heart of every small girl beholder and showed her motber how to tuck in the sheets so they would not slip. A correspondingly small screen and two windows with boards placed at the bottom showed the means of allowing fresh air, "one of the greatest disinfectants on earth," an easy ingress without giving a draught.

The rest of this suggestive exhibit consisted of two home-made medicine chests, containing a number of articles which are so necessary in the emergency which may be just around the corner. One chest was made from a spool box which one often sees in a small store, a shallow box thirty by twenty inches, with a glass cover and small inner partitions. All of those partitions excepting enough to form four shelves, had been removed and the box fixed to screw against the wall. This is an advantage, as it can be placed out of the reach of the smaller children. The other box was not quite so large and was arranged to lie flat. It was simply a plain wooden box with partitions.

Both chests contained much the same material, all the liquids being in two-ounce bottles and the semi-solid remedies were in small porcelain or glass jars, such as some salves or cold creams are commonly packed in. All were carefully labeled, a point to be noted by anyone making such a convenience. A list of the medicines and other articles included the following:

Aromatic spirits of ammonia, with a rubber cork in the bottle.
Alcohol.
Iodine.
Castor oil.
Epsom salts.
Lime water.
Small bottle of collodion.
Mustard, powdered.
Baking soda.
Syrup of ginger.
Syrup of ipecac.
Soda mint tablets.
Boric acid.
Gauze, medicated.
Cotton, medicated.
Roller bandages.
Scissors.
Roll of old muslin.
Quinine.
Carbolic acid.
Mentholatum.
Listerine.
Camphor.
Turpentine.
Witch hazel.
Peppermint.
Calomel.
Vaseline.
Green soap, or surgeon's soap.
Adhesive plaster.
Needles and thread.
Safety pins.
Clinical thermometer.
Spoon.

With an emergency chest containing all these things you will be well prepared for many small emergencies and have the satisfaction of having all the articles clean and at hand.

What Mary Wants

Dear Sarah:

Your letter was surely as "Sarah-ish" as anything could be, your children with colds, Marvin with a strained back and yet you never said a word about being all tired out from moving, nor what you really thought of that old kitchen and house—only that you "saw great possibilities in both the house and the place." If I hadn't always envied you your sunny, hopeful disposition, I'd be telling you that you were starting out with the right "attitude of mind." Possibilities are those alluring dreams which keep a farm woman always willing to strive. It's the probabilities she has to face which make her catch her breath.

Just now there is an alluring possibility in my brain which I am struggling three times a day with all my cooking wiles to make a probability You know my ability to want things from the days when a pampadour flowered ribbon in a store window set me wishing for it until I set all the girls in the school hall wild with the repetition of my desires. And now I'm wanting something worse than I ever wanted any flowered ribbon; but like any other wily woman I'm trying to get John to want it for himself and take my longing in as a side issue You know, I've often thought what a horrible failure Cleopatra would have made as a farmer's wife. She wanted too many feminine things and kept the men so busy getting them for her they'd have had no time for weeds or cows. It has taken me several years but at last I have learned that any purchase beyond the power of the "butter'n' egg" money brings more peace if it is wanted by both sides of the house, and especially if the man "finds it out first."

You're probably wondering what on earth I'm driving at, Sarah, but it's those eternal water buckets. Even if the boys have time to fill them all for me they're such a nuisance, always sitting about. And when the men are busy they're the ghosts of all my pasts and the ghouls of all my futures. My idea of heaven right now doesn't hinge on the "still waters," but the running variety, and I want it inside, hot or cold.

John's wanting to go into the dairy business and I'm perfectly willing if we can have water. Therefore, he is being impressed with the convenience of a milk room with a water-air tank close by making everything washable and coolable. Incidentally by that time John will think of the advantages of carrying the beautiful liquid into the kitchen, and I can also turn that big closet next to the kitchen bedroom into a bathroom. All he needs is to be started wanting and I'm anxious that the process be completed before the ground is ready for plowing. It will have to be a quick process and so far has taken several lemon pies, but I think it's going through. You'll know by the next letter whether hurrahs are in order or not.

We're all well and the snow is breaking—so my usual worry of colds is dying a natural death. Two of my "Rhody's" are wanting to assume maternal duties, and I'm going to set them tomorrow. I'll send you a setting of eggs next week if you want them.

In the meantime I'm looking up advertisements of water motors for washing machines and such. You remember the little girl who really prayed for rain carried an umbrella.

Lovingly, MARY.

A Helpful Letter

The Farm Home Department:

We have been silent members of this circle for some time, and have always enjoyed the paper from start to finish. Fact is, when the mail comes at noon, and the Western Farm Life has come—it is, "Come, Mother, read Farmer Putnam," from father—or it is, "Oh, mama, let's hear Farmer Putnam," from the children. So it don't matter that mother's tea gets cold, and she finishes with a lunch after the rest have eaten; just so she reads "Farmer Putnam" to their great enjoyment.

I wonder if Farmer Putnam reads the Home Department; if he does not so condescend, I know Mrs. Josephine does at least, so we will depend on her to tell him that here is one family who has prepared for two years' enjoyment of Putnam nonsense (some mighty good sense, too) and we don't have to wait for one another to read it, for it is read aloud that all may hear. Another thing we hope she will tell bim is that there "is hope for us to enjoy sauerkraut and sausage, as it came from England. My husband came from there and says it is true. He was three years old when he left there, so he ought to know.)

Another pleasure we are looking forward to is the addition of Miss Douglass to the staff. There is one great void in many of the papers and magazines of today, in the failure to adapt the different methods in farming, gardening, and cooking to the higher altitudes. We see it but seldom, and get more help in the Western Farm Life than in any other. Of course, we are not all on the same level in these western mountain states, but there are numbers of localities that are perched up in mountains that would gladly learn of any methods to adapt themselves to their environments. I came from Iowa, and while I considered myself a fair cook there, I found to my sorrow I knew nothing on arriving in this altitude.

I want to thank Miss Douglass by this means for the help we derived in the canning demonstration that was held here on August 16 of 1917. In fact, just two days ago we opened a can of peas that she canned on that day in the pressure cooker. A very delectable dish they made—sweet and tender. And yet some say peas are hard to can. I've never lost a can of the many varieties of vegetables we have put up since. So you see Miss Douglass, we would not take a good deal for what we learned through you.

As I look forward through the years to tbe possible maybe's, I see the many opportunities for the upbuilding of happy homes. for it is the happy homes that build a nation. In my young days I used to get the impression that any girl who failed in any chosen profession could get married and have a home anyhow. But it comes more forcibly every day that the young people contemplating these homes of the future should be better trained in every branch than for any other profession on the globe.

If all the divorce cases were weeded down—back to the starting point—wouldn't we find the cause was due to some ignorance of some simple branch of work in the making of the bome?

It has been said that the greatest education a mother could give her child would be to teach it to do without her. There are lots of mothers who would say, "But I want my child to depend on me." No, not in that sense. You wish your child to learn right from wrong, to learn the power of will that will guide the little feet in the paths that they should go; that they make the world better for having been in it. For we can never tell when the call may come that will throw our children out in the world among strangers. So God bless the Happy Home and tbe opportunities the New Year is going to bring to all the homes.—Mrs. J. R. Horton, Montezista, Colo.

He Likes Farmer Putnam

Calhan, Colo., Jan. 4, 1919.

Western Farm Life:

Enclosed find fifty cents for another year's subscription. If you want to know the best thing in your paper, it is Mr. Putnam.—Jacob Samson.

Spring Fashion Catalogue

Send 25c in silver or stamps for our Up-to-Date SPRING AND SUMMER 1919 CATALOGUE, containing 550 designs of Ladies', Misses' and Children's Patterns, a CONCISE AND COMPREHENSIVE ARTICLE ON DRESSMAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various, simple stitches) all valuable hints to the home dressmaker. Address Western Farm Life.

Boys' and Girls' Club Prizes

The exhibit of Boys' and Girls' Club work which was a part of the Agricultural College display at the Stock Show, created much favorable comment, because of the evident progress the young people are making in practical agriculture and household economics. Daily demonstrations were given by canning club teams from various parts of the state, including the state champion team from Arapahoe county, and a canning team of boys from Kit Carson county. While the girls succeeded in satisfying critical audiences of town and country housewives, the boys' team from Kit Carson proved to be equally adept at the operation of preserving meats and vegetables. There was much interest in the canning of rabbit, in which the boys from the plains district gave a demonstration. Miss Maude E. Sheridan, assistant state club leader, was in charge of the exhibits. Following is a list of the awards:

CORN

State champion, Carl Hixson, Boulder.
First prize, Clyde Henderson, Fort Morgan.
Second prize, Horace Selby, Boulder.
Third prize, Harry White, Longmont.
Fourth prize, Guy Hart, Longmont.
Fifth prize, Elmer Frahm, Fort Morgan.
Sixth prize, Albert Work, Fort Morgan.
Crates of corn:
First prize, Carl Hixson, Boulder.
Second prize, Ira Dunn, Stratton.
Third prize, Clarence Samuelson, Lyons.
Fourth prize, Vean Baker, Stratton.
Corn prizes given by Tritch Hardware company, Denver.

POTATOES

State champion, Wilbur Scoville, Fort Morgan.
First prize, Elden Sallee, Fort Morgan.
Second prize, Everett Hodgin, Monument.
Third prize, Lelia De Haan, Fort Morgan.
Long White:
First prize, Wilber Scoville, Fort Morgan.
Second prize, Elden Sallee, Fort Morgan.
Round White:
First prize, Everett Hodgin, Monument.
Second prize, Clifford Hodgin, Monument.
Russet:
First prize, Emsley Linton, Longmont.
Potato prizes given by Western Farm Life.

BEANS

State champion, Ray Girardet, Strasburg.
First prize, Leonard Keagy, Fort Morgan.
Second prize, Ralph Buchanan, Kit Carson.
Third prize, George Mitchel, Strasburg,
Bean prizes given by Barteldes Seed company, Denver.

SEWING

First year sewing:
State champion, Lewester Erickson, Niwot.
First prize, Mary Jamison, La Veta.
Second prize, Leliah Hendrickson, Bonny.
Third prize, Evelyn Holsclaw, Otis.
Second year sewing:
State champion, Lydia Becker, Vona.
First prize, Vivian Worley, Flagler.
Second prize, Susan Jamison, La Veta.
Third prize, Nellis Shunter, Lyons.
Third year sewing:
State champion, Mable Hixon, Boulder.
First prize, Bertha Wineinger, Ordway.
Second prize, Lillian Smith, Stratton Home, Colorado Springs.
Third prize, Vera Manchester, Boulder.
Sewing prizes given by G. T. Wells, chairman of the Agricultural Committee of Colorado Bankers' Association. In addition to prizes given, each child was given $1 in thrift stamps.

CANNING

State champion, Blanch White, Longmont.
First prize, Mary Humble, Trinidad.
Second prize, Vanetta Hanscom, Fort Morgan.
Third prize, Elaine Hendricks, Burlington.
Prize for greatest number of jars canned: Olga Maring, Myron Stratton Home, Colorado Springs.
Best jar of beans, Maurine Sondles, Center.
Best jar of peas, Amenta Ambrose, Fort Morgan.
Best jar of corn, Merrill Linton, Longmont.
Best jar of pork, Vera Manchester, Boulder.
Best jar of beef, Vivian Worley, Flagler.
Best jar of chicken, Rose Lancaster, Littleton.
Canning prizes given by Pressure Cooker company, Denver; Tritch Hardware company, Denver, and Geo. T. Wells, Denver.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2569—An Ideal House Dress. This model is unique and practical. It is made with reversible closing, and its fulness is held by a belt that fastens at the centre back. The sleeve may be in wrist or elbow length. Deep, ample pockets trim the fronts. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires for a 38-inch size, 6⅛ yards of 36-inch material. The dress measures about 2½ yards at the foot.

2711—A Practical Apron. This model is good for gingham, seersucker, lawn, sateen, khaki, drill and percale. The belt holds the fulness over the back. Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium will require 3¾ yards of 36-inch material.

2486—Comfortable Suit for Small Boy—As here illustrated, striped gingham was used for the trousers, and madras for the blouse. The suit may be of one material. Serge, galatea, drill corduroy, velvet, cheviot and khaki are nice for the trousers. The blouse may be of percale, linen, soisette or flannel. Cut in sizes 3, 4, 5 and 6 years. Size 4 requires 2⅛ yards of 40-inch material.

2732—Neat Dress for Little Girl. This dainty model could be made in percale, gingham or seersucker, with facings of pique or drill. The model is also good for lawn, batiste, repp, poplin, serge and gabardine. The sleeve may be finished with a cuff at wrist length, or loose in elbow length. Cut in sizes 2, 3, 4, 5 and 6 years. Size 4 will require 2⅝ yards of 44-inch material.

Profitable Farm Poultry

(Continued from page 25)

prevent white diarrhea in your flocks.

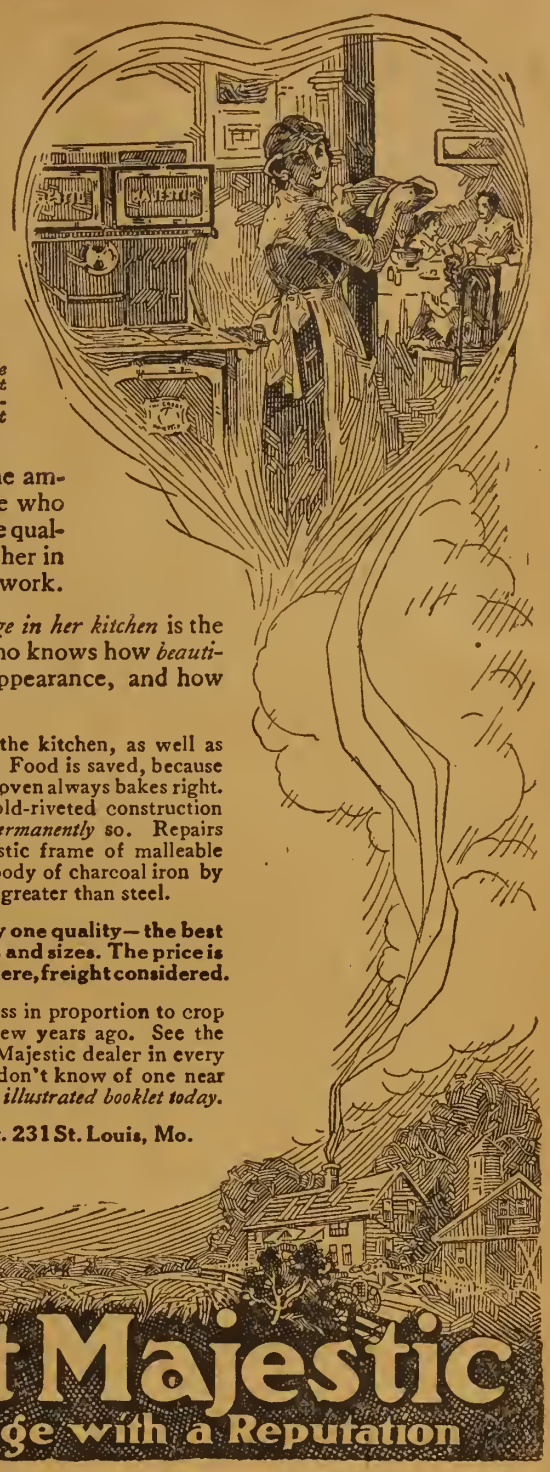
First be sure of the vigor and health of the breeding stock; this means close culling out of all the ailing, decrepit, immature. At hatching time be heartless—a regular barbarian if you please. Don't allow a weakling to follow a morbid desire to see how the world looks, but cut out the last one, give them a whiff of chloroform or a gentle twist of the neck; put into the brooder only the quick, active, strong-boned chicks and then, if you will see to it that never a chill strikes through their little frames, you'll raise better than 90 per cent.

My idea is just this: if the chick is warm, comfortable, rugged, Mr. Bug can't get a hold on him. That's why you should eliminate the unfit, the weak and ailing, not to allow any disease to get a foothold. If the chicks are alternately chilled and cooked, miserable and happy, weakened by any means, Mr. Bug has a good field in which to work.

Ever see an X-Ray photograph? It shows up an object no more clearly than you can see by holding a newly-hatched chick up to the sunlight; the light fairly shines through the little body. Not much there but a little fuzz that doesn't make much of a nightie, a mighty thin skin about as thick as a nickel's worth of bacon; a little machinery that if kept in fuel will eventually build up a good plant, and that's all—nothing tough, substantial, enduring, but something requiring skilful handling until some power of resistance can be established.

We're not in favor of coddling, coaxing into life, helping out of the egg, etc., etc.; only good, sensible care for those fit, for those that can make good with a fair chance.

For the first day or two the chicks should be kept under the hover; a circle of fine mesh wire will do this. If the heat is high in the center of the brooder it will be much lower at the outer edge and the chicks take their choice; they will choose 100 to 105 degrees. As they become accustomed to their home the wire can be removed or extended. If it is impossible to keep the heat up as high as desired, cover the wire with cloth and place close up, but GET THE HEAT UP or don't take the chicks from the incubator. Needless to say, the brooder should be kept, in cold weather, in a room safe from drafts and storm; the chicks must have play room outside the hover and this room must be proof against chilling.—W. E. V.



The heart of the home.

The heart of the home is the kitchen, and the enjoyment of the home life largely depends on the good things to eat that come out of the kitchen.

To own a Majestic is the ambition of every housewife who realizes what this supreme quality range would mean to her in better baking and lighter work.

To have a *Majestic Range in her kitchen* is the hope of every woman who knows how *beautiful* it is in design and appearance, and how sanitary it is in finish.

Majestic means economy in the kitchen, as well as better baking and less work. Food is saved, because the Majestic's perfectly built oven always bakes right. Fuel is saved, because the cold-riveted construction is absolutely heat-tight—*permanently* so. Repairs are saved, because the Majestic frame of malleable iron is unbreakable, and its body of charcoal iron by actual test resists rust 300% greater than steel.

The Majestic is made in only one quality—the best—but there are many styles and sizes. The price is standard, the same everywhere, freight considered.

The price of a Majestic is less in proportion to crop values than it was even a few years ago. See the Majestic soon. There is a Majestic dealer in every county of 42 States. If you don't know of one near you, write us. *Send for free illustrated booklet today.*

Majestic Mfg. Co., Dept. 231 St. Louis, Mo.

Great Majestic
The Range with a Reputation

Colorado Agricultural College at the Stock Show

You saw our cattle, hogs and sheep at the Stock Show, and in this issue are the winnings. These winnings will mean all the more if you consider that we carry two breeds of beef cattle, three of dairy cattle, two of hogs and four of sheep. This means small herds, and consequently smaller opportunity for selection of show animals. To arrive at an idea of the quality of our stock glance over the following table:

Breed—	Number of Animals Shown.	Number of Premiums Won	Breed—	Number of Animals Shown.	Number of Premiums Won
Duroc Jersey	21	21	Jersey	4	10
Poland China	13	6	Shropshire	4	6
Shorthorns	4	11	Hampshire	4	0
Hereford	5	1	Cotswold	4	7
Holstein Friesian	3	5	Rambouillet	5	4

Of these winnings eleven were championsbips or rescrve championships, and nineteen were first prizes.

Let us serve you.

ANIMAL HUSBANDRY DEPARTMENT
Fort Collins, Colorado

According to the British Board of Agriculture the number of hogs in Germany now numbers about 5,000,000 as compared with 27,000,000 before the war.

Blue Ribbon Duroc Farm

The exhibit of registered Durocs by the Blue Ribbon Livestock company at the National Western show attracted unusual attention and took many of the premiums. The exhibit was in charge of Mr. C. F. Burke, manager of the farm, which is located at Pueblo, where Mr. Burke expects to build up what will unquestionably be the largest Duroc Jersey breeding plant east of the corn belt. At present about 200 head of registered hogs are kept on the farm, but operations will be increased until the output will be from 500 to 1,000 hogs a year.

The new herd boar is Blue Ribbon Sensation, a large pig out of Orion Cherry King and sired by Great Sensation. The boar was bought last December from Ed Kern at Stanton, Neb. He was placed fourth in a class of fifty against the strongest Duroc competition ever present in the West.

The pigs on the Blue Ribbon farm are sired by Big Cherry King and are out of Good-E-Nuff bred dams. This line took all of the first and nearly all of the seconds at the state fair last fall.

The Blue Ribbon farm comprises 160 acres of irrigated land with plenty of alfalfa pasture on which Durocs thrive in the mountain states. Mr. Burke was raised on an Iowa hog farm and knows the business from the ground up.

Likes Spirit of Helpfulness

The Meadow, Flat Top, Colo.
Farm Life Publishing Co.:

I inclose check for $1.00 for my subscription to Western Farm Life for following two years' renewal, as I see my subscription expired on January 2 this year. I wish your paper all the good luck it deserves and hope to see it grow with the good state of Colorado. I like the spirit shown in your paper to help out farm and ranch conditions in the West, as they need a little boost. I mean both the dry farmer and stock raiser.—Charles E. Bennett.

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

L. D. GOOCH, SEWARD, KANS., WILL SELL R. C. Brown Leghorn cockerels $2 each if taken soon.

SINGLE COMB WHITE LEGHORN COCKERELS, $2.00 each. Eggs and chicks. Mrs. C. C. Cole, Levant, Kan.

PURE-BRED SINGLE COMB WHITE LEGHORN cockerels, $2 each. From healthy flock. W. E. Roggenbach, Wisner, Neb.

HEWITT'S S. C. BUFF LEGHORNS, BLUE ribbon winners. Eggs $2.50 a setting; $6.00 per 50. Mrs. Philo Hewitt, Lexington, Neb.

FOR SALE—ONE HUNDRED S. C. WHITE Leghorn hens of the Ferris trapnested strain. Also a few cockerels. L. E. Larson, R. R. No. 1, Fort Morgan, Colo.

ROSE COMB WHITE LEGHORN COCKERELS —Years of breeding for winter layers, $3.00 and $4.00 each. Eggs in season. Chas. Householder, Winfield, Kans.

HAVE A FEW WHITE LEGHORN PULLETS left, also some yearling and 2-year-old hens and cockerels, priced right. Ralph Hixenbaugh, Pine Bluffs, Wyo.

HATCHING EGGS FROM SINGLE COMB White Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Order now for future delivery. Robert Shumway, Fountain, Colo.

WINTER LAYING SINGLE COMB WHITE Leghorns, standard bred and Hoganized, 250-egg hens. Flock laid Jan, 1917, 91¼ per cent. Eggs and chicks. Barlow & Sons, Kinsley, Kan.

BUFF LEGHORNS—BEST LAYERS ON EARTH. Baby chicks. Hatching eggs now ready—$1.50 for fifteen, prepaid. Book orders early. Number of customers disappointed last season. Classy cockerels. Champney, 25 Soutb Logan, Denver, Colo.

SINGLE COMB WHITE LEGHORNS—OUR Leghorns are bred to lay more eggs at all seasons than common hens and especially in winter. It pays to get eggs and chicks from a heavy laying strain. Fourteen years in the buainess. Hatching eggs and chicks. Riverside Poultry Farm, H. D. Walker, La Junta, Colo.

PLYMOUTH ROCKS

BARRED PLYMOUTH COCKERELS, $2.00 each. Mrs. C. J. Davidson, Fort Lupton, Colo.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Blunt, Route 1, Greeley, Colo.

PARTRIDGE PLYMOUTH ROCKS—THE beauty and utility breed; stock for sale that are prize-winners. Pullets, $3; cockerels, $3 to $5 each. Eggs for hatching, $3 for fifteen eggs. Satisfaction guaranteed. A. R. Stover, Manzanola, Colo.

ORPINGTONS

S. C. BUFF ORPINGTONS—EGGS, $2 FOR 15, or $7 per 100, postpaid. Mrs. S. S. Tate, Orlando, Okla.

S. C. BUFF ORPINGTON COCKERELS FOR sale. Eggs for setting. Pens now mated. Chas. I. McKee, Wood River, Neb.

FINE BUFF ORPINGTON COCKERELS, $2.00 to $5.00. Eggs, $1.50 for 15, or $6.00 per hundred. Mrs. Frank Neel, Beverly, Kan.

"SHANKS ORPINGTONS" S. C. BUFF. EGGS for hatching, utility, $2.00 per 16; $6.00 per 60, and $12.00 per hundred. Exhibition pen eggs at $3.50 and $5.00 per 15; $12.00 per 60; 80 per cent fertility guaranteed. A few good males and females to sell at bargain prices. F. M. Shank, Route 2 A., La Junta, Colo.

WYANDOTTES

WHITE WYANDOTTE COCKERELS, ONLY A few left. Mrs. Geo. Wheeler, Otis, Colo.

WHITE WYANDOTTES—COCKERELS OF quality, $3 and up. Miaa Anna Lansdown, Fort Lupton, Colo.

35 SILVER WYANDOTTE COCKERELS FOR sale; beautifully laced, big sized and well shaped; satisfaction guaranteed; $4.00 each; 6 for $21.00. Oak Park Poultry Farm, Dept. R., Des Moines, Iowa.

RHODE ISLAND REDS

ROSE COMB RHODE ISLAND RED COCKerela from Beans Blue Ribbon stock. John McCrory, Sterling, Kan.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

ROSE AND SINGLE COMB RHODE ISLAND Red eggs for hatching, $3.00 per fifteen, or $15 per hundred. Good hatch guaranteed, exhibition stock. J. M. Woita, Weston, Neb.

FOR SALE—S. C. RHODE ISLAND RED EGGS for hatching at $1.50 per setting of 15 eggs; or $5.50 per 105. The whole flock is headed by nice, large boned, dark-red cockerels. Order early. Mrs. Joe Brandl, Route 7, Hartington, Neb.

FOR SALE—PUREBRED RHODE ISLAND RED cockerels. Best layers. C. E. Gordon, Overland, Colo. Phone Englewood 390J2.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

SUSSEX

RED SUSSEX—LIMITED NUMBER EGGS, TWO cockerels and few females for sale. Won at Chicago Coliseum in 1916 and 1917. Rees Evans, Box 29, Ardmore, Okla.

ANCONAS

ANCONA COCKERELS—GOOD STOCK. $2.00 and $4.00 each. J. L. Moulton, North Loup, Neb.

SEVERAL VARIETIES

ROSE COMB REDS AND WHITE ROCKS, $2.00 and $3.00. Mrs. W. V. Gill, Piedmont, Kan.

RINGLET BARRED ROCK COCKERELS, $3 and $5 each. Mrs. C. N. Bailey, Lyndon, Kans.

THOROUGHBRED LIGHT BRAHMA COCKerels. E. Grosser, 2240 Perry St., Denver, Colo.

EGGS FROM OUR WINNING BARRED ROCKS. Pens mated with State Fair, Omaha and State Show winners. Send for catalog. Schwegman Bros., Walton, Neb.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

WINTER LAYING BARRED ROCK AND White Orpington eggs, $5 per hundred. Myrtle Stuller, Bristol, Colo.

BARRED ROCKS, THE WINNING KIND. Cockerels and pullets. Arthur Gillette, 4423 South Sixteenth St., Omaha, Neb.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize winning, heavy laying strain. Write for mating list. E. A. Miller, Alma, Neb.

WHITE WYANDOTTE COCKERELS TO SUIT or return, $2, $3 and $5. White African guineaa, $1.75 each. Robert Fulliton, Austin, Neb.

DO YOU WANT A GOOD, SMOOTH, VIGOROus White Rock cockerel? Fifteen years linebred from persistent layers. Only a few left. Price is $5.00. W. E. Vaplon, Fort Collins, Colo.

EGGS FROM BUSHBY'S WINTER LAYERS, single comb, reds. $7.50 hundred, expressed from Pueblo. Flock established twelve years. H. A. Bushby. Rye. Colo.

S. C. WHITE AND R. C. BROWN LEGHORNS, White Wyandotte Barred Rock, S. C. Reds. Roostera, 2.25 each, or three for $6.00. Barred Rocks and S. C. Red yearling hens and pullets, $15 per dozen. Wm. A. Draves, Lemoyne, Neb.

GENUINE YOUNG BRONZE TURKEY HENS, $7.50, and gobblera, $8.50 each. Roae Comb White Wyandotte cockerels, $3 to $5 each. Rowen drakes, $3 and female ducks, $2.50 each. White Holland turkeys, tom or gobbler, $10 each. C. O. Philbrick, Ord, Neb.

PUREBRED BLACK AND WHITE MINORCAS, barred and white Rocks, Rhode Island whites and reds, white, brown and buff Leghorns, Black Langshanga and Buff Orpingtons. All orders filled for eggs at $7 for 100 and $1.50 for 15. C. W. Hamilton, Garnett, Kans.

100,000 BARRED ROCK AND RHODE ISLAND Red eggs wanted for hatching, also other breeds. Farmera pleaae answer. Our cash price, $2 to $3 per case more than Denver commission houses. The Denver Incubator Co. and Hatchery, 175 S. Broadway, Denver, Colo.

FOR SALE—ONE HUNDRED BARRED ROCK cockerels Our barred rock cockerels are raised not only from prize winners but the best of layers; breeding stock at $5 each; prize winners at $10 to $15 each. Write J. R. Anderson & Son, Fort Morgan, Colo.

BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

TURKEYS

FIVE WHITE HOLLAND TOMS, $7.00 EACH. P. L. Kimler, Atwood, Colo.

MAMMOTH BRONZE LARGE BONE TURKEY toms, 12.00. Hens, $7.50, or three for $21. Wm. A. Draves, Lemoyne, Neb.

MAMMOTH BRONZE TURKEYS FROM 40-LB. toms and 22-lb. hens. Young toms, 24-26 lbs., $10.00; hens, $7.00. Laura Ullom, Lamar, Colo.

GIANT MAMMOTH BRONZE TOMS. PRIZE winning stock, thrifty range-raised, $8.00-$15.00. No hens left. W. H. Streeter, Dighton, Kan.

BABY CHICKS

BABY CHICKS—ORDER EARLY. GET CHICKS from the winter layers. Price list. Sarver's Poultry Farm, Hastings, Neb.

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatchery, Smith Center, Kana. Shipped anywherc, 15 cents.

COCKERELS, PULLETS, BABY CHICKS— write us for prices of fancy breeding stock, and day-old chicka of all leading breeds. Prices reasonable and aatiafaction of course. Denver Baby Chick Co., P. O. Box 1323, Denver, Colo.

TOM BARRON WHITE LEGHORNS EGGS FOR hatching. Baby Chicka. Stock tested nine years for heavy egg production. Prices reasonable. Get our illustrated circular before you buy eggs or cbicks, it's free. Write, Fowler Egg Farm, Fowler, Colo.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will he service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reacb destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raiae the chicka. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver hrooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

POLLED JERSEY CATTLE—BREEDERS' names, sale dates, etc., of. Chas. S. Hatfield, Sec'y, Springfield, Ohio.

FOR SALE—MILKING STRAIN SHORTHORNS. Three young bulls, roans, grandsons Rose Glenside. W. A. Wight, Las Animas, Colo.

MEADOWDELL FARM OFFERS FOR SALE registered Jersey bulls of the Sophies Tormentor strain. The world's champion Jerseya. Gerald Gimple, Clifton, Colo.

FOR SALE—THREE REGISTERED JERSEY cows and one eight-months-old Jersey bull calf, of the Hood Farm breeding. O. S. Larson, R. R. No. 1, Fort Morgan, Colo.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $150 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemoor Farm, Littleton, Colo., Caldwell Martin, Owner.

FOR SALE—ONE MULEFOOT BOAR, ELIgible to regiater; price $30.00 crated. Four Mulefoot Hampshire hoars, three months old, $12.00 each. C. C. Holzworth, Stoneham, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

FOR SALE—A WELL BRED, REGISTERED Duroc boar, two years old. He is of the best type of the breed; large and of fine formation. A proven sire of highest quality. Will sell him by the pound at market prices, to give someone the benefit of his services. Address, James H. Teller, State House, Denver, Colo.

HORSES

IMPORTED BLACK PERCHERON STALLION for sale, 11 years old, weight 2,100 pounds. Sure breeder. John Gruber, Eustis, Neb.

REGISTERED BELGIAN STALLION COLTS, two years old. Registered mares, weanlings up to bred mares. Good Jack. E. T. Purinton, Wilcox, Neb.

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo. On U. P. R. R.

FOR SALE—THE SURPLUS STALLIONS from small herd of registered Percherona. Lanyon Stock Farm, Gresham, Neb. Branch barn, Harrah, Okla.

FOR SALE—IMPORTED BELGIAN STALLION, Maurice de Frasnes, American No. 7926, coming eight years old. Sound, good producer. Address, Timothy Thut, Route 2, La Junta, Colo.

FOUR REGISTERED PERCHERON STALLIONS. Two, three and six years old. Weight 1,600 to 2,100 lbs., color black. Prize winners at Denver Stock Show. R. A. Chase, Box 185, Fort Morgan, Colo.

THE MILLS PERCHERON HORSE FARM OF Hastings, Neb., has for sale four purebred stallions, 200 Hampshire bred sows, 20 Hampshire boars and 50 barred Rock cockerels. Can use Liberty Bonds.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANT TO HEAR FROM OWNER OF FARM or fruit ranch for aale. O. O. Mattson, St. Paul, Minn.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

WANTED TO HEAR FROM OWNER OF GOOD farm for aale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for casb, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

HELP WANTED

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AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

FARMERS, 16 TO 40, WANTED, BECOME RAILway mail clerks, $1,100-1,800 year. Pleasant work, many 1919 appointments. Common education sufficient. List positions free. Write immediately, Franklin Institute, Dept. C-172, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Salea barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

POSITION AS FOREMAN OF LARGE DAIRY or cattle ranch by Colorado Agricultural College graduate in animal husbandry; two years specialized experience in steer feeding and dairy herd management. Familiar with milking machines, gas tractors, general farm machinery. Married and one child. Best of references. Address T. E. L., Perry Park Ranch, Larkspur, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WHITE SWEET CLOVER REASONABLE—SOW on snow, wheat or corn stubble. John Lewis, Madison, Kan.

SUDAN GRASS SEED RAISED ON DRY LAND, 1918 crop, commercially cleaned. A. J. Tatman, Wiggins, Colo.

WANTED—160 BU. MACARONI OR MARQUIS wheat. Send sample and price. Ira L. Sager, Elizabeth, Colo.

ALFALFA SEED—I SELL IT CHEAPER THAN any Denver house. The free sample tells the story. Alfalfa John, Beaver City, Neb.

WANTED, SEEDS—ALFALFA, SWEET CLOver, millet and cane spletz. Mail samples, advising quantity for sale to Mitchelhill Seed Co., St. Joseph, Mo.

FOR SALE—WHITE SILVER MINE AND CATtle King seed corn. Guaranteed. 98 and 100% vital. $5.00 per bu., money with order. John Lichty, Axtell, Kan.

ONION SETS

FOR SALE—WHITE SILVER SKIN BOTTOM onion sets, run 10,000 per bu.; $4.75 f. o. b. G. C. Curtis, Hutchinaon, Kan.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo

AUTO TIRES

TIRES, FORD, $6.75. LARGER SIZES IN PROportion. Lowest tube prices. Booklet free. Economy Tire Co., Kansas City, Mo.

FORDS START EASY IN COLD WEATHER with our new 1919 carburetora. 34 miles per gallon. Use cheapest gasoline or half kerosene. Increased power, stylea for any motor. Very slow on high. Attach it yourself. Big profits to agents. Money back guarantee, 30 days' trial. Air-Friction Carburetor Co., 269 Madison, Dayton, Obio.

BEE SUPPLIES AND HONEY

DELICIOUS PURE HONEY, ALFALFA-CLOVER extracted. Two 60-pound cans, $29.75. Sample, 15 cents; reference, First National Bank, Boulder. Wesley Foster, Producer, Boulder, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

PURE EXTRACTED ALFALFA HONEY. 60 lbs. in can, $13.50. One case, two cans, $26; guaranteed. J. Van Engen, Producer, Crawford, Colo.

KODAKS

KODAKERS—SAVE MONEY ON YOUR FINishing. Send me two negatives for free samples and pricea. Saunders, Box A-308, Boulder, Colo.

KODAKS, CAMERAS, PHOTO SUPPLIES— Ford'a the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

LUMBER

LUMBER—SHINGLES—POSTS SOLD DIRECT. Karlot Lumber Co., Tacoma, Wash.

POSTS — LUMBER — SHINGLES. LOWEST prices, delivered your station. Send lumber list for estimate. Pay after unloading. Kirk Co., Box 1188-S, Tacoma, Washington.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Evchange, Seattle, Wash.

BICYCLE SUPPLIES

FREE CATALOG OF BICYCLE SUPPLIES. Everything for the bicycle; prices very low. Write today. William Mullin, Box 4, LaPorte, Colo.

Colorado Livestock Breeders

There is a steady increase in the number of inquiries from readers of Western Farm Life for the addresses of breeders of purebred livestock. For that reason we are publishing a list of the members in Colorado of the following breeders' associations:

American Hereford Cattle Breeders' Association, Western Shorthorn Breeders' Association, American Aberdeen-Angus Breeders' Association, American Galloway Breeders' Association, Holstein-Friesian Association of America, Colorado Jersey Club, American Duroc-Jersey Swine Breeders' Association, National Duroc-Jersey Record Association, American Poland-China Record Association, Standard Poland-China Record Association.

Those of our readers desiring to purchase purebred stock can write any of the following breeders and be assured of just treatment.

HEREFORD

Almiral, Leon V., Sedalia (Parshall), Colo.
Aubuchon, Rueli, Monument, Colo.
American Beet Sugar Co., Rocky Ford, Colo.
Bailey, J. C., Bayfield, Colo.
Barnum, E. A., Littleton, Colo.
Baker, Geo. W., 818 Vine, Denver (Littleton), Colo.
Bellamy, F. N. and Fannie B., Haxtum, Colo.
Benton, Frank, Denver (Burns), Colo.
Benton, Mrs. Grace D., Burns, Colo.
Beuck Bros., Agate, Colo.
Beveridge, Lester, Arapahoe, Colo.
Billings, W. P., Lyons, Colo.
Blair, J. E., Estes Park, Colo.
Blayney, W. N. W., 1729 Arapahoe St., Denver, Colo.
Bloom Cattle Co., Trinidad, Colo.
Bonnell, R. B., Loveland, Colo.
Campion, A. J., Denver, Colo.
Canary, J. D. & Son, 719 Majestic Bldg., Denver, Colo.
Capps, S. J. & Sons, La Veta, Colo.
Carpenter & White, Hayden, Colo.
Casto, Matt, Whitewater, Colo.
Casement, Dan D., Whitewater, Colo.
Cave, H. Bert, Parker, Colo.
Cawlfield, J. W., Hayden, Colo.
Christenson, Andrew, Eagle, Colo.
Collins, C. I., Estelene, Colo.
Collins, J. W. and J. A., Stratton, Colo.
Colorado Agricultural College, Fort Collins, Colo.
Colorado Investment Realty Co., Colorado Springs, Colo.
Craighead, J. D., La Junta, Colo.
Crowe, Chester A., Cotopaxi, Colo.
Crowe, Geo. F., Canon City, Colo.
Cudahy Ranch Co., Olney Springs, Colo.
Currier, Thos. C. and E. J., Heiberger, Colo.
Davis Bros., Stratton, Colo.
Davis, Rosser B., Stratton, Colo.
Davis, L. G., Wynwood Ranch, Overland, Colo.
Denny, C. C. and Son., Alamosa, Colo.
DeWitt, T. F., Parshall, Colo.
Dickens, J. H., Walden, Colo.
Decker, A. L., Wray, Colo.
Ditmars, Samuel R., Castle Rock, Colo.
Dolan-Tipton Cattle Co., Crestone, Colo.
Dolan, T. F. & Sons, Denver, Colo.
Dowell, J. L., Pagosa Springs, Colo.
Everhart, M. T., Pueblo, Colo.
Erdman Bros., Holyoke, Colo.
Firm, David and Sons, La Veta, Colo.
Fulscher, Otto, Holyoke, Colo.
Fulscher & Kepler, Holyoke, Colo.
Gerdts, W. H., Cope, Colo.
Gilbertson, Louisa, Fort Morgan, Colo.
Gilbertson, C. H., Fort Morgan, Colo.
Glendale Stock Farm, Aspen, Colo.
Glenn, J. F., Springfield, Colo.
Goemer, G. G. (Goemer Bros.), La Veta, Colo.
Grant, L. C., Avondale, Colo.
Griffith, Chas. W., Durango, Colo.
Grirffith Bros., Durango, Colo.
Gudger, H. A., Eastonville, Colo.
Haines, E. D. and I. F., Route 2, Rocky Ford, Colo.
Haines, F. D., Rocky Ford, Colo.
Hamilton, Harry G., La Veta, Colo.
Hand, A. W., Sterling, Colo.
Hand & Hubanks, (Stoneham), Sterling, Colo.
Harrison, E. E., La Veta, Colo.
Headlee, A. E., Hooper, Colo.
Hoagland, Henry W., Colorado Springs, Colo.
Hunter, Eva L., Walden, Colo.
Inge, R. C., La Junta, Colo.
Immer, E. C., Eastonville, Colo.
Johnson Bros., Eagle, Colo.
Kettle, Wm., Westcliffe, Colo.
Kilbourn, W. L., Holyoke, Colo.
Kreutzer, L. M., La Veta, Colo.
Kreutzer, Fred, La Veta, Colo.
Kreutzer Bros., La Veta, Colo.
Knowles, Ted, Doyleville, Colo.
Lentz, J. W., Idalia, Colo.
Livermore Live Stock Co., (Fort Collins) Livermore, Colo.
Lowell Bros., Denver, Colo.
Lowell, John W., Denver, Colo.
Lowell Pure Bred Cattle Co., Denver Stock Yards, Colo.
MacKenzie, Wm. A., Canon City, Colo.
Marquiss Bros., Eagle, Colo.
Marselus, A. K., Westcliffe, Colo.
Martin, C. L., La Veta, Colo.
Martin, Sumpter, La Veta, Colo.
Maxwell Bros., Boulder, Colo.
Means, G. W. & Son., Sargents, Colo.
Mulder, Wm., Yuma, Colo.
Newman, Paul I., Haxtum, Colo.
Nickel, G. E., Littleton, Colo.
Painter, Jno. E. & Sons, Roggen, Colo.
Psragin, D. D., Piedra, Colo.
Parma Land Co., Monte Vista, Colo.
Payne, J. H., Littleton, Colo.
Payne, T. John, (Cowdrey) Walden, Colo.
Peterson, J. A., Holyoke, Colo.
Platte River Cattle Co., 716 Ernest & Cranmer Bldg., Denver, Colo.
Plumb, E. K., Kersey, Colo.
Porter, H. M., 925 Grant Ave., Denver, Colo.
Pugh, Mrs. J. J., Stratton, Colo.
Redies, Charles, Amherst, Colo.
Reece, Clark, Siebert, Colo.
Rees, Claude H., Rifle, Colo.
Reynolds, A. E., 830 Equitable Bldg., Denver, Colo.
Ridlen & Son, Geo., Laird, Colo.
Rohlfs, Sterling, Ridgeway, Colo.
Sager, H. B., La Veta, Colo.
Scott, C. Blaine, Idalia, Colo.
San Luis Valley Land & Mining Co., Crestone, Colo.
Scoville, J. M., Fort Morgan, Colo.
Schultz, Paul F., Eagle, Colo.
Schultz, W. C., Cheyenne Wells, Colo.
Sheridan, F. E. Meeker Colo.
Shryack & Sons W. H. Eagle Colo.
Sholes O. H. Holyoke Colo.
Slack, J. R., Holyoke, Colo.
Slattery, M. P., 1621 Palmer Ave., Pueblo, Colo.
Sloss, S. P., Sloss, Colo.
S. L. W. Ranch Co., Kersey, Colo.
Smith Live Stock Co., Chivington, Colo.
Smith, Robert B., Parker, Colo.
Sullivan, P. J., Wray, Colo.
Stiles, C. A., Holyoke, Colo.
Tagert, W. C., Aspen, Colo.
Tenney & Kettering, Grover, Colo.
Thatcher, J. H., Pueblo, Colo.
Tenney & Kettering, Grover, Colo. Colo.
Waite, C. L., Roggen, Colo.
Watson, S. W., Snowmass, Colo.
Watt, Henry C., 1801 Culebra Ave., Colorado Springs, Colo.
Willis, O. E. & Son, La Veta, Colo,
Wolcott, S. W., 626 Pine St., Trinidad, Colo.
Wolfe, Mrs. Alice, Flagler, Colo.
Wyatt Live Stock Co., Denver, Colo.
Yant, Alex, La Junta, Colo.
Yeomans, H. W., Carbondale, Colo.
Zwick, K. H., (Dunckley) Pyramid, Colo.

SHORTHORN

Adair, Sam, Hayden, Colo.
Allen Cattle Co., Colorado Springs, Colo.
Annan, Geo., Hayden, Colo.
Ball, Sam, Wray, Colo.
Campbell, I. J., Snowmass, Colo.
Carnahan, Allen, Elbert, Colo.
Carpenter, Delph, Greeley, Colo.
Colorado Agricultural College, Fort Collins, Colo.
Cornforth Live Stock Co., Elbert, Colo.
Ehrhart, Earle, Centerville, Colo.
Gleason, B. N. (Gleason & Blazer), Kiowa, Colo.
Glynn, M. B., Craig, Colo.
Gawthrop, G. G., Mancos, Colo.
Graham, Gordon W., Lily, Colo.
Hinman Silo Co., Denver Union Stock Yards, Colo.
Harmon, M. F., Boulder, Colo.
Hixon, G. W. & Son, Simla, Colo.
Harmon, Everett, Boulder, Colo.
Jones, J. Paul, Elbert, Colo.
Jones, R. C., Elbert, Colo.
Melburn, C. A., Elbert, Colo.
Maxwell, R. G. & Son., Fort Collins, Colo.
Maxwell-Miller Cattle Co., Steamboat Springs, Colo.
Nowels, D. B. & Son, Lamar, Colo.
Pine Valley Stock Farm, Colorado Springs, Colo.
Pritchett, Carr W., Steamboat Springs, Colo.
Peterson, A. C., Elbert, Colo.
Peterson, F. A., Elbert, Colo.
Shuttleworth, H. M., Snowmass, Colo.
Warnock, David & Sons, Loveland, Colo.
Wilson, W. H. & Son, Lucerne, Colo.
Young, G. B., Redvale, Colo.

ABERDEEN-ANGUS

Briney, O. E., Strasburg, Colo.
Briggs, E. T., Greeley, Colo.
Boothroyd, P. H., Loveland, Colo.
Dietz, Ludwig, Arriba, Colo.
Force, D. W., Eckley, Colo.
Gotfredson, N. Ray, Buckingham, Colo.
Hadley, Orley J., Sterling, Colo.
Kleber, A., Bovina, Colo.
Krasberger, W. M., Peetz, Colo.
Lucore, Geo. F., Arriba, Colo.
Lucore, R. R., Arriba, Colo.
Lucore, J. E., Thurman, Colo.
Osgood, John C., Denver, Colo.

GALLOWAY

Cbace, R. A., Fort Morgan, Colo.
Shoup, O. H., Colorado Springs, Colo.

HOLSTEIN-FRIESIAN

Arkansas Valley Sugar Beet & Irrigated Land Co., Holly, Lamar and Granada, Colo.
Barnard, J. H., Husted, Colo.
Bassett, Owen B., Barton, Colo.
Carter, A. S., 531 16th St., Denver, Colo.
Colorado State Reformatory, Buena Vista, Colo.
Crews, C. W., 2301 Grand Ave., Pueblo, Colo.
Crooks, Mrs. Angie M. R., Gunnison, Colo.
Curtis, C. W., Sedalia, Colo.
D'Arcy, Norman R., Parker, Colo.
Donley, L. C., Mt. Morrison, Colo.
Douglass, Mrs. R. G., Kendrick, Colo.
Elliott, T. J., Whitewater, Colo.
Gibson, James, Littleton, Colo.
Grant Building & Investment Co., 1010 16th St., Denver, Colo.
Great Western Sugar Co., Fort Morgan, Colo.
Hanson, L. O., Route 2, Boulder, Colo.
Henry, C. W., Greeley, Colo.
Hill, T. H., Johnstown, Colo.
Hine, J. W., Littleton, Colo.
Hudspeth, Philip K., Station A, Pueblo, Colo.
Hughes, W. E., Denver, Colo.
Kobler, Chas E., Boulder, Colo.
Lowe, Henry P., Box 285, Denver, Colo.
Markham, L. Wirt, Lamar, Colo.
Myron Stratton Home, Colorado Springs, Colo.
Pahgre Valley Ranch, Loesch Bros., Montrose, Colo.
Patterson, L. F., Route 1, Box 60, Pueblo, Colo.
Penfold, Frank C., Boulder, Colo.
Penrose, M. E., Denver, Colo.
Penrose, Spencer, Colorado Springs, Colo.
Ponsford, Arthur, Denver, Colo.
Purvis, William A., Johnstown, Colo.
Rand, Nellie A., Fort Lupton, Colo.
Simpson, Ben F., 2008 15th St., Denver, Colo.
Sinton, Geo. T., Colorado Springs, Colo.
Sinton, M. M., 509 S. El Paso St., Colorado Springs, Colo.
Spillars, S. S. & Son, Olney Springs, Colo.
State Agricultural College, Fort Collins, Colo.
Stephens, D. R., Longmont, Colo.
Turner, George S., 920 Myrtle St., Canon City, Colo.
Whowell, J. W. & Son, Route 1, Berthoud, Colo.
Work, Hubert, M. D., 20th and Court Sts., Pueblo, Colo.
Van Horn, H. M., Sedalia, Colo.
Young, Percival & Son, Denver, Colo.

ZANG'S PERCHERONS

You can procure, if you act promptly, coming two-year-old stallions of unusual merit from our herd of Colorado acclimated PERCHERONS, sired by International Champions, and out of the very finest Mares.

Our strain is noted for its soundness, bone and fine quality, in addition to which they are sure breeders.

Our supply is limited and we recommend immediate action.

Our 1919 winnings are noted elsewhere in this paper.

ZANG'S ELMWOOD STOCK FARM

Department H, Broomfield, Colo.

THE ADOLPH J. ZANG INVESTMENT COMPANY, Owners

NEGRO NO. 131780 (113149)
Champion Percheron Stallion, National Western Stock Show, 1919

JERSEY

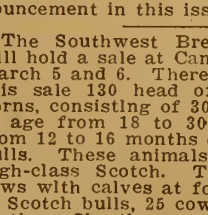
Bishopp, B. G. D., Virginia Dale, Colo.
Blayney, W. N. W., Denver, Colo.
Bowman, Geo., Dolores, Colo.
Dickey, J. B., Greeley, Colo.
Graham, F. M., Hillrose, Colo.
Goodwin, W. W., Canon City, Colo.
Haynes, R. W., Brighton, Colo.
Hershey, Mrs. Cora, Fort Collins, Colo.
Hinman, C. H., Stockyards Station, Denver, Colo.
Hill, Mrs. Lillie, Ordway, Colo.
Janner, Jos., Elbert, Colo.
Lagrange, Geo., Grand Junction, Colo.
Larson, O. S., Fort Morgan, Colo.
McClenahan, A. M., Greeley, Colo.
Morford, Theodore, Golden, Colo.
Morton, G. E., Fort Collins, Colo.
Pancake, J. D., Johnstown, Colo.
Pullis, Aug., Nunn, Colo.
Wilson, W. M., Lucerne, Colo.
Yorston, W. E., Littleton, Colo.

Hogs

DUROC

American Sugar Beet Co., Rocky Ford, Colo.
Attebury, J. Clark, Monte Vista, Colo.
Avery, G. E., Wigwam, Colo.
Barnes, J. J., Adena, Colo.
Benedict, J. B., 909 Central Savings Bank Bldg., Denver, Colo.
Bhend, Ernest, Akron, Colo.
Blue Ribbon Live Stock Co., The, Pueblo, Colo.
Boyd, Wm. A., Kirk, Colo.
Braiden & Feitz, La Jara, Colo.
Brauer, J. W., Colorado Springs, Colo.
Brown, J. L., Route 1, Laird, Colo.
Burke. C. F., Rocky Ford, Colo.
Carter, A. S., 531 16th St., Denver, Colo.
City View Farm, Box 718, Pueblo, Colo.
Clark & Sons, E. A., Canon City, Colo.
Clements, A. A., Paonia, Colo.
Coe, Fred W., Grand Junction, Colo.
Colorado Agricultural College, Fort Collins, Colo.
Copeland, J. M., 1701 Lawrence St., Denver, Colo.
Cover, C. J., Rocky Ford, Colo.
Davis Bros., Stratton, Colo.
Dilsaver, P. C., Broomfield, Colo.
Fluckey, J. E., & Coe, F. W., Box 242, Grand Junction, Colo.
Gardner, E. T., Kremmling, Colo.
Gauss, C. F., Highland Station, Denver, Colo.
Gauger, J. E., Swink, Colo.
Geo. W. Clayton College, 3800 E. 32nd Ave., Denver, Colo.
Gruver, Harmon, Mosca, Colo.
Gruver, Harmon, Mosca, Colo.
Hamilton, E. S., Longmont, Colo.
Hardman, E. D., Route 1, Box 240, Pueblo, Colo.
Hart, Bert, Longmont, Colo.
Herriott, J. C., La Jara, Colo.
Hickman & Co., E. E., Rocky Ford, Colo.
Hogsett, R. E., Brush, Colo.
Howell, Mrs. Lillian, Hillrose, Colo.
Inglesbe, Chas., Holyoke, Colo.
Jacobson, J. M., Pierce, Colo.
Johnson, Fred N., Star Route, Vernon, Colo.
J. O. D. Ranch Co., Aroya, Colo.
Martin, Caldwell, Denver, Colo.
McClenaban, A. M., Greeley, Colo.
McFadzean, J., Del Norte, Colo.
McIntyre, N. W., 1760 Stout St., Denver, Colo.
Nowels, A. R., Lamar, Colo.
Pahgre Valley Ranch, Montrose, Colo.
Penrose, Spencer, Colorado Springs, Colo.
Phillips, V. A., Cedaredge, Colo.
Rice, Chas O., 309 Commonwealth Bldg., Denver, Colo.
Richardson, Joe, Yuma, Colo.
Reid & Harney, Wray, Colo.
Samples, G. B., Route 3, Rocky Ford, Colo.
Sandstead, Wm. M., Willard, Colo.
Simmons, Wm. M., Montrose, Colo.
Sollenbarger, R. G., Gen. Del., Denver, Colo.
Solomon, Judson, Olatbe, Colo.
Sonneland & Son, Aug., Ordway, Colo.
Spencer, H. R., Montrose, Colo.
Stephenson, Jesse, Monte Vista, Colo.
Storm, Chas., Avondale, Colo.
Tabor & Son, A. E., Laird, Colo.
Tawney, R. A., Grand Junction, Colo.
The Garmesa Orchard Co., Fruita, Colo.
The Glendale Stock Farm, Aspen, Colo.
The Inter-Mountain Swine Breeders Co., Edgewater, Colo.
The Myron Stratton Home, Colorado Springs, Colo.
The S. L. W. Ranch Co., Kersey, Colo.
Thompson, Thos., Wild Horse, Colo.
Tipton, S. L., Crestone, Colo.
Vaille, F. O., 1401 Franklin St., Denver, Colo.
Weist, H. R., La Jara, Colo.
Wilson Bros., Route 3, Box 85, Olatbe, Colo.
Wilson, Earl, Delta, Colo.

Glendale Stock Farm



Irvindale Rowdy
Grand Champion, Chicago, 1918
Grand Champion, Denver, 1919

Breeders of

Belgian horses, Polled Hereford cattle.

Young Stock Always For Sale.

J. D. BRUNTON, Aspen, Colo.

POLAND-CHINA

Beveridge, Lester, Arapahoe, Colo.
Brown, J. D., Fort Morgan, Colo.
Colorado Agricultural College, Fort Collins, Colo.
Commons, F. E., Fleming, Colo.
Cox, Cyrus, Kiowa, Colo.
Davidson, J. A., Longmont, Colo.
Kivett, Elihu, Seibert, Colo.
Kivett, Wm., Seibert, Colo.
McGillvray, A. D., Boulder, Colo.
Proctor, G. P., Vernon, Colo.
Tully, W. H., Monte Vista, Colo.
Wray, Edward, Eckley, Colo.

Livestock Field Notes

J. D. Brunton, owner of the great Irvindale Rowdy and the Glendale Stock Farm of Aspen, Colorado, came again this year, and all he did was to carry away sixteen premiums with nine Belgians. Irvindale Rowdy and the Fadette mare each took first and grand champions. Mr. Brunton is a thoroughbred himself, progressive and all business.

A. J. Erhart & Sons, Ness City, Kansas, showed a fine lot of Poland China hogs at the Western Stock Show. It was their first showing at Denver, but they carried away first in the heavy barrow class; also, champion, 2nd and 3rd in aged sows; 3rd in senior yearling sows; 2nd and 3rd in junior sow pigs; 2nd in aged boar, and many other premiums. They will be back next year.

The Pine Valley Farm, Colorado Springs, Colorado, a branch of the famous Shorthorn herd of Milking Shorthorns at Willoughby, Ohio, were successful in securing many of the prizes at the stock show. Seven bulls were sold by this firm at private sales to Colorado dairy farmers at satisfactory prices. In the milking contest open to breeds this Colorado Springs herd was very successful, their Shorthorn cow, Overbrook Ury 3rd winning the class for the most economical production and stood second for butterfat production. This cow produced 120 pounds of milk in the three days with a little over 5 pounds of butterfat. Farmers contemplating the purchase of dairy cows should look into the merits of this herd. See their announcement in this issue.

The Southwest Breeders Association will hold a sale at Cambridge, Nebraska, March 5 and 6. There will be offered at this sale 130 head of purebred Shorthorns, consisting of 30 bulls, 18 of them in age from 18 to 30 months, 12 bulls from 12 to 16 months old and some herd bulls. These animals are all sired by high-class Scotch. They will offer 30 cows with calves at foot and bred again to Scotch bulls, 25 cows, 45 heifers. All of these Shorthorns offered for sale are tuberculin tested and bill of health goes with every animal. This association has a reputation of breeding very high class Shorthorn cattle. Any of our readers who are interested in these Shorthorns and cannot attend the sale may send sealed bids to Western Farm Life and they will receive attention. Such letters should reach the publication 3 or 4 days prior to sale. See sale announcement in this issue.

Southwest Shorthorn Breeders Sale

Sale Pavilion, Cambridge,
Neb., March 5-6, 1919

130 Head The natural increase of the herds of members of this association.

30 BULLS

18 of them in age from 18 to 30 months.

12 of them range in age from 12 to 16 months.
Low down blocky fellows.

Sired by high-class Scotch herd bulls.

100 FEMALES

30 cows with calves at foot, and bred again to Scotch bulls.

25 cows heavy in calf.

20 two-year-old bred heifers.

20 open heifers.

Write for Catalogue
Mention Western Farm Life

This offering is tuberculin tested and bill of health goes with every animal.

This is the greatest collection of high-class Shorthorn cattle that will sell in the West this winter. The offering includes high-class herd bulls, big lusty range bulls, females good enough to have a place in any herd and cows with strong milking propensities.

Interested parties unable to attend this sale may send sealed bids to Jesse R. Johnson, to Cambridge, Neb., in care of sale manager.

For catalogue, write

Auctioneers, Col. N. G. Kraschel, Col. E. D. Snell.
Fieldman, Jesse R. Johnson.

Ed. McKillip, Sale Mgr., or
Frank Carver, Sec.,
Cambridge, Neb.

Home of the Giants

PUBLIC SALE

Jacks and Jennets

Monday, March 10, 1919

40 Jacks and a Few Jennets

The home of the biggest Jacks in Missouri; Missouri is the home of the biggest Jacks in the world. More bone, foot and weight than you ever saw in one bunch of Jacks. Write for fine illustrated catalog, ready February 15th, 1919.

Bradley Bros., Warrensburg Missouri

65 Miles East Kansas City, Main Line Missouri Pacific

Our Registered Heifer Calves

won First Prize and Reserve Championship at the Denver Stock Show and sold to the Colorado State Reformation, Buena Vista, Colo., for a foundation for a Registered Hereford herd.

The Hereford Corporation of Wyoming

CHEYENNE, WYO.

406 LIVE STOCK EXCHANGE, DENVER, COLO.

We have some good coming 2-year-old bulls for sale, also some long age yearlings. Write us for information.

MILKING SHORTHORNS

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

HOLSTEIN BULL CALVES FOR SALE

MONTROSE COLORADO
PVR
PAHGRE VALLEY RANCH
QUALITY

THE L. G. DAVIS HEREFORDS

ANXIETY BRED—SIRES IN SERVICE

Beau Carlos 2nd No. 352001
The Greatest Living Hereford Sire
Sire of Wyoming and many other winners, including the Grand Champion carlot of breeding heifers in 1916 show.

Bonnie Weston No. 558495
Son of Bonnie Brae 15th
The Grand Champion carlot of yearling bulls in the 1919 show were sired by Beau Carlos 2nd and Bonnie Weston.

Wyoming 4th No. 603868
Champion senior yearling bull of the 1919 show. Sired by the Grand Champion Wyoming.

Ranches at Saratoga, Wyo., and Denver, Colo. Visitors Always Welcome

Address L. G. DAVIS, Saratoga, Wyoming

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

POSSIBLY

we have just the individual you want. At any rate, we have some mighty good ones with fine advanced registry backing and from a clean herd. We offer only calves bred and raised by us. Let us tell you of them before you buy your next herd sire.

Prices $100 to $1,000

PAHGRE VALLEY RANCH
MONTROSE, COLO.

DEMING RANCH

Big type Poland China — with guarantee. Splendid line of bred sows and gilts for the season's trade. Over two hundred fall pigs ready to ship. All stock cholera-immune and furnished with Recorded Pedigrees. Write us your wants, or better still, come and visit our herd.

H. O. SHELDON, Herd Manager
Oswego, Kansas

Montair Durocs We have a good March boar, the growthiest in his litter, at a price that will surprise you. Only two or three July boars left. We are sold out on bred sows and gilts.

GEO. E. MORTON & SONS
Route 5, Box 84, Fort Collins, Colo.

Holstein Cattle We offer cows and heifers due to freshen soon, also calves. All bred for production. Write W. C. KENYON & SONS, Box 39, Holstein Stock Farms, Elgin, Ill.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

Sixth Annual Dispersion Sale

Pure Bred—55 Head—Registered Mares and Stallions

MONDAY, FEBRUARY 24th

Percherons Thirty head, "The Farmers and Breeders kind." The mares will earn their keep and return you a profit in foals. The stallion in an appreciative community will return the purchase price in first season.

Belgians Fifteen head of the kind that will suit and of the line of breeding that has topped every previous sale.

Shires Ten head, a few of which are among the best bred in the West. Balance young things a little out of fix.

An absolute Dispersion of the entire fifty-five head.

Farmers and Breeders will have the opportunity here to buy what they want in Mares and Stallions at their own bidding.

NOTHING RESERVED. Everything must be sold.

Sale will be held, rain or shine, in immense livestock pavilion at Fair Grounds in the city of Longmont.

PLAN TO ATTEND

Write at Once for Our Illustrated Catalog

AUCTIONEERS
Alpheus Bashor, Longmont
Joe Hays, Berthoud
C. W. Snook, Greeley

THE JAROSA RANCH, Owners
Box 692, Longmont, Colorado

LUNCH SERVED
in the Pavilion by the Ladies of the St. Stephen's Guild

Valley View Hereford Ranch

FULSCHER & KEPLER, Proprietors

Breeders of Pure Bred Hereford Cattle

Quality Our Aim—Inspection Invited
Beau Aster Heads the Herd, assisted by Domino

We still have for sale ten or twelve of our First Prize Carload of Bull Calves that are all sired by Beau Aster and Prince Domino, their ages being from ten to thirteen months. Our prices on these calves are very reasonable. Write at once.

FULSCHER & KEPLER, Holyoke, Colo.

Edgemoor Farm Durocs

were the winners of 20 premiums at the 1919 National Western Stock Show, including Junior Champion Boar, Reserve Champion Sow and five first prizes. Cherry Chief of Edgemoor, the 1918 Champion, had the great distinction of siring Edgemoor Cherry Chief 2nd, the Junior Champion Boar at the show this year, thus placing our 1918 Champion at the front of the breeding boars in the West.

Our entries in the under year classes were big winners in the largest classes ever shown at Denver. Edgemoor Farm Durocs took first under year herd, first under year herd bred by exhibitor, first under six months boar and first under six months sow.

Edgemoor Juno was the largest and heaviest boned Duroc sow at the show. She was first aged sow (repeating her record at the Colorado State Fair, 1918) and also Reserve Champion at the Denver show. Two of her pigs were also prominent winners in big classes.

Another exhibitor entered two Edgemoor Farm Durocs in the under six months sow class and won second and fourth premiums. He bought these pigs from us and grew them into prize winners.

No bred stock for sale now, but we still have for sale two choice fall boars sired by the 1918 Champion boar and out of Miss Crimson 2nd, the first prize aged sow at the December show in 1918. Price $100.00 each.

Remember Edgemoor Farm stands for Durocs of size, quality and utility.

CALDWELL MARTIN, Owner

CHARLES SEAMORE, Herdsman LITTLETON, COLO.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

Do you notice the Majesty's are "going over the top" in all departments? I have recently added "Majesty's Feather Lad" to my herd. He is out of a daughter of old Royal Majesty, with a test of 712 lbs. butter, and a show cow, and sired by a grandson of Royal Majesty. He is fine individually, too Where can you beat this breeding? I have one or two splendid bull calves of Majesty breeding, and can spare a few heifers.

In Durocs, am all out of fall boars, but have a few splendid spring boars by an Albian Chieftain boar, and out of Critic-bred sows. Sold out of spring gilts. Have a yearling bred sow to sell.

A. M. McCLENAHAN, Greeley, Colorado

THE HOME OF

"BIG SENSATION"

Weight 1,204 Pounds
Largest Hog in the World

Big type Poland Chinas, choice bred gilts for sale at all times. Call or write.

A. J. ERHART & SONS
Ness City, Kansas

$2 DOWN
ONLY
A Year to Pay

Top of Milk Tank is waist high—easy to fill

Milk and cream spouts are open—easy to clean

One-piece aluminum skimming device is very easy to clean

All shafts are vertical and run on "frictionless" pivot ball bearings making the New Butterfly the lightest running of all separators

More Than 150,000 New Butterfly Cream Separators are now in use

Gets ALL The CREAM

Made $61.39 More from Same Cows
"We made $78.61 worth of butter before we had the machine and in the same length of time we made with the Butterfly Separator $140.00 worth of butter from the same number of cows." THOS. S. KERMOSKY, Point Aux Pins, Mich.

Think of it! You can now get any size of the New Butterfly Cream Separator you need direct from our factory for only $2 down and on a plan whereby it will earn its own cost and more **before you pay.** You won't feel the cost at all. Our low prices will surprise you. For example:

$38 buys the No. 2½ Junior, a light running, easy cleaning, close skimming, durable, guaranteed separator. Skims 120 quarts per hour. You pay only $2 down and balance on easy terms of

Only $3 a Month

You have no interest to pay. No extras. The prices we quote include everything. We also make four larger sizes of the

New Butterfly

up to our big 800 lb. capacity machine shown here—all sold at similar low prices and on our liberal terms of only $2 down and more than a year to pay. Every machine guaranteed a lifetime against defects in materials and workmanship.

EASY TO TURN

Twelve-Year-Old Child Runs It
"We would not do without our Butterfly Separator or exchange it for all the machines we have seen. Our little girl, 12 years old, runs it like a clock!" MRS. P. E. RUDE, Ashland, Wis.

30 Days' Trial

You can have 30 days' trial on your own farm and see for yourself how easily one of these splendid machines will earn its own cost and more before you pay. Try it alongside of any separator you wish. Keep it if pleased. If not you can return it at our expense and we will refund your $2 deposit and pay the freight charges both ways.

EASY TO CLEAN

Simplest, Easiest to Clean
"My son took a course in agriculture at Cape Girardeau and he worked with a dozen or more makes of separators, and he said this was the most simple and easier cleaned machine than any of them." J. B. FINLEY, Oran, Mo.

Catalog Folder—FREE

Why not get one of these big labor-saving, money-making machines while you have the opportunity to do so on this liberal self-earning plan? Let us send you our big, new, illustrated catalog folder showing all the machines we make and quoting lowest factory prices and easy payment terms. We will also mail you a book of letters from owners telling how the New Butterfly is helping them to make as high as $100 a year extra profit from cows. Sending coupon does not obligate you in any way. Write today

ALBAUGH-DOVER CO.
MANUFACTURERS
2129 Marshall Blvd. CHICAGO

[6]

ALBAUGH-DOVER CO.,
2129 Marshall Blvd., Chicago, Illinois

Gentlemen:—Without obligation on my part, please mail me your **free** Catalog Folder and full particulars regarding your special easy payment offer on the New Butterfly Cream Separator.

I keep.....cows.

Name.....

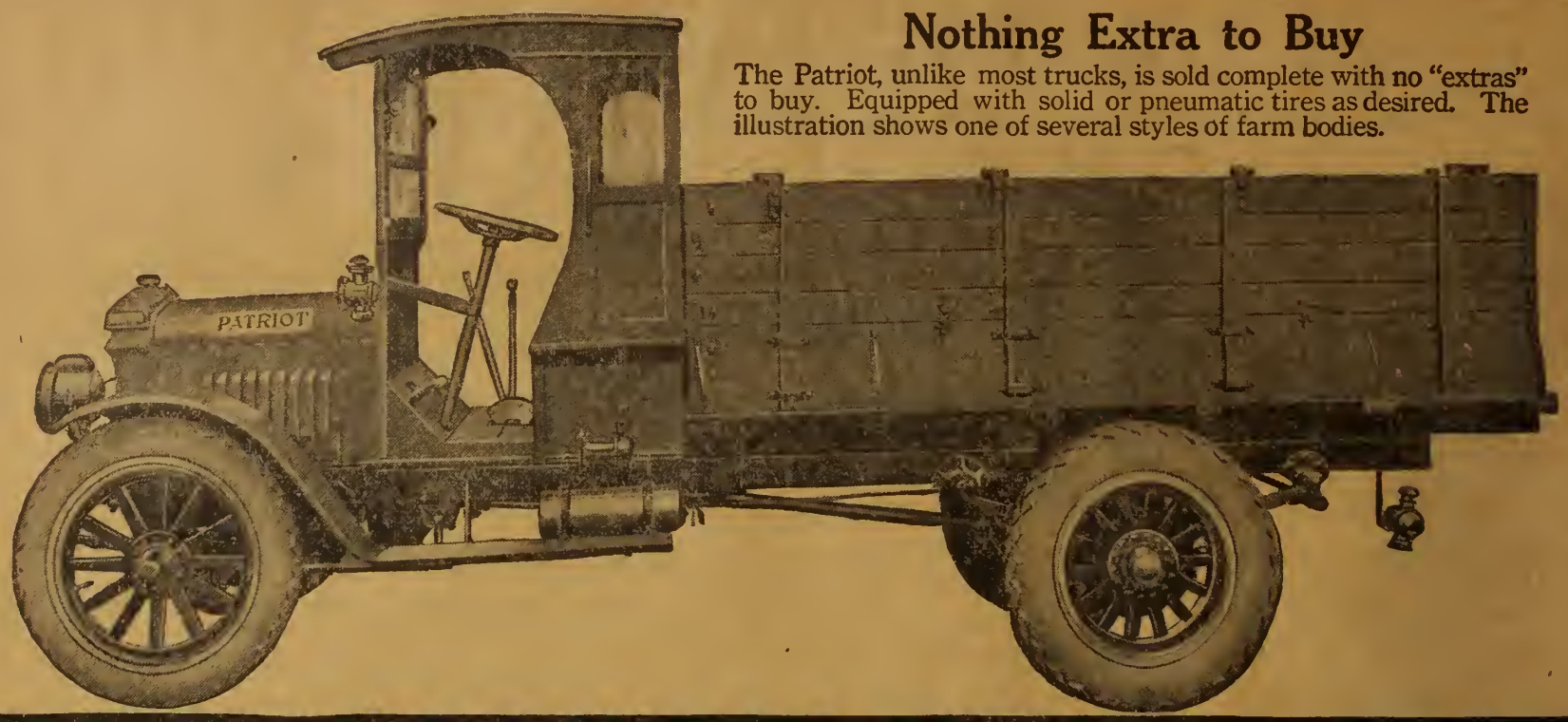
P. O.....

State.....R. F. D.....

WESTERN FarmLife

Vol. XXI Denver, Colorado, March 1, 1919 Semi-Monthly

A HANDSOME BUNCH OF COMING MILKERS OF THE GUERNSEY TRIBE



Nothing Extra to Buy

The Patriot, unlike most trucks, is sold complete with no "extras" to buy. Equipped with solid or pneumatic tires as desired. The illustration shows one of several styles of farm bodies.

PATRIOT

Farm Trucks

Built for Country Roads

Every farmer with 160 acres or more —and every dairy farmer and market gardener, needs a Patriot Farm Truck.

A Patriot Farm Truck will cut down your farming and hauling costs considerably. It saves time and expense in handling farm crops and in getting grain and live stock to market.

It gives you cheap, quick, certain transportation, at any time that a team can get on the roads, and at many times when a team would be unable to pull a load.

It saves horses and feed. It brings bigger and better markets within easy reach, for with a Patriot you can readily drive to a market 100 miles distant.

Built for Country Loads

The First Motor Truck for Farm Work

The Patriot is the first Motor Truck built especially for farm work. It was designed with the needs of the farmer in view, and is equipped with the proper body for farm service.

The manufacturers of Patriot Farm Trucks have been manufacturing truck bodies for farm work for many years and know the requirements of the farmer —both as to body and truck. In the Patriot these requirements are realized.

Patriot Trucks are built in probably the largest factory in America devoted exclusively to the manufacture of trucks — a big, modern plant equipped to turn out a truck of the highest degree of efficiency, and yet enable us to make the truck economically and sell it at a very reasonable price — considering what we deliver in quality of material, character of workmanship, skill in assembling, and equipment.

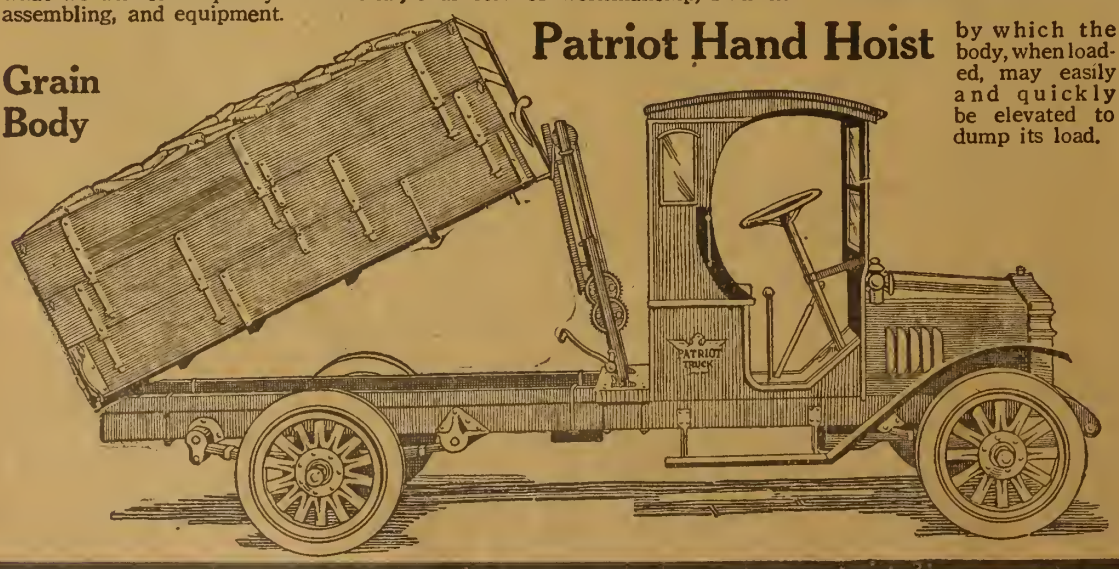
The Factory is Near You If you ever need service or repairs, which even the best motor truck sometime will require, it is a great advantage to have the factory out West within easy reach.

If you're thinking of buying a Motor Truck any time within the next year, it will pay you to come to Lincoln and inspect the Hebb factory and the Patriot Truck. You will see why Patriot Trucks have quickly secured such a wonderful reputation for performance.

The Patriot compares favorably with the highest priced trucks in America, and in addition it is built to render long and satisfactory service on the farm. Write for full information.

Grain Body

Patriot Hand Hoist by which the body, when loaded, may easily and quickly be elevated to dump its load.



HEBB MOTORS CO.

Manufacturers of

Patriot Farm Trucks

1381 P Street Lincoln, Nebraska

Lincoln Model
Capacity 3000 Pounds

Washington Model
Capacity 5000 Pounds

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

Entered at the Denver Postoffice as Second Class Matter

WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI · DENVER, COLORADO, MARCH 1, 1919 · Number 5

Progress Made by Minnesota 13 in Boulder County

SILO RESPONSIBLE FOR BIG RETURNS FROM CORN AS FEED CROP

ALVIN T. STEINEL

COLORADO has not turned to corn growing for lack of a cash grain crop, but because the silo has made livestock feeding attractive and profitable and corn makes the best ensilage. Boulder county has taken the lead in determining the question of a dependable, short-season, drouth and frost resistant variety that will mature grain every year and make silage of high feeding value. Minnesota No. 13 is the variety chosen for this special work and proven by actual field tests, under varying conditions, for four or five seasons the most adaptable corn at an altitude of about 5,000 feet under both irrigation and dry land conditions. Two weeks ago the writer attended a Boulder county corn show for the second time. It was held at Boulder this year. There he saw and heard summarized the results accomplished by adult farmers and members of boys' corn clubs in standardizing Minnesota No. 13, as well as examining the display of other varieties commonly grown in northern Colorado such as Swadley, Colorado Yellow Dent and White Australian.

According to the annual report of County Agent H. H. Simpson, there were 39 silos in Boulder county five years ago. Now there are 345. The average tonnage per silo is 100, giving us an estimate of 345,000 tons of ensilage put up in the county in 1918. The average price of this ensilage in the silo was $10 a ton, which makes its total value $345,000. The yields run from 8 to 15 tons per acre.

Had this corn been harvested for use as dry grain and forage the value of the crop, according to the county agent's estimate, would have been $202,860 for the grain and $51,750 for the forage, a total of $254,610. This gives us a profit due to ensiling this corn of $90,390, which tells the story of why farmers are attracted to corn as one of the feeding crops that will fit well into a rotation on farms where sugar beets, wheat, livestock and peas have been the principal sources of revenue.

It is a common thing for farmers to sell the contents of their silos to feeders who drive the steers into the feed lot and leave the manure on the place as extra profit, in addition to paying $10 a ton for the ensilage. Farmers who feed their own cattle figured the value of ensilage at the same rate and came out well when they sold the fat stock at the Denver yards.

History of Minnesota No. 13 Corn

The Minnesota State Experiment Station is responsible for the development of Minnesota No. 13 corn, the original seed having been purchased in 1893 from a St. Paul seed house, which invoiced it as No. 13. The variety proved high yielding and early maturing.

These qualities being very desirable under Minnesota conditions, breeding work was begun with this strain. Improvement has continued to the present time and will be continued indefinitely. The first distribution to farmers was made in 1897. Prof. C. P. Bull, Associate Agronomist of Minnesota University, furnishes the following information regarding the adaptation and varietal characteristics of this corn:

Adaptation—Minnesota No. 13 corn is now well adapted to the section of Minnesota and South Dakota, in what may be termed the latitude of the 44th to 46th parallels. It is also successfully grown in the southern part of the state and as far north as Crookston, Minnesota. It matures at University Farm in 110 to 115 days. It has also been sought for early maturing corn in Wisconsin and Northern Iowa. It is one of the promising varieties in the New England states and gives very good results in some of the western states. In Southern Russia, where it has been tested with many other varieties of the United States, having been sent there by Mr. Basil Benzin, a student in argiculture at University of Minnesota, and by other Russian agents, it is said to be the most promising variety.

Character—The relative size of the ears of Minnesota No. 13 corn varies somewhat according to the latitude in which they are grown. In the central portion of Minnesota, the ears range from eight to eight and one-half inches in length and from six to six and one-half inches in circumference. The color chosen as standard for Minnesota No. 13 is an old gold yellow, bright and of good luster, but not shiny. The space between the rows is a little over a medium. The kernels in shape are the so-called wedge shape with "square" shoulders at the cap and tip. They are about twice as broad as thick. The depression conforms to the shape of the cap of the kernel and is only medium deep; what may be termed saucer shape. The cap of the kernels should be very slightly wrinkled. The ears are cylindrical in form with medium sized butt, the shank scar being medium to small. The tip of the ear is generally not very tapering and well filled in accordance with the season's condition. The cob is relatively small and the average run of ears will shell about 83 per cent of corn to the ear, though it is not uncommon to find individual ears shell as high as 88 to 90 per cent of shelled corn.

About 8,000 acres of corn was raised in Boulder county last season, of which probably 3,000 acres was Minnesota No. 13. It is estimated that from 12,000 to 15,000 pounds of tested Minnesota No. 13 seed will be disposed of by the farmers of the county during the present spring. Registration of seed corn is applied only to this variety. Among the adult farmers who have registered their seed corn are: Frank Bixler, rural 1, Boulder; John Kelsey, rural 1, Boulder; Forest Johnson, Niwot; W. A. Groom, route 2, Boulder; Fred Tyler, route 2, Boulder; William Selby, route 1, Boulder; Great Western Sugar company, Longmont.

In addition to the above, the following members of the boys' corn clubs have registered Minnesota No. 13 for sale, or did have at the time of the corn show in mid-February: James Platt, route 1, Lyons; Jacob Christensen, route 2, Longmont; Horace Selby, route 1, Boulder; Ray Harper, route 1, Boulder; Raymond Brandt, route 2, Broomfield; William Everett, route 2, Longmont; Roy Capron, route 2, Broomfield; Joseph Bierd, route 2, Broomfield; Carl Snow, route 1, Boulder; Glen Leggett, route 1, Boulder; Frank Hartnaughi, route 1, Boulder; Carl Hixson, route 1, Boulder; Harry White, route 2, Longmont; Guy and Paul Hart, route 2, Longmont; Clarence Samuelson, route 1, Lyons.

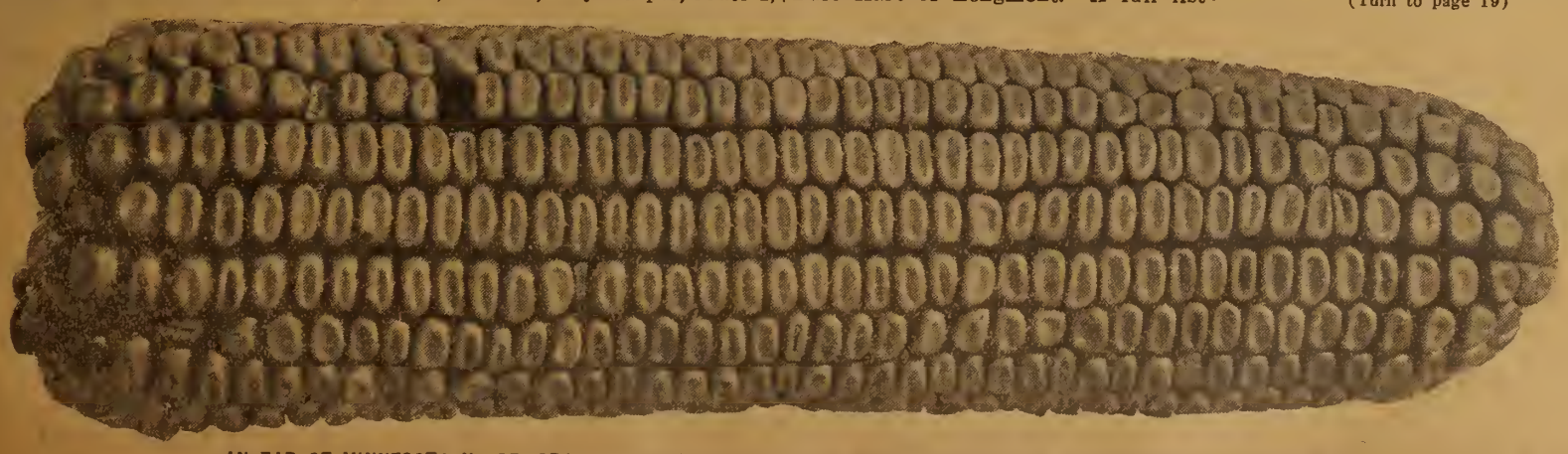
That the farmers of Boulder county have faith in Minnesota No. 13 was evidenced by the way they outbid each other for the choice crates of tested seed corn offered in the auction that closed the show. One crate, containing half a bushel of ear corn sold for $14, this going to a seed dealer, the farmers, however, paying from $5 to $7.50 per crate. The top price of the sale was scored by a ten-ear exhibit of Minnesota No. 13 which had won state premium at the Stock show in January, the figure being $24 and the buyer Burt Hart of Longmont. A full list of the auction results is given at the conclusion of this article.

While farming in Boulder county is largely under irrigation and most of the Minnesota No. 13 is produced on farms where irrigation is practiced, very little water is used in corn production. For that reason no distinction is made at the show between dry land and irrigated corn. One of the reasons why corn produced on irrigated farms, as a rule, produces higher yields than the dry farming corn, is deeper plowing, more use of manure as fertilizer and better soil preparation. Corn on such ground requires very little watering and, in some seasons, none at all, the natural rainfall, plus careful preparation of a water holding soil and seedbed, being sufficient to make a crop. On some farms one or two irrigations are applied to the corn but heavy watering is avoided by those who have studied the subject and work their land right. Some of the Minnesota No. 13 corn on the dry lands, under good dry farming methods, has yielded as well as that on irrigated lands, even where water was applied. Generally speaking, the yields last season in the irrigated districts ran from 40 to 60 bushels, while the dry farming yields were 25 to 35 bushels. Boulder county farmers are not making the mistake often made of trying to get heavy yields of tail corn to put into the silos. They are after ensilage of a high nutritive value and want a good proportion of grain to forage.

The corn exhibits were judged by Mr. E. M. McCaslin of Boulder, who grew corn in Indiana many years and always followed approved methods of seed selection. Some of his placings were the subject of considerable comment, especially the grand champion ear and the sweepstakes ten ear exhibit. He gave sweepstakes to an exhibit of yellow dent while many of the Minnesota No. 13 boosters thought it should have gone to that variety, the feeling being that one or two of the boys' club exhibits were nearer perfection than the yellow dent that won. Mr. McCaslin gave his reasons for the placing, stating that the winning exhibit contained more ears that were true to the type represented than any of the other ten ear exhibits, although individual ears, when compared, might show up a different result.

On his award of grand champion ear the question raised was, why give it to

(Turn to page 19)

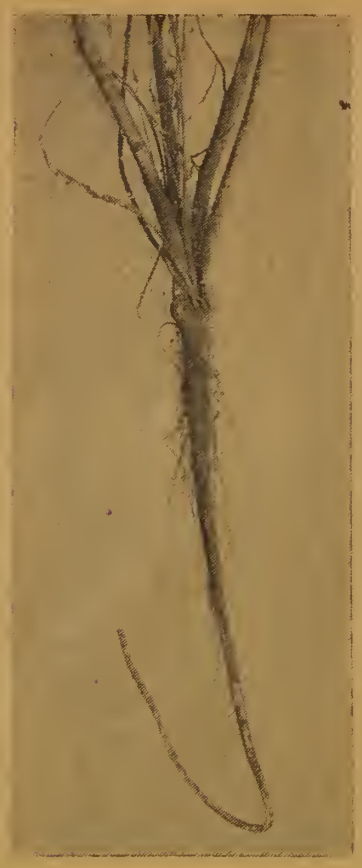


AN EAR OF MINNESOTA No. 13, GROWN IN BOULDER COUNTY, PHOTOGRAPHED AND REPRODUCED IN ACTUAL SIZE
This ear measures 8 inches in length, 6½ inches in circumference at the center; is slightly tapering; well filled tip and butt; old gold yellow in color; regulation wedge shaped kernels. It conforms in almost every particular to the description of character given by Prof. Bull of Minnesota for the type considered ideal in the variety.

Sweet Clover for Pasture and Hay

ROOTS PUT TONS OF HUMUS INTO EVERY ACRE

DR. VERNON T. COOKE



Questions are constantly being asked about the adaptability of white sweet clover to dry farming conditions, for pasture, hay crop or fertilizing purposes. In the following questions and answers Dr. Vernon T. Cooke, dry farming expert, gives us the sum of his experiences with the crop, touching upon every point that ordinarily comes up in a discussion of this plant, which has often been designated as a nuisance on irrigated land, but even there has important uses, is extremely valuable for the dry lands, and will help redeem many an acre of alkalied land in the West, if given a fair show.—EDITOR.

1. What is white sweet clover?

Ans. A leguminous biennial; a species of clover first cousin to that well known plant, alfalfa.

2. What do you mean by leguminous plant?

Ans. A leguminous plant is one that has the special power of utilizing atmospheric nitrogen and transmitting it through the plant into the soil through bacteria that live on the roots of the plant. White sweet clover, alfalfa, various other clovers, beans and peas are plants of the above order.

3. Am I to understand that because it is a biennial we have to reseed it every two years?

Ans. White sweet clover, although a biennial and dying out the second year, is an exception to the rule. By judicious management and in a favorable season we can use it for pasture the first part of the second season and then let it grow for a crop of seed, or cut first crop for hay and let second go to seed. In cutting crop for seed much seed shatters and so the ground is reseeded. Best seed results are gotten usually if it is not pastured the second year. In speaking of a favorable season, this means plenty of moisture. Thus by re-seeding itself it can be made to last a good many seasons.

4. Will it serve as both pasture and hay plant?

Ans. Yes. Most emphatically, yes—makes splendid pasture if used right. What is using it right? Do not put too many head of stock on it, which would have a tendency to kill it out. On the other hand, too few would allow plants to grow coarse and woody. Try and strike the happy medium.

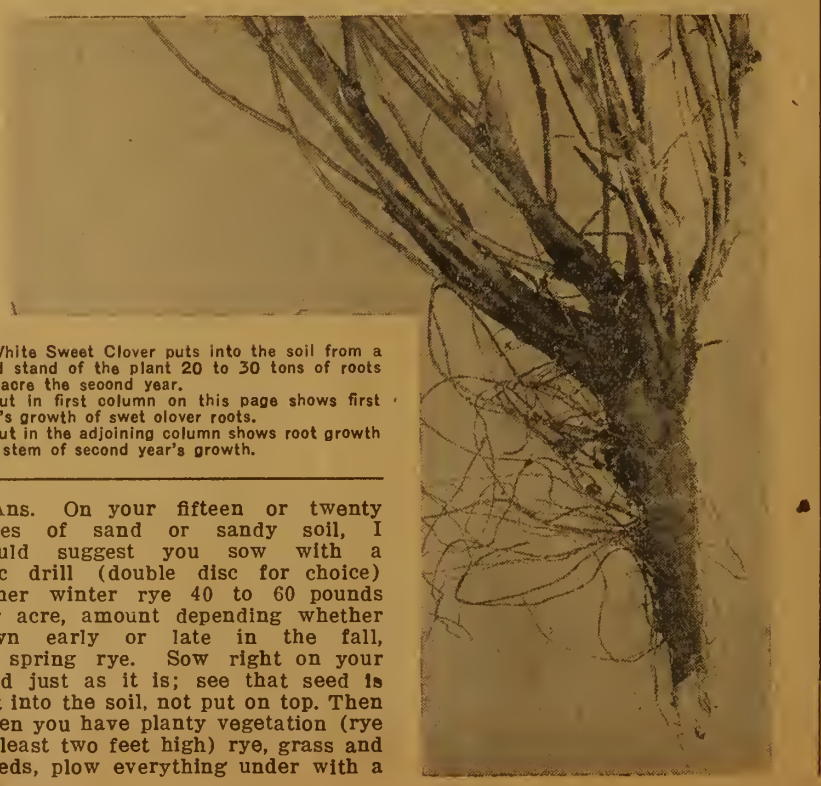
5. Does it not make a stemmy, woody hay that cattle don't care for?

Ans. Yes, if the stand is thin, but a good, even stand should not be coarse—just the opposite.

6. Why should I not try to grow alfalfa on my dry land, instead of fooling with this biennial which does not make as leafy a hay, nor as prolific a pasture as alfalfa?

Ans. Please eliminate the word fooling when talking of white sweet clover. There is nothing foolish about this plant. The foolish part is at the other end; namely, those who question its virtues. Alfalfa versus white sweet clover on dry land: white sweet clover will grow well on land that alfalfa would pass up—stand for stand. White sweet clover will outyield alfalfa on the same amount of moisture. Will carry more stock, acre for acre, than alfalfa, and stock on white sweet clover will not bloat as they usually do when alfalfa is pastured. I will qualify the above assertion with reference to bloating on white sweet clover by reminding some that to turn hungry stock, cattle and sheep particularly, into a luxuriant growth of white sweet clover, more especially if wet, and expect that they will not get sick, is to expect something that will probably not happen. On the other hand, when stock are accustomed to feed in white sweet clover pasture day after day, whether wet or dry, and are used to the plant, they do not bloat as they will under the same circumstances with alfalfa. Coarse and woody hay is due to thin stands of either white sweet clover or alfalfa and not due to the plant. Thick stands of either makes fine stemmed hay. Besides the above advantages the white sweet clover has over alfalfa it has another and that is a vital one to the dry farmer, which is to have as much organic matter in his soil as he can, to decompose, thereby making such soil more retentive of moisture and so enabling the fertility in the soil to become available for the growing plant. White sweet clover puts into the soil from a good stand of the plant twenty to thirty tons of roots per acre the second year, whether you want them or not. Alfalfa roots do not mature like this in two years. Please do not forget we are talking about dry farming conditions.

7. I have two kinds of soil on my farm. One part of it is rolling, sandy, going down to a draw in which there are a few cottonwoods. The rest of the farm is upland buffalo grass sod. The sod plows up well but it lays so high and dry that rain has never soaked in and there is nothing in the soil on the new land except grass roots and they don't go down deep. On the rough sandy land, which I aim to keep in pasture, there is a growth of bunchgrass, but not enough to hold it from blowing. I want a good pasture plant to redeem that fifteen or twenty acres of sand, which isn't worth much to me as it is now and in some years might cause my wheat fields to be damaged by sand blowing in. How would sweet clover do for pasture on this sandy land?



White Sweet Clover puts into the soil from a good stand of the plant 20 to 30 tons of roots per acre the seoond year.

Cut in first column on this page shows first year's growth of swet olover roots.

Cut in the adjoining column shows root growth and stem of second year's growth.

Ans. On your fifteen or twenty acres of sand or sandy soil, I would suggest you sow with a disc drill (double disc for choice) either winter rye 40 to 60 pounds per acre, amount depending whether sown early or late in the fall, or spring rye. Sow right on your land just as it is; see that seed is put into the soil, not put on top. Then when you have planty vegetation (rye at least two feet high) rye, grass and weeds, plow everything under with a moldboard plow and do it right. Plow deep, deeper the better; then set your disc harrow; weight it with a big sack of dirt each end, heavy man (not a kid) in the middle; harrow set straight. Object of harrowing is to pack soil well down on vegetation plowed under. Object of vegetation and packing is to make soil hold more water and to prevent drifting or blowing of soil. Following fall, disc soil lightly when moist and sow unhulled white sweet clover seed.

8. Would you advise me to try it on the tight land as a hay crop?

Ans. I would advise all dry farmers to have white sweet clover on their ranches whatever kind of land they might have, particularly in rotation of crops. If you have any alkali on your ranch sow white sweet clover.

9. I want to make the upland more fertile. I know as well as anybody that small grain takes out fertility and I have grown it on the land three years in succession now, because the government wanted wheat and there has been money in it. I realize that this is not the best plan. I am right up to the point where I must decide on putting in alfalfa or a substitute, because the need is for something down in the soil to help hold the water. Which shall I take and why?

Ans. White sweet clover will restore depleted humus in your soil, with its big roots will open up the subsoil, thereby allowing moisture to percolate down; also will put nitrogen in your land, making more fertility available for future crops.

10. If sweet clover, do I have to drill it in, or can it be broadcasted on the upland? How about the sandy land, drill or broadcasting for my pasture?

Ans. As a rule I am strongly opposed to broadcasting any seeds, yet I realize that sometimes this rule can be broken with advantage. In sowing in the fall on very light soils, if done properly with an endgate machine, broadcasting would be permissible, especially if one had a fair amount of stock, say sheep, to tramp seed into soil. On the other hand, a low-down press wheel, double disc drill is usually best. Drill puts seed into soil where you want it; packing with press wheels insures quick germination, holds moisture and keep young plant roots warm in cold weather.

11. If I use it on the upland, what are the chances for getting humus in the soil by way of the roots? Is there much root growth and do the roots penetrate about the same as alfalfa?

Ans. If you get a good stand on your upland you are not taking chances, but you are certain of getting humus into your land with white sweet clover. As I have said before, you get as much as twenty and thirty tons of roots per acre, second year. The roots of this plant do not have a long tap root like alfalfa, but spread out considerable, as well as penetrating downward.

12. Is the crop as hard to plow as alfalfa when I want to put grain on the land again?

Ans. Depends upon depth of plowing; also texture of soil. Neither of them are easy to plow with a poor team and a dull plow. With sharp plow shares and a surplus of power you will not have any trouble to plow your land for future crops. Some men undertaker to do a job of plowing with enough power, either tractor or horses, to pull one or more 14-inch plows, which they use to pull 18-inch plows, instead of 14-inch. The plows are often dull instead of being sharp, and, necessarily, plowing under these circumstances makes the work hard. The blame is put onto the plant in the soil. Sharp plows, plenty of team or power makes plowing easy, whether alfalfa or white sweet clover.

13. I have only three horses, but am using a small tractor that pulls two plows. I have a herd of sixteen to twenty dairy cows. My winter feed is ensilage made from corn, sometimes cane. I have had to buy some hay and cottonseed cake. Last winter was the first time I tried winter milking, but with the silo it worked out well. Usually I have made all my milk off the grass in summer. I have plenty of summer range, as I am leasing a section of pasture. Of course, my milk was made cheaply in summer but my cows didn't earn their keep in winter. With my new plan of getting everything that the cows will give I feel the necessity for better pasture than the prairie grass gives me, more hay and at the same time I need to build up my soil. I can get just hay alone by growing Sudan grass, but that doesn't solve my problem. I have been reading your articles on white sweet clover and talking it over with my neighbors. One of them tells me he tried and couldn't get a stand. Another one said he knows of a patch over in the Wolf creek country that took two years to start and then gave a straggly, poor crop of hay and a small seed crop. The seed seemed to be the best part of that crop. I am not trying to knock the crop, but want to find out all about it—the good side and the bad—before I try it.

Ans. Any man who says he has sixteen to twenty dairy cows and has a silo into which he puts corn and buys some hay and cottonseed cake, and whose cows have good summer pasture and which don't earn their keep in winter, does not have dairy cows—they are just boarder cows. Suggest you get some tested milk cows. Have calves come in the fall and get a good white sweet clover pasture. You will find it profitable, but good feed will not cause poor cows to give a lot of milk.

14. The next thing is: If I try, shall I sow this spring?

Ans. Yes. If you have some land that you had in potatoes, corn or some inter-tilled crop last year. Disc and double disc it, don't plow; keep clean from weeds and sow in June or beginning of July.

15. What preparation shall I give the land?

Ans. For fall seeding I would plow ground as early as possible. Keep free from weeds by harrowing just as weeds appear.

16. Would you advise hulled seed or unhulled?

Ans. Unhulled seed for fall seeding, hulled seed for spring or summer sowing.

17. How much shall I sow to the acre, if drilled in, and how wide apart the rows?

Ans. Six to ten pounds of hulled

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How the Farm Garden Helps Feed the Family

A SCHEDULE OF CROPS FOR THE ENTIRE GROWING SEASON

E. L. KIRKPATRICK

THE importance of the farm garden as a source of food throughout the year can scarcely be over-estimated. Records secured from several gardens in various sections of the country the past two seasons show average net returns of $250 per acre from home garden crops. In addition, the same records show that maximum returns were the result of efficient planning, proper planting and persistent care of the garden from early spring until late fall.

Planning consists of determining the amounts and varieties of the different crops to plant in order that a plentiful supply of fresh vegetables may be had from the garden during as much of the entire year as possible. A well-prepared plan should show size of the garden plot, location of the various crops, spacing between the rows as well as between plants in the row, varieties to be used and relative depths of planting.

Size of the Garden

Size of the garden depends upon the number of persons to be supplied with vegetables, upon the care it is to receive, and upon the fertility of the garden soil. A plot 40 feet square with high fertility will furnish enough early vegetables for a family of five persons. If this size is used, potatoes, sweet corn, late cabbage, and possibly tomatoes should be planted in a nearby field or plot. A more satisfactory size, as well as shape, of plat is 50 feet or 75 feet by 150 feet, which may well include all crops, with a possible exception of late potatoes.

The suggested shape makes possible the long-row system through which crops may be cultivated with a wheel hoe or hand plow, or with a horse-drawn cultivator. Long rows are preferable to raised garden beds which are more subject to drought, since water drains from them into the paths and runs away instead of soaking into the soil.

Location of the Garden

The home garden should be located on good, rich soil free from weed seeds, insects and diseases. Since the garden cannot be moved each year or two, it is necessary to restore plant food used by the crops each season by the addition of well-rotted manures. Green or trashy manures are apt to scatter weed or grass seeds which may be present in them and to destroy capillary attraction to such an extent as to cause burning out.

A comparatively level site affords the best location, since a sloping plot allows the best soil, and occasionally the seeds, to wash away.

Many gardens fail on account of being located too close to groves or orchards. Tree roots interfere with work and with plant growth by drawing upon the plant food supply of the garden. Moreover, trees often shade the garden to such an extent as to be detrimental.

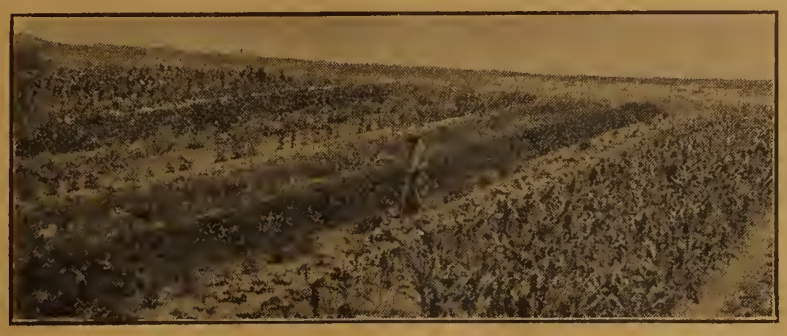
While the garden should be located conveniently, it need not be placed where it will mar the appearance of the house or lawn. On most farms, the water supply must be considered in choosing the location of the garden.

Where to Get Seeds to Plant

The best results in gardening are secured from good seed strains selected the past season, that is, from one or two of the best and earliest plants of a variety which have been labeled and allowed to produce seed. Where seed strains have not been grown, seeds should be ordered early from a reliable seedsman. Seeds secured from the average grocery or notion store may not prove reliable. The gardener ordering seeds should specify varieties wanted, and insist that no substitutes be sent. Untried vegetables and novelties should be avoided, except for experimental purposes.

Growing Early Plants

Vegetables from which the seedlings should be transplanted may be sown in window boxes and their seedlings transplanted to a cold frame or a hotbed when each has attained its first pair of true leaves. Window boxes are shallow boxes or pans, each provided with several holes for drainage, placed near the kitchen stove at night and just inside the window during the day.



A Well Kept Garden at Canon City, Colo.

The coldframe or the hotbed is a temporary storehouse for heat absorbed from the sun during the day. It consists of a box frame, on which rests a glazed sash. The frame stands 6 or 8 inches above ground, is sloped to the south, so as to admit sunlight, and covered with a straw mat or old carpet at night, to retain the heat. It should be located against the south side of a building or thicket, if possible, for protection from the cold, northwest winds. It should be deep enough to contain six or eight inches of good soil, the surface of which should be six inches below the sash at the front of the frame. The coldframe gives a convenient place for seeding or transplanting, as well as for actually growing lettuce, radishes and other early crops.

The hotbed, which is made like the coldframe, depends upon horse manure placed under the seed-bed for the greater part of its heat. Manure used should be well mixed with an equal part of straw bedding, and should pass through its "first heat," to prevent burning. It should be piled up a week or ten days previous to being used, and turned completely and dampened thoroughly several times to prevent over-heating. It should be at least 18 to 24 inches deep in the pit and tramped well. The 6 or 8-inch covering of fresh, rich soil is placed directly on top of the tramped manure. Plants started early in the hotbed may be hardened to extreme out-of-door conditions by transplanting them to the coldframe.

Seed-sowing Out-of-Doors

Seed-sowing in the garden may begin as early in the season as the soil is in a good, warm condition. A generous supply of well-rotted manure should be added and thoroughly worked into the garden soil previous to plowing, each season. There is little danger of over-preparation of the soil. Following planting, the soil should be firmed over the seed. After firming, a little loose soil over the surface will prevent too rapid evaporation.

Transplanting Seedlings

Transplanting is a means of securing first-class plants for setting in the garden, as weather conditions permit. Good conditions for growth should be provided for transplanted seedlings. In shifting them from flats in which they have been sown to other flats, or to the hotbed or coldframe, three-fourths leaf mold soil mixed with one-fourth clean sand gives good results. Distance of transplanting may be ranged from one to four inches each way, depending upon the size and rate of growth of the seedlings. Holes for young seedlings may be made with a round, smoothly sharpened stick (dibble) about five inches long. For making larger holes a garden trowel may be used. Since quick growth depends upon close contact of the roots and soil, each plant must have the soil well firmed around it. This applies particularly to seedlings taken from the hotbed to the garden. A little loose soil placed over the firmed soil is an advantage.

Application of Water

Garden crops should not be allowed to become wilted or stunted for lack of water. The soil underneath the top surface should be kept moist throughout the season by thorough but not too frequent watering. If wet to a good depth each time, the soil will not need water as often. Water at a considerable depth causes plants to root deeply and to become more firmly established against drought, whereas, light watering causes them to become shallow-rooted and more subject to dry weather. The furrow method of irrigation is preferable.

Gardening Operations Continuous

Best results in gardening are not secured from one or two days' work at the beginning of the season, only. The task of caring for the garden must be made continual throughout the summer. In general, a yearly garden schedule prepared for a Colorado altitude of about 5,000 feet or lower will run about as follows:

March 1-10—Draw plans of the garden on paper. Order seeds needed from reliable firm.
March 10-20—Make hotbed or coldframe. Make flats for seed sowing and transplanting. Secure tools for gardening.
March 20-30—Sow early cabbage, cauliflower, celery and parsley indoors or in hotbed.
Sow early crops of radishes and lettuce in coldframe.
March 30-April 10—Sow tomatoes indoors or in hotbed.
April 10-20—Put garden soil in shape for early crops.
Transplant cabbage and cauliflower seedlings to new flats, spacing them 2x2 inches.
Sow peppers and eggplants indoors or in hotbed. Plant new onion sets, lettuce, early peas and early potatoes in garden.
April 25-May 5—Sow radishes, carrots, turnips, beets and mid-season peas in garden. Sow cauliflower in hotbed.
May 10-20—Sow late celery, cabbage and lettuce seeds in well prepared bed out-of-doors. Transplant tomatoes, pepper and eggplant seedlings to new flats, spacing them 2x2 inches.
Plant corn, mid-season lettuce and radishes in the garden. Seed early cabbage plants in garden.
May 20-30—Plant bunch beans, late carrots, late peas, cucumbers and summer squash in garden. Set early celery and parsley plants. Sow kohlrabi seed out-of-doors for transplanting to garden.
May 30-June 10—Plant pole and shell beans, set cauliflower and tomato plants to garden.
June 10-20—Plant mid-season corn and winter squash.
June 20-30—Plant late corn. Set late celery and cabbage plants.
July 1-10—Plant kohlrabi to the garden.
July 15-30—Sow turnips, winter radishes and rutabagas.
August 1-15—Sow fall spinach and lettuce. Plant multiplier onion sets for late fall or early spring.

Crops of fall lettuce, spinach and parsley may be sown also the last of July or the first of August for exceptionally late fall crops. Short-season, quick-maturing crops should follow other crops removed throughout the summer. Attention should be paid to garden pests, that is, insects and diseases, at all seasons of the year.

The amount of cultivation will depend upon the soil, its freedom from

(Turn to page 17)

Dr. V. T. Cooke, Author of Article on Opposite Page, in Jungle of Sweet Clover on Ditch Bank

Sweet Clover at 7,500 Feet

Frequent inquiry is made as to whether whitesweet clover will thrive at high altitudes. Good stands have been inspected by the writer at upward of 7,000 feet. In fact, it is safe to say that sweet clover will do well up to the alfalfa limit, which, in Colorado, is about 8,000 feet. Last summer, during the El Paso county Farm Bureau tour, we stopped at the ranch of J. M. Bradshaw, near Peyton. The altitude at the ranch is 7,500 feet. There the writer photographed a three acre patch of sweet clover that was in excellent condition. Lack of space prevents reproduction of the photograph at this time, but the details, as secured from Mr. Bradshaw, will prove interesting.

The crop was sown in May, 1915, being drilled in, and both hulled and unhulled seed being used. The rate of seeding was four pounds to the acre. The ground had been in brome grass pasture before. It was plowed eight to ten inches deep, well manured, well packed and harrowed. Thirty days after plowing the seed was drilled in.

The patch was used for pasture, and last summer a seed crop was grown amounting to 600 pounds. Six calves and three pigs, and occasionally two or three milk cows were run on the clover. All stock eat it readily. Mr. Bradshaw says:

"This patch of clover was originally sown in 1915 and has since re-seeded itself. As the ground is getting pretty weedy, we expect to plow it up in the spring and plant to a cultivated crop, possibly beans."

Crops are grown under careful dry farming methods with an annual rainfall of about 16 inches. Mr. Bradshaw is widely known as an expert wheat grower and a strong advocate of deep plowing and summer fallowing for grain.

Rural Libraries and What They Should Contain

SUGGESTIVE LIST OF WHOLESOME BOOKS FOR COUNTRY READING

GARLAND A. BRICKER
DEPARTMENT OF RURAL EDUCATION, SYRACUSE UNIVERSITY

RURAL communities are perishing for lack of information. The rural people need knowledge. The first task in any worth-while program of rural education or community betterment is to inform the people who are to be the patrons of progress.

Three things are involved in the dispensing of information of any kind: first, the teacher who knows; second, the learner who knows not; and third, a time and place when and where the teacher and the learner may come into communication under favorable circumstances. The living teacher is, on account of the third limiting factor, greatly handicapped in her opportunity to teach the whole community. It is a very difficult matter to get everybody in the whole community ready at the same time and for the same length of time at the same place with the teacher, for the purpose of instruction. The larger the community, both in area and population, the harder is the task.

The book, however, is always ready for the use of any reader, at any place optional with the learner himself. The limiting factor of assembling a number of persons is eliminated. A book may be duplicated at small cost and thus the people of a whole community may, during the course of a winter season, become learners of one teacher through copies of his book. By the evening firesides on the widely separated farms, during the lonely seasons of rain or storm, on Sundays, before and after meal times, at rest times—in fact, any and every time the faithful book never fails in an appointment for educational service. The rapidity and ease by which information may be spread by means of books and magazines, makes the public library an indispensable factor in the education of every rural community.

Location

A community that is large enough to have a schoolhouse should also be provided with a library; and, since the rural school is the local educational center, the rural library should be located at the schoolhouse and its management placed in charge of the educational leader of the community—the teacher.

Another reason why the rural library should be located at the schoolhouse is that it is the most visited public institution in the community, with which nearly every home comes into daily contact. Parents may send for volumes each school day, and return them as often, by their own or neighbors' children. The rural teacher who overlooks this opportunity for leadership, or who fails to make the best use of it, will soon be forced out of the profession, and ought to be.

Selection of Books

The selection of the books for the rural library is a very important matter. There are a few principles that should be emphasized to guide in this selection. The first guiding principle to be observed is always to avoid "cheap," trashy stuff. The effects of poor or vicious books, morally or in the ideas taught, are, like poor and bad music and songs, very difficult to counteract. They soon run their course in the cities, where large sums of money and the efforts of strong moral influences soon drive them off the market and create a public prejudice against them. By that time, however, these books have been carried and scattered through the rural districts for commercial reasons. Here this trashy stuff does its greatest damage, for it thrives, often for years, unchecked and often unrebuked, because the safeguards to the mental life of the public are weakest in the rural communities.

The second principle to be followed is the selection of those books that have a significance for rural life. A book that does not instill love for country life, nor show the opportunities of the farm, nor inspire for a better rural life, nor broaden the visions of the countryman, nor make his life richer or truer or nobler has little right to occupy space on the shelves of the rural library. Under no circumstances should any book be tolerated that cultivates a taste for city life, especially those designed to lure country people cityward—and such books and articles are written for commercial reasons—or that tend to awaken or cultivate dissatisfaction for things rural.

The third principle should insist upon a suitable variety—books for the old and the young, for the farmer and the homemaker, for the girls as well as the boys. There should be books on the various phases of agriculture, on the rural institutions, on travel, on nature study, on applied sciences connected with the various subjects of husbandry, on history, children's books and good and wholesome story books and novels. Many novels of a rural trend have recently appeared from the presses of American publishers, and these should always be included first among the novels for a rural library. A few high-grade magazines and agricultural and women's journals will complete the list for the average rural community library.

The fourth principle to govern is the size of the books selected. Other things equal, two or more books on the same subject, always select the smaller volume. By "smaller" I mean the number of words used. Most country people dislike to begin a long book or article. The smaller books and articles are more often read, even if they are not so complete. On the other hand, the reading habit is not generally developed among country people, and a small book is more likely to encourage a venture at reading than a voluminous one.

Suggestive Rural Book List

A few suitable books on agriculture are:
Bailey's "Manual of Gardening."
Brace and Mayne's "Farm Shop Work."
Brooks' "Agriculture," three volumes.
Carver's "Principles of Rural Economics."
Davidson's "Agricultural Engineering."
Gardner's "Successful Farming."
Shaw's "Weeds and How to Eradicate Them."
Plumb's "Beginnings in Animal Husbandry."
Robinson's "Our Domestic Birds."
Shoesmith's "The Study of Corn."
Smith and Thomas' "Farm Accounts."
Vivian's "First Principles of Soil Fertility."
Wilson and Warburton's "Field Crops."
Books on rural social affairs are:
Bancroft's "Games for the Playground, Home, School and Gymnasium."
Bricker's "Solving the Country Church Problem."
Brunner's "The New Country Church Building."
Butterfield's "Chapters in Rural Progress."
Carney's "Country Life and the Country School."
Carroll's "The Community Survey."
Coulter's "Co-operation Among Farmers."
Dawson's "Money-Making Entertainments for Church and Charity."
Davenport's "Education for Efficiency."
Earp's "The Rural Church Movement."
Fisk's "The Challenge of the Country."
Harris' "Health on the Farm."
Hoben's "The Minister and the Boy."
Israel's "Country Church and Community Co-operation."
McKeever's "Farm Boys and Girls."
Stern's "Neighborhood Entertainments."
Wilson's "The Church of the Open Country."
A few good story books or novels are:
Atkinson's "Johnny Appleseed."
Hall's "Aunt Jane of Kentucky."
Harris' "Joe, the Book Farmer."
Hegan's "Mrs Wiggs of the Cabbage Patch."
Hopkins' "The Story of the Soil."
Quick's "The Brown Mouse."
Porter's "The Harvester."
Turpin's "Happy Acres."

Bliss Triumph Potatoes for Southern Seed Trade

OKLAHOMA AND TEXAS ARE MAKING TESTS OF GREELEY SPUDS

W. R. McCLELLAN

THE past year was an unusual year for the Colorado potato grower. The spring of 1918 opened very favorably and early plowing was done in fine shape. June ushered in the driest and hottest month we have had in 25 years and this continued until July 12, when it wound up with a thunder shower, and the next five weeks it either rained a light shower or was cloudy at least every other day. The result was our beans in the Greeley district took the blight and cut the crop more than half; potatoes were too wet on top and got too dry below and our crop yield was 40 per cent less than it has averaged for the last ten years, and had the frost come on early there would not have been over a third of a crop.

But the frost did not come until in October and then only very light. The extreme hot weather in June so weakened the potato plants that they grew spindling and set on very light. Then the late coming of frost and long growing season made them grow very large and some very rough. But the slow ripening process made them look dry and mealy. The result is our percentage of seed is much smaller than usual, as our growers want a small potato to plant running from 1½ to 2½ inches. The reason for this is two-fold. The larger ones do not cut so well and cost more per acre and the planters do not handle them so well and the stand is not usually so good. Experiments made indicate that the best results are obtained where a 4-ounce potato is cut in two pieces, or an 8-ounce cut in four pieces.

Some years an ounce piece produces just as good results if ground and season are favorable. Our experiments confirm the general opinion that in potatoes, as most things else, like will produce like and if you want to grow good, smooth potatoes you had better plant that kind of seed. Any old thing may come up and make some kind of a crop, but you can't bank on it. Last spring a party came to me with a very handsome red potato to know what variety it was. I said at once it was a pure Bliss Triumph and I could duplicate it a hundred times over in my dugout. Well, he said these potatoes were brought to Sterling from Wisconsin and he had forgotten the name of the variety. The man who raised these potatoes has grown on dry land six crops of these without a single failure, going from 60 to 80 sacks. He plants early in April, to get them set on before the hot weather in June, and digs them last of July. We tried an acre on land above ditch in sod corn the year before, as we had just plowed it for summer fallow for fall wheat. We planted just an acre April 11th, 18 inches in row, 4 inches deep. May 13th they began to show up. May 25th we cultivated first time. June 28 we began using them. Early in August we dug 47 sacks and had eaten 6 or 8 sacks. Had the July rains come 10 days earlier they would have gone nearly double. They had begun to turn yellow and dry up, so the rain did them no good.

In September I went to Chadron, Neb., to see a party who had in 125 acres Bliss going 125 sacks per acre. Had raised them for six years on dry land. He harrows twice as soon as they show up. Cultivates five times, which he says is the main thing. He took me to another farm to show me 15 acres of Bliss, grown from his seed on same kind of ground harrowed once, cultivated only twice, going hardly 50 sacks. He said this last year in Texas his seed was tried alongside of seed from several eastern states and beat them all in yield.

Texas alone uses 400 carloads of Bliss Triumph seed each year. A representative of the Texas college was up here last August and looked my field over and I am sending them for test alongside of other states a sack of both dry land and irrigated Triumph seed. Have also sent some to the Oklahoma college for test work. Am growing some 15 acres dry land sod Bliss this year and arranging to grow some 20 or 30 acres northeast of Greeley on dry land. There seems to be, without doubt, a prospect of opening up a new industry along this line and I also believe we can grow Bliss under irrigation for this market. The red seed grown here years ago (rose and rose seedling) did not give satisfaction, and there is a prejudice in the South against irrigated seed. I think the trouble was the way we grew them. We planted in early June, watered until September 15 or 20, dug early in October and they were planted in January. All authorities agree that a potato, to reproduce well, should have at least three to four months in a cool, dark place to rest and go through a certain change in order to grow a strong plant and crop. This Rose seed came up well and grew a very large vine but would not set on. The Texas college man said the great trouble with the Bliss seed was to get pure seed. Often five or six other varieties were mixed in. Some Rose, some Ohio and other red kinds. The Bliss sets on ten to fourteen days earlier than any other red variety, and so when the Bliss are fit to dig these others are too green and ship poorly and hurt the sale. Pure Bliss are very scarce. Dr. Stuart of the Department of Agriculture, when here last August, said: "You don't know how hard it is to get real straight Bliss seed. I have looked all over the United States for it and very few have it."

On his order I sent two sacks to Oklahoma for trial. The Bliss sets on when about eight inches high and on dry land makes a small vine and throws all its strength into the potato. The Ohio grows a very strong vine and then for lack of food has a lot of potatoes like marbles, while alongside, the Bliss will turn out six to eight nice round potatoes from walnut size to hen's eggs or larger. Just an ideal seed size. I sold some to the Dallas Commercial Club for test work and their garden director wrote me they were the handsomest Bliss he ever saw. This was dry land seed. They look like red fall apples, so round and smooth.

I was planning to try dry land and irrigated Bliss seed side by side to see which works out best. I feel satisfied the Bliss is the best early ever grown here. A party in Kersey bought of me Bliss seed for five acres. He told me he dug 1,195 sacks of very handsome potatoes. They set on very early and must have a light irrigation at that stage and never be allowed to get dry. Three irrigations and one soon after planting to bring them up is plenty. The water should be kept off about three or four weeks before

(Turn to page 17)

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Selecting for Type and Profit

SOUND ADVICE FOR YOUTHFUL HOG BREEDERS

J. T. TINGLE, U. S. Pig Club Specialist

THERE is as much difference between individuals of the same breed as between the various breeds themselves. It is judicious selection and not mere breed that fixes type. Invariably a "runt" will appear in litters from the best herds of the most expert and professional breeders. A thorough understanding of the laws of breeding fails to reveal satisfactory reasons for such variations, and about all we know is this pig is much smaller and weaker than his larger and more vigorous brothers and sisters.

Color of individuals of the same breed varies considerably, the degree of variation depending upon the breed, most largely. Duroc-Jerseys vary from a very light red to a very dark red; Poland-Chinas may be more or less splashed with white; Berkshires may carry more or less white and a few red hairs in the forehead is permissable; Hampshires may or may not have a white belt.

Size and color may vary, but as a rule, not as much as type. The pork buyer wants weight and fat, not color, and wants it put on an animal of desirable type in order to dress out a high percentage of edible meat. However, uniform color generally denotes uniform breeding. Only the eye of the expert breeder is reasonably well trained to properly select young pigs that will grow into breeding stock of merit and be a credit to his herd. Many instances are on record where utter disappointment came to breeders who selected high priced young pigs for their herd. The famous Berkshire boar, Longfellow, was turned down by a breeder as an undesirable pig, but later developed into a wonderful individual and helped to raise the standard of the breed.

As the "piggies" grow and develop into hogs, wonderful variations of type become visible to the eye of even the inexperienced. Many times the judge must choose between type in awarding placings. Some litter mates develop long, stretchy bodies, with smooth sides, and broad arched backs, while others may be seen as "chunks"—short, fat, rough, dumpy bodies. cut up flanks, loose, coarse, open shoulders and sway backs. Brothers and sisters of the same litter may have big strong bone and vigorous constitution, while others may possess small, fine bone and pinched heart girths.

The success in the production side of the strictly purebred business depends most largely upon the breeder's ability to properly and intelligently select and breed animals of desired type and conformation. Upon this depends the degree to which he is able to successfully compete with his fellow breeders at auction sale or in the judging ring. The professional breeder knows type and blood lines, and upon these fundamentals his business is founded.

Chance for improvement is less in the professional breeder's herd than the beginner or farmer's herd, as the standard of excellence is so very much higher. Few farmers or pork producers realize and appreciate the use of good type purebred boars, and their improving effect on the herd. The common herds of the country can be improved more rapidly by the use of good sires than in any other way.

I have heard farmers and pork producers criticising their so-called "big type fancies," as they refer to breeders' type. Such persons failed to understand and give just consideration to the fact that more vigor and prolificacy and economy in the feed lot concide with long, big-boned, high-backed, heavy-fleshed sires and dams.

Why do pigs of the same litter differ in weight so very much after they are finished in the feed lot? The most vigorous pigs will make the largest and most economical gains. It is the big-boned, long, smooth, stretchy sows that produce the large, thrifty litters that will make the most profitable feeders when placed in the feed lot. It costs practically as much to keep a brood sow, farrowing a litter of five pigs, as one farrowing and raising a litter of eight. The prolificacy must be kept up by careful selection to type and choosing animals of prolific sows. An old saying was, "Show me the sow and I'll tell you the kind of pigs she will raise." This is still applicable.

Club members should bear in mind that hog raising is a strictly specialized business where the merit of the individual animal and the honesty of the breeder making the sale determines the growth of his or her business.

No breeder or club member should attempt to sell the "runts" and inferior pigs from the herd. For he who does is injuring the reputation of the breed, his herd, himself, and creating prejudice against purebreds. I would say, cull your herds closely and select only desirable ones for sale. Select for type, weight, for age, prolificacy, and color. Don't be afraid of culling out your sale stock too closely, for upon the selection of good individuals depends your future market.

Putting Pounds on Porkers

Boys' and girls' pig clubs in Ames, Iowa, lately have been making big records in pig fattening. Information just received by the States Relations Service, United States Department of Agriculture, shows that one boy, for a period of 123 days, made a gain of 2.39 pounds a day on his pig; another 2.26 pounds a day. Twenty boys have averaged 2 or more pounds a day.

"It is the best record from the standpoint of rate of gain that we have ever received," says Frank O. Reed, the pig club leader in Ames. Some excellent gains and unusual profits also have been made in beef fattening. Several members of the boys' corn club report over a hundred bushels to the acre, one showing 135, 126 and 124 bushel yields.

Big Rosa, owned by W. R. Crow, Hutchinson, Kansas. This sow was grand champion in Duroc Jerseys at the recent ational Western Stock Show

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No more popular model of any make has ever been produced than the Chandler four-passenger roadster, this year still further entranced in appearance by the high hood and radiator, originally adopted on the Chandler Dispatch. For small families the Chandler roadster is especially pleasing.

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THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with THE Martin

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Income Tax Is Now Due

Offic‌il announcement was made from Washington on the 18th of February to the effect that income tax return forms were now to be had at the offices of revenue collectors or banks. These forms are intended for individuals with incomes of $5,000 or less. Other forms will not be available until about March 1.

The individual form for incomes of $5,000 or less is a printed sheet divided into three parts, one constituting a "work sheet," on which a taxpayer may figure his income according to the guide provided, another containing detailed instructions, and the third being the actual return form. Married persons or heads of families who made $2,000 or more, and single persons who made $1,000 or more in 1918, must make out returns before March 15. Accompanying the individual return form is a schedule for use of farmers in calculating net income for 1918.

Revenue officers will visit every county in the United States to assist taxpayers in making out their returns. The date of their arrival and the location of their offices may be ascertained by inquiring at the offices of collectors of internal revenue, postoffices and banks. Their duty is to furnish taxpayers with blanks, answer questions as to how to fill them out, swear taxpayers to their returns and accept payment of the tax.

"Gross income" includes all the money you received during the year 1918 from the sale or exchange of stock, crops, wood, produce, or anything raised on the farm. If you bought farm produce from another farmer and resold it, you must include the profits under gross income.

The value of farm products is not considered taxable income until reduced to cash or the equivalent of cash. If crops produced by you in 1917 were sold in 1918, the amount received therefor is to be returned under gross income in your 1918 return. The value of crops and stock produced in 1918 and on hand December 31 of that year need not be considered, but should be included in your return for the year in which they are sold.

If you exchanged farm products for groceries, merchandise, etc., you must include the value of such merchandise in your return of gross income.

"Net income," upon which the tax is assessed, is gross income less certain deductions provided for by the act. These include all business, but not personal or living expenses. In computing net income the farmer may deduct the amount paid for labor in preparing his land for the crop and for its cultivation, harvesting and marketing.

The cost of feed, seed, and fertilizer used are also deductable items. The cost of stock purchased for resale may be deducted if the proceeds from such sales are returned as income.

The cost of minor repairs to the barn and other farm buildings, but not the dwelling, may be deducted, and also the cost of repairs to farm machinery and fences. The cost of materials for immediate use and farm tools which are used up in the course of a year or two, such as binding twine, stock powders, spades, etc., also may be claimed.

The cost of farm machinery such as a tractor or threshing machine represents "capital investment," and as such is not an allowable deduction. There may be claimed a reasonable allowance for depreciation of farm buildings other than the dwelling, farm machinery, work horses, and work wagons, and stock purchased for breeding purposes. No depreciation on stock raised or purchased for resale is allowed.

The farmer may deduct taxes paid or accrued during the year 1918 except income taxes and taxes assessed against local benefits of a kind tending to improve the value of the property. Losses sustained from fire or other casualty, or from theft may be claimed if not compensated for by insurance. If a farmer in 1918 sustained a loss in any transaction entered into for profit, outside of his farming interests, he may claim the amount as a deduction. Such deduction was not allowed under the preceding act. Debts ascertained to be worthless and charged off within the year may be deducted.

These and other deductions allowed taxpayers will be explained by the revenue officers who will visit your county. To the taxpayer who has kept books the making out of an income tax return will not be difficult. Those who have not are urged by the Bureau of Internal Revenue to accept the offer of assistance from one of these Government experts.

Why He Likes the Magazine

Mr. W. S. Edmiston, Gen. Mgr.:

Inclosed find check for $1.00 for subscription to Western Farm Life and book, "Practical Farming," for my premium. Farm Life is worth more than the price asked. It is not in the same class with most so-called farm papers. Parsons, Morton and Glover are experts. Their counsel is worth more than the subscription price.—J. F. Aldrich, Padroni, Colo.

"The Only Answer is—Bushels"

Upon the efficiency with which the seed bed is prepared depends the size of the harvest.

And upon the size of the harvest depends the entire compensation of the farm owner—his reward for all his months of labor in plowing, disking, seeding, cultivating, reaping, to say nothing of his money investment in land, implements, seed, etc.

The only answer to the entire year's effort is—bushels.

The best preparation, as a matter of course, depends upon using the best farm implements.

Farm owners using Oliver Tractor Implements get the greatest possible yield per acre. A single, actual instance—one out of thousands of similar cases—may be cited.

In the fall of 1917, J. B. Grinnell, Secretary of the Nebraska Farmers' Congress, plowed twenty acres of dry hard ground for winter wheat with Oliver plows. This is what he says in regard to their performance:—

> "This field of wheat made an average of 35 bushels per acre. Neighboring fields, turned with other plows, averaged only from 15 to 25 bushels. When I saw this large yield I was convinced beyond a doubt of Oliver's superiority. The Oliver plows had paid for themselves several times over on this one crop of wheat."

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Farm Equipment Repair Week

March 3 to 8 has been set apart for the second annual Farm Equipment Repair Week, when the farmers of the entire country are requested to inspect all of their farm operating equipment, especially tools for spring work, with the view of finding out what repairs or replacements should be made to place them in workable condition prior to the time for actual field work.

This very sensible idea was launched a year ago and was supported by the Federal Board of Farm Organizations whose interest in behalf of the farmers helped to make the event a real success. The federal and state boards of agriculture, the farm papers, manufacturers and retail dealers all co-operated to bring the advisability of early repairing of farm equipment home to every farmer.

This year the retail dealers have been requested to give prompt service to every farmer in supplying repairs ordered during the week of March 3 to 8, so that no one will find his machinery unworkable when the spring rush begins. The tendency is to delay until the last minute to rig up the tools, but March 3 to 8 should be a reminder to every progressive farmer that early repair will insure better farm work and surer crops.

In support of National Farm Equipment Repair Week, Secretary David F Houston of the U. S. Department of Agriculture says: "It seems mighty desirable that the users of farm implements should anticipate so far as practicable the necessity for repairs and replacements sufficiently in advance of the working season to make it possible to put their implements in good working condition before the spring operations begin."

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Training in Citizenship

Among the tremendous problems arising from the war and the trend towards democratic institutions will be the development of citizenship. If we are to act on a universal system of government by the people, then the education of the youth, who will become the rulers, is of the greatest importance. In this country, in recent years, we have to a great extent overlooked this vital factor. Even in our universities and other institutions of higher learning, there has been a sentiment created that our constitution is merely a hotchpotch of compromises always standing in the way of what we want to do and ought to be radically changed or gotten rid of altogether. It is an historical fact that our greatest success as a nation was due to following the principles on which this constitution was based, and our growth and prosperity have been in direct proportion to our adherence to those principles; our greatest difficulties have arisen from a departure from those same principles. Just at this time, when we are taking the lead in favor of freer governments, our boys and girls should be given thorough training in citizenship; every school of higher grade should teach the history of the Constitution, the reason for its establishment and the necessity for the maintenance of its principles. Matters of detail may change and progress made in administration but the fundamental principles of government will, like the fundamental principles of truth, remain intact, and the sooner the people realize that fact the better it will be for our future. Our leadership in the campaign for world-wide democracy will amount to little if we do not practice what we preach.—E. M. AMMONS.

Shipping Association Formed

At a meeting of the Hooper Community last month an association known as the Hooper Shipping Association was formed. The meeting was ably led by Mr. Clarence Harrison, president of the Elkhorn Farm Bureau. A constitution was adopted modeled upon one sent out by the county agent to the different farmers and a board of directors chosen. A membership fee of 50c was agreed upon. Non-members are not excluded from using the machinery of the association, provided they comply with the rules pertaining to shipments. A fee of 10c per hundred weight for all stock shipped was agreed upon as compensation for the manager, with a sinking fund charge of 1c per hundred pounds for cattle and horses and 2c per hundred for sheep and hogs. The board of directors consists of: A. J. Hack, president and manager; Ed Cotton, secretary and treasurer; Geo. Truckenmiller, director; J. L. Wolf, director; J. G. Bennett, director.

The association is not confined to Sagauche county but takes in those people living in Alamosa county who trade in Hooper.—Sagauche County Farm and Livestock Reporter.

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New Livestock Auction Plan

Livestock auction sales were held this year by the Kern county (Calif.) farm bureau. This idea was worth $130,000 to some California farmers in 1918. When Kern county secured the services as county agent of George S. Kreutzer, of Australia, he told how the farmers in every community in that country on certain days brought their livestock to a central market place, where it was gathered in carload lots of like quality and sold at auction. The Kern county farm bureau held a sale on the Australian plan and afterwards formed an auction-sales department.

The farm bureau centers on certain designated days brought in their livestock for sale at local railroad stations. The county agent notified the packing companies of the dates and places of the sales and asked them to send representatives. A committee, appointed from the farm bureau, weighed and graded the stock, making it possible for the buyers to bid on carload lots of uniform guaranteed quality. The farm bureau hired the auctioneer, put in suitable stock scales, and built the necessary pens. Payments for stock sold were made in cash to the farm bureau, which deducted 1 per cent to cover expenses. The farmers secured from 1 to 3 cents a pound more by selling in the farm bureau auction sales than by any other means.

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Larimer County Organizes

With the organization of the Larimer County Farm Bureau, the county in which Colorado Agricultural College is located has enrolled as one of the progressive agricultural communities of the state. For some reason hard to explain, farmers of Larimer county have been slow to adopt a general organization plan. It may be because of too much prosperity, or because the agriculture of the county naturally classifies itself into very sharp divisions as between dry land farming, sugar beet growing, and feeding, fruit raising and mountain ranching. However, the farmers have at last gotten together as a result of some good preliminary work by County Agriculturist D. C. Bascom.

At a meeting held February 15, attended by about 200 farmers and farm women, the organization was perfected and a plan for community effort for 1919 was adopted.

The projects to be undertaken will include better roads, crop improvement, farm labor, boys and girls club work, eradication of pests, pruning and spraying, dairy improvement, co-operative marketing and home economics. Each subject is subdivided into several minor projects and each sub-project is headed by an active committee of farmers, whose duty it will be to see that the work is properly carried on in their respective communities.

Officers were elected as follows: J. M. Rodgers, Wellington, president; R. T. Scott, Loveland, vice-president; Roy Hice, Fort Collins, secretary-treasurer.

The chairmen of the various committees were selected as follows: Roads, George E. Garrett, District No. 35; Crop Improvement, M. T. Harned, Waverly; Labor, O. J. Watrous, secretary of the Fort Collins Commercial Club; Pests, C. C. Stobbe, Masonville; Orchards, J. V. Smith, Laporte; Dairying, J. D. Pancake, Loveland; Co-operative Marketing, Paul Mead, Berthoud; Food, Mrs. C. A. Culver, District No. 35; Home Conveniences, Mrs. Ira Watts, Timnath; Girls' and Boys' Clubs, Mrs. E. F. Munroe, District No. 35.

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Protection of Nursery Stock

Many inquiries are being received from Eastern Colorado subscribers as a result of articles appearing recently from the pen of W. J. Morrill, state forester, regarding the state's plan to sell trees to dry land farmers, practically at cost. State Forester Morrill has booked many orders and will supply demands as long as the trees last. Many farmers, also, are getting supplies from private nurseries. In the past some trouble has been experienced, especially by farmers living on rural routes or at some distance from the railroad, because trees and shrubbery sent out by the nurseries arrived in poor condition. Delays in the mail service due to storms or other causes make it necessary to exercise care at both ends of the line. The following suggestions from the state forester will prove helpful.

"Have somebody receive the stock immediately upon its arrival at the postoffice, or express office, at the other end of the route. Have them heel the trees in a moist, shallow trench, covering the roots with moist earth and leaving the tops out, but shaded from the sun or protected from the drying winds, and so hold them until someone is going out to the place, or until the purchaser himself can go in to get them. The trees will thus be protected from drying out and will be in good condition, with such treatment, for a week or so. In carrying them out keep the roots moist and covered, away from the sun and dry air."

Hits the Town Slackers

Western Farm Life:

Please find one dollar to boost my subscription for two years more. I have been keeping the Western Farm Life for nine years (formerly Ranch and Range) and like it the best of any farm paper we get. I have been getting two copies while I had the ad in. I am well pleased with the results I got both last year and this year. I am also well pleased with the space you gave our Farmers Club exhibit from Rock Cliff at the county fair. It shows what a little co-operation can do, as we had the least showers of any part of the county. I would like to add to Mr. Ammons' article of December 15: The greatest number of slackers during the war, I think, were the idle men sitting around small country towns, especially in pool halls, intimidating farmers with large and small families working hard to make both ends meet, who were not able to buy their full quota of Liberty bonds, and hindering farmers from organizing to better their conditions. Just the opposite of what my nephew writes the town people did in North Dakota, where even the governor got out and helped all through harvest. With that kind of co-operation we would have got more silos filled and more ground prepared for crop.—W. J. Peterson, Seibert, Colo.

The Branding Iron

Applied by Elias M. Ammons

The Department of the Interior is asking that the forest reserves be turned back to its control. It will be remembered that they were transferred to the Agricultural Department some years ago on promises that were never kept. The people of the West will be slow to urge another change without something more effective than "hot air" to bind the bargain.

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Some of the big livestock growers of the country, having traded their influence for a bit of grazing privilege in growing cattle and sheep, are now compelled to work for the passage of a law to turn over all the activities for marketing livestock and meats to another bureau of the Agricultural Department. As a bargain driver, the average Washington bureau is hard to beat, and especially, when the deal involves greater power to the bureau interested.

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The Boys' Clubs in Boulder county averaged 64 bushels of corn to the acre last year. These boys have made wonderful progress during the past three seasons and are proving that corn production may be made a great financial success in Colorado.

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The amount of corn produced in Colorado last year was within 2,000,000 bushels of the wheat crop.

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The Forest Service claims that it has increased the pasturage capacity of the forest reserves 47 per cent. It would be interesting to learn upon what these figures are based. It is very doubtful if the carrying capacity of the ranges is as great as before the reservations were established. One thing is certain, if there has been any such increase anywhere, it has come about through added area of grass lands, or by the addition of grass area at the expense of forest growth.

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The growth of the tourist business in Massachusetts has had an interesting effect. It is claimed that there is only one sheep in that state now, to where there were ten fifty years ago, and the reason assigned is, that the tourists insist on taking their pet dogs along with them and that their depredations are responsible for the discouragement to the sheep business. The experience of the state of culture is prolific with suggestions. The cowboys who used to get so angry at campers because they frightened cattle might welcome the owners of the pet dogs to prevent the encroachment of sheep on the ranges. On the other hand, if pet dogs are so numerous and such a nuisance in New England, we might be justified in levying a tax on this to add to our needy good roads fund.

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Every visitor to the Stock show in January realizes that the first important public improvement in Denver should be the construction of a subway, or other direct connection with the stockyards. At the stockyards is the biggest industry in the city and it is growing more rapidly than any other. There should be no delay in effecting direct communication with it.

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Western Farm Life is a welcome visitor at our home and is looked forward to, each number. We enjoy Thomas J. Putnam's articles very much.—W. L. McKnight, American Falls, Idaho.

A Fine, Clean Paper

Western Farm Life:

I write to thank you for the continuation of Western Farm Life to me. I think it is a fine, clean little paper and just the paper that every Western farmer needs. Enclosed please find my subscription for another year. Hoping your paper will have a long and successful life, and wishing you the compliments of the season, I beg to remain.—Rev. J. J. Davis.

Comment by Farmer Putnam

OUR MISSOURI FRIEND HAS SOMETHING TO SAY ABOUT CORN GROWING UNDER COLORADO CONDITIONS

CORN is the best friend of man, hawg and steer. Any of you folks that's from Missouri will agree with me that you cain't farm back thar onlessen you has corn. You cain't raise the kids without cornbread and mush and you never find a self-respectin' hawg that would look at any other grain feed, exceptin' maybe a little oats around farrowin' time. When I first came out here to the mountains why everybody told me this warn't no corn country; they said it was no use tryin' to raise corn; it wouldn't git ripe if you watered it and it would dry up if you didn't water it. Anyhow, on dry farms a man that would try to raise corn was throwin' his seed away four years outen five.

Still some stubborn old Missouri and Ioway farmers that come out here said they'd be jiggered if they could farm without corn and they kept on tryin' and by and by, up in the northeast part of the state, they begin to have fair corn and they kept it up till pretty nigh all over the state the farmers took a notion to try it. Now it ain't much of a trick to git as good a crop of corn on irrigated land in our 5,000-foot counties as we used to git in Missouri. We don't grow it so tall, but it's got just as many ears and goes just as high in grain as our Missouri corn and I don't know but what it's better quality, like all our crops raised in this altitude.

Now what happened to bring this change? First let's look over the dry land counties. Take it about the middle of Colorado, from east to west, say along the Rock Island railroad—North of that is good corn country; south it kinda dwindles out into the kafir country on dry lands, but its corn on the irrigated lands all the way along from the mountains east. We used to think that we had too cool a climate fur corn and not enough rainfall, and Parsons and them other dryland experts kept a-preachin' "plow deep, make a reservoir in the soil, and store up moister." That's just what we went and done and when we done it we found out that, providin' we get the rainfall and saved it through the winter, why we could grow 25 to 40 bushels of corn, and the cool nights didn't hurt it, but they hurt milo, kafir and them other grain sorghums. Now corn ain't supposed to be no reg-lar drouth-resister and them grain sorghums is; they stands still when it don't rain and wait till it comes, while corn wilts and dies. What was the thing to do, go fur grain sorghums that cain't stand cool nights, or corn that cain't stand dry weather? Why, we took corn because we kin conserve moister and guard ag'in drouth, but we hain't learnt to overcome frosty nights yet.

They is just one danger about this corn business, and that is a lot of people will get to believin' that we've overcome dry weather, and they'll get left some time soon, when the next dry year comes. Corn hain't got the habit of waitin' fur rain like them kafir plants, so let's go slow, especially when we git south of the middle of Colorado on the dry lands. Let's go slow on the Western Slope. We got a long season over thar around Grand Junction, and, under the ditch, we kin do as well as the Arkansas valley with corn, but look out fur loss on dry lands where you got less'n 16 inches of rainfall and hot summers and take my advice, put in milo or dwarf kafir, or feterita, fur row crop grains fur feedin' and silage. Don't think because we're gittin' 40 to 60 bushels and 8 to 16 tons of silage at $10 a ton on irrigated land that we kin do this all over.

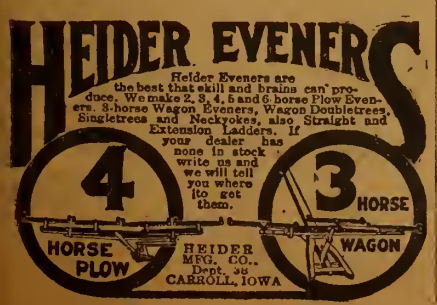
All them mountain states is full of queer tricks when it comes to weather and crops. Sometimes inside of ten miles they is differences of altitude and climate that makes one crop good and the other poor. Mountain slopes has got a lot to do with it. Some valleys is protected; some is where the north wind sweeps 'em all winter long and up to the Fourth of July. My friend Bill Jamison, who owns the Cucharas valley and has a lease on the Spanish Peaks fur scenic purposes, has got a fine chance to breed up a high altitude mountain corn and is growin' it up to La Vetey at 7,500 feet, but that ain't sayin' it'll do as well acrost on the other side of the pass in the San Luis valley. I'm thinkin' them San Luis valley fellers better furgit corn. They don't need it when they has field peas, oats, barley and such other good feeds. Idaho has worked out some fine silage with peas and oats that's as good as corn silage. I don't think payin'corn crops fur silage kin be raised in the San Luis valley; anyhow, why fool with it when they got other crops easy to raise that'll put the fat on steers and hawgs and bring the juice outen dairy cows?

These here remarks about corn is caused by the Boulder County Corn show, which I was to see with Doc Cooke, and Stuart Sweet, and the editor. The editor gits kind-a enthusiastick when he goes up to Boulder county. I reckon they feed him purty well, but this year they didn't have no feed, on account of the flu, etc., so we had to find ourselves fur dinner. I hain't seen the editor's write-up, but I bet he criticizes. You folks notice it—when he goes somewhere to a big farmer's meetin' and they has a chicken dinner, why, he writes like he's inspired, but no feed, no compliments, is his motto. I reckon that ain't a bad idee. I could say a lot more about corn, but I'm goin' to do like them professors does—"Now, if anybody has any questions to ask I'll be glad to answer 'em, and seein' they is no questions I thank you fur your kind attention"—and sits down.

Before closin' I want to thank the Golden Belt Farms, Bennett, Colo., fur a nice box of the finest farm sausage I ever ett. It was scrumptious; I wish you many happy returns. That's what comes of writin' about that dispute me and Josephine had over whether baloney sausage and kraut was Hun dishes. My, the farmers got sore about that! Lots of 'em said you cain't run a farm without sausage and since I ett that Golden Belt sausage I reckon that's about right.

I'm a-hearin' from lots of my friends and some of 'em wants me to settle 'disputes. Billie Hill wants to know if the Moffat road is under government ownership. It took him seven hours to git home from Denver—40 miles. He sez he seen my article about government ownership and he don't know which way to vote. If the Moffat road is under government ownership now, sez Billie, why he's ag'in government ownership; if the road ain't run by the government, why then he's fur it. Billie is like a good many others of us—we want some kind of a change—anything'll do; just so it's something else.

THOMAS JEFFERSON PUTNAM.



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Potatoes Good as Stock Food

SUGGESTIONS FROM A FARMER AND AN EXPERT

As we farmers are confronted with a problem of what to do with our potatoes at present prices, I thought perhaps what I am doing with mine might help some other farmer to do likewise. I had some of my poor corn ground, cob and all, and I mixed this with boiled potatoes, slop and milk, and it sure makes hogs grow. I believe that potatoes at 90 cents to $1.15 per 100 are the cheapest feed we can get to feed to any stock, with mill feeds at present high prices.—John Gebauer, Fairview Farm, Matheson, Colo.

The above letter from a dry land farmer in eastern Colorado contains a good suggestion for others similarly situated, having potatoes on hand, practically no market, and livestock to which the spuds may be fed, if properly prepared. In answer to a question from a Custer county farmer we recently furnished the advice so well given by Dr. W. A. Henry when in charge of the Wisconsin Experiment station some years ago, which is still good, and which has since been incorporated in Henry and Morrison's "Feeds and Feeding."

What Dr. Henry Says

Girard, the French investigator, in exeriments with steers and sheep, secured the following results:

Steers fed 110 pounds of beets per day gained 2.09 pounds per day.

Steers fed 55 pounds of potatoes per day gained 2.86 pounds per day.

Steers fed 66 pounds of potatoes per day gained 3.52 pounds per day.

Sheep fed 8.8 pounds of beets per day gained 0.124 pounds per day.

Sheep fed 4.4 pounds of potatoes per day gained 0.239 pounds per day.

Sheep fed 6.6 pounds of potatoes per day gained 0.295 pounds per day.

In the above experiments potatoes were cooked before feeding, a practice not to be generally followed, excepting with swine. In all cases hay and straw were fed additional. The figures show that potatoes were worth considerably more than twice their weight in field beets.

Girard concludes: "The potato, when free from rot, and mature, must be regarded as a food of excellent merit for producing meat."

Fjord, the great investigator of feeding stuffs in Denmark, found as the result of many experiments that four pounds of potatoes furnished as much nutriment to animals as one pound of rye or barley.

The writer conducted experiments a few years since to ascertain the value of potatoes for hogs. The potatoes were carefully weighed and then cooked in iron kettles, and a weighed amount of corn-meal added, so as to make a thick pudding or mush. These experiments show that 445 pounds of potatoes were equal to 100 pounds of corn-meal in pig-feeding. In other experiments I have shown that corn-meal had a somewhat higher feeding value than barley. This true, my results are practically considered with Fjord's, and we may assume with safety that four pounds of potatoes are worth one pound of barley or rye and almost the same weight of corn-meal for hog feeding.

Cooked potatoes, to which meal has been added, are excellent food for fowls

Besides their nutritive value, potatoes are helpful in furnishing a variety of food and keeping animals in a healthy condition, a point always considered by the prudent stockman.

Although Girard favored cooking for steers and sheep, general experience goes to show that they can be most economically used by feeding raw to all farm animals excepting hogs and fowls.

For horses, sheep, and dairy cows, potatoes should be sliced in a root-cutter or chopped in a box with a sharp spade.

Milch cows may be fed with advantage as much as twenty-five pounds of sliced potatoes per day; if a greater weight than this is fed the potatoes will have an unfavorable influence on the quality of the butter produced.

For sheep, three or four pounds of potatoes daily to each member of the flock will prove highly advantageous; fattening sheep may be fed as much as five or six pounds per day.

Work horses may be fed ten or twelve pounds per day of sliced potatoes; more than this should not be fed, because this food is too "softening." Idle horses and breeding stock can be given a somewhat larger amount with advantage.

Hogs do not thrive on raw potatoes. The writer has found that in cooking potatoes for hogs only a little water should be placed in the kettle, so as to leave the potatoes almost free from water when the cooking is finished; then, by withdrawing the fire, the potatoes can be mashed in the kettle and meal mixed with them, making a thick mush or pudding. A thick pudding was found to be more acceptable to the hogs than a thin mush or slop.

There is danger in feeding potatoes, as with other roots, in the fact that they may induce scouring. To avoid this, the careful feeder will begin giving potatoes in only small amounts to his stock, gradually increasing the quantity as the animals become accustomed to this food. As soon as there are any signs of loose ness of the bowels, he will diminish slightly the quantity of potatoes fed. If scouring actually occurs, it will set the animals back in gaining flesh or giving milk for several days, or even some weeks, if the attack is a serious one. Because potatoes are cheap, the farmer should not be careless in feeding them to his stock. By using them judiciously, and accustoming his animals to this kind of food, potatoes will prove very satisfactory.—W. A. Henry.

Does the Scrub Steer Pay?

Scrub steer calves sold recently in Kansas City for $6.75 per hundred, while the best beef-type calves brought $10 per hundred. Fed steers, like these low-grade ones, were selling for $11.50 per hundred that day. But fed steers like the best calves would make brought $15 and above per hundred.

Men who were buying feeders said that they could make money by feeding those low-grade calves if they could buy them cheap enough. But, we wonder if the farmer who raised those low-grade steer calves got pay for the feed they ate when he sold them cheap enough so that the feeder could make money by feeding them. If 99 men lose money by growing such calves, while one man makes money by fattening them, should such calves be raised? It may pay to figure a little on this.—J. E. Payne, Frisco & M. K. & T. Railroads.

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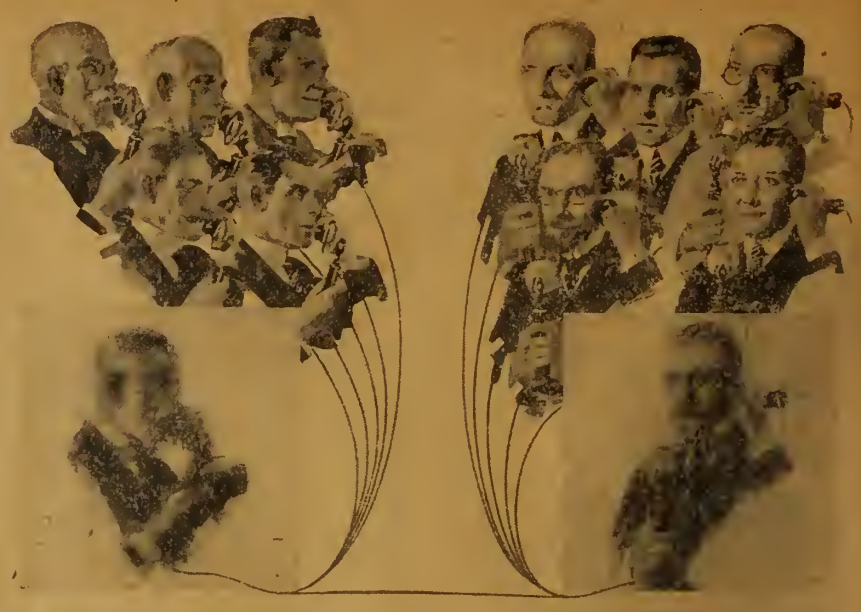

Multiplexing the Telephone

Marvel has followed marvel since Alexander Graham Bell invented his first simple telephone, the forerunner of the millions in use today.

In these last four decades thousands of Bell engineers have developed a system of telephonic communication, so highly perfected that the same crude instrument which at the beginning could hardly carry speech from one room to another can now actually be heard across the continent. This is because of the many inventions and discoveries which have been applied to intervening switchboard, circuits and other transmitting mechanism.

The vision of the engineers has foreseen requirements for increased communication, and step by step the structure of the art has been advanced—each advance utilizing all previous accomplishments.

No one step in advance, since the original invention, is of greater importance, perhaps, than that which has provided the multiplex system, by which five telephone conversations are carried on today simultaneously over one toll line circuit, or by which forty telegraphic messages can be sent over the one pair of wires. As in a composite photograph the pictures are combined, so the several voice waves mingle on the circuit to be again separated for their various destinations

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New Director for Arizona

Those familiar with the development of scientific agriculture in the mountain states, farmers as well as experts, will be interested in the announcement that Daniel W. Working, formerly of Colorado and for many years connected with the U. S. Department of Agriculture, has accepted appointment as Dean of the College of Agriculture and Director of the Experiment Station of the University of Arizona. He expects to assume his new duties at Tucson, March 1. Mr. Working has devoted his life to the cause of scientific agriculture. His experience has been a varied one and his field of activities has been measured only by the bounds of the United States. His services have included

Dean D. W. Working

teaching, editorial duties, investigational work, and extension work.

Professor Working is a member of the following professional organizations: Society for the Promotion of Agricultural Science, American Academy of Political and Social Science, American Farm Management Association, and American Genetic Association. The following brief sketch of his career will be of interest:

He was born on his father's farm in Minnesota; grew up in the country; his father moving to Kansas in 1877. He paid his own way through the Kansas State Agricultural College, graduating with the degree B.Sc. in 1888. He went to Colorado in the fall of 1888, and early the following year became editor of the Colorado Farmer and Live Stock Journal, a publication established in 1872, continuing as editor about two years.

In 1893 he was chosen secretary of the Colorado State Board of Agriculture, the position including the secretaryship of the State Agricultural College and Experiment Station. He served in that capacity four years. In 1905 he began a two-year term as county superintendent of schools of Arapahoe county, Colorado. He served one two-year term as Master of the Colorado State Grange and two terms as State Lecturer.

In 1907 he received the degree A.M. from the University of Denver, and the same year was appointed superintendent of Agricultural Extension Work in the College of Agriculture of West Virginia University, serving four years. In the meantime he attended two summer sesions of the Graduate Schol of Agriculture—at Cornell University in 1908, and at Iowa State College in 1910.

In 1911 Mr. Working joined the investigational staff of the Office of Farm Management, U. S. Department of Agriculture, and was stationed at Denver for work in Colorado, Utah and Wyoming. When the Department of Agriculture began demonstration work in the northern and western states in 1912, Professor Working was given the task of ogranizing the work in the states named. In 1914 he was put in charge of the work in the western group of states, and in July of that year was transferred to Washington. At this time the extension work of the Department of Agriculture was transferred to the States Relations Service from the Bureau of Plant Industry. He has been intimately associated with the administration of co-operative agricultural extension work since.

The States Relations Service of the Department of Agriculture was formally organized July 1, 1915; but under executive order the extension work of the department was administered by the States Relations Committee, the present director of the service acting as chairman and having associated with him the chiefs of the two extension offices.

Sweet Clover for Pasture and Hay

(Continued from page 4)

seed per acre with a drill, fifteen to twenty if unhulled. If sown in rows so as to cultivate, 36 inches to 42 inches. If drilled in, use drill that sows closest, 6, 7, or 8 inches.

18. I have a little of my land fall listed. I intended to use this for corn, but maybe this would be a good place to try sweet clover. It is about six acres.

Ans. Put in your corn on your fall listed land. Be sure and keep this land free from weeds (weeds use moisture and fertility), and sow unhulled white sweet clover seed next fall.

19. I have asked a lot of questions, but more will probably occur to me after I read what you have to say, so please answer as fully as possible. You don't need to send me any bulletins. I have them. They are good, but they don't apply to my conditions. I want this information from a dry land farmer, for I am a dry land farmer and I'm not ashamed to call myself such. The man who calls this a "non-irrigated" country usually has some land for sale. I have none for sale; my dry land farm is a dandy and I can make better living here than I made on two hundred dollar land in northwest Missouri.

Ans. It is not such an easy proposition as it appears to sit down and answer such questions as yours. When I say it is not easy, I mean there is one important fact which is often overlooked; namely, soil and climatic conditions vary so much in our semi-arid states and unless one knows the land which belongs to the farmer asking for information, one can only answer more or less generally. I hope I have been able to answer your questions so that you will get some of my enthusiasm for this much misunderstood clover. It is a well recognized fact that nitrogen is necessary for good crops; also that it is very expensive. We in the semi-arid states are most fortunate in having fertile soils especially adapted to raising magnificent maximum crops of clovers, and other legumes, namely beans and peas; sufficient lime in the soils to save the expense of buying and applying lime. The more intelligence used in preparing our land for white sweet clover the greater chances of our getting a successful stand. To be successful in anything, especially agriculture, means making up one's mind that you can do it and will succeed. Therefore do not be discouraged if you don't succeed first or second time; success comes to those who stick to it.

Reflections of a Calf

(After having been fitted out with a patent weaner.)

"The whole world is agalnst me."

"I'd like to fasten this thing on the hired man's face."

"If I look as foolish as I feel with it on, I must be a sight."

"What were milk appetites made for, anyhow."

"Even mother doesn't want me around with it on."

"May the kaiser wear one for life."

"I hope the fellow who invented this will choke."—Hoard's Dairyman.

"Old Number One" Still on the Job

IT was F. Gasperich, owner of OilPull No. 314, one of the first 30-60's built—and also still on the job—that first told us about "Old Number One."

"There is a bit of sentiment attached to the OilPull machine, familiarily called 'Old Number One,'" he wrote. "It has been in our vicinity ever since its purchase in 1910 and is still on the job, running better than many new tractors of other makes. It is owned by Frank Schultz, of Agar, S. Dak., and I don't believe there is a man in this state who has done more plowing and threshing with OilPull machines. Recently I had an opportunity of witnessing the performance of this old OilPull and I will say that it is still a marvel of reliability."

So we asked Frank Schultz to tell us of his experience with the pioneer OilPull, and he writes as follows:

"I have done more work with my 30-60 OilPull tractor than any other engine around this part of the country. I don't know just how many hundreds of acres it has plowed or bushels it has threshed, but she's always been on the job and never lacked for power.

"Some of my neighbors have so-called oil burning engines, but when they get down to a hard pull, they're a lot better on gasoline. Many a time I've had 'Old Number One' running on heavy load all day without a stop and she never overheats. This I don't believe any other tractor owner in this part of the country can say. As far as burning kerosene is concerned, it is the only real kerosene burner that I know of.

"And the OilPull has a lot of reserve power, which a fellow needs going up steep hills breaking sod in South Dakota. It's the only engine I know that is under-rated.

"The OilPull has more bearing surface and larger shafts than any tractor I've ever seen. I also like the heavy foundation to hold the motor and gearing in place. The carbureter is as simple a mixing device as can be made.

"When you see the OilPull work in the belt you realize the power it develops—how steady the power is and how easily it handles the largest separator.

"In my day I've operated a good many different makes of tractors, but I have yet to see one that will last and stand up like the Rumely OilPull. All the repairs that have been bought for 'Old Number One' would not amount to $200."

What a tractor can do is best told by what it has done. What "Old Number One" OilPull has done during all these years sets a record for tractor performance that anyone can well use as a standard by which to judge any tractor made.

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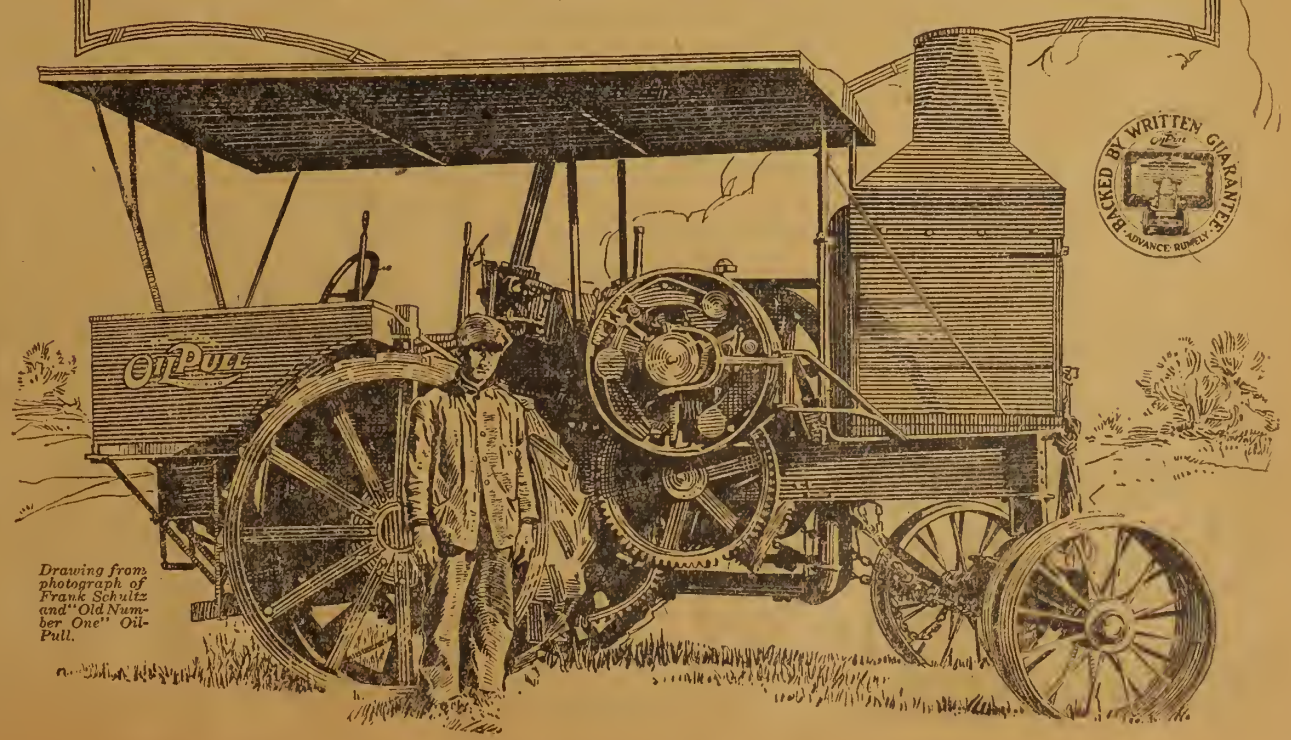

Drawing from photograph of Frank Schultz and "Old Number One" OilPull.

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Applying the Manure

Answer to C. G. H., Montrose county, Colorado:

Answering your question about the the time of applying manure: This depends upon the purpose for which you are using the manure. If for farm crops, such as sugar beets, for instance, the practice usually followed in Colorado is to haul to the fields during spare time in winter or early spring, put in small piles and then spread it with a fork just before plowing. If manure spreader is used, the manure should be plowed under soon after it is applied. To leave it lie on the fields spread causes much loss through winds in the early spring in most sections of the state. In the eastern states the practice of putting the manure out in winter in little piles is not considered good, because the rains and snows cause the fertility to wash out of the piles, but in our dry climate there is not so much loss from this source. If you are using manure for garden truck it does not hurt to apply it fresh at the time of plowing in spring.

Regarding a Will

Does a will made at Limon, Colorado, have to be taken to Kiowa, the county seat of Elbert county, to be read? The heirs all live in Elbert county. Is the will legal if two of the heirs are witnesses?—J. E. A., Lincoln county, Colorado.

The will should be probated at the county seat of the county wherein decedent had his residence. The will may be read anywhere. Where the witness is a beneficiary under the will and is also an heir the will may be probated and the witness-heir shall have saved to him such share as he would have been entitled in case of intestacy, not exceeding the value of the devise or bequest made in the will.—Hamlet J. Barry, Attorney, 724 Equitable bldg., Denver.

Error in Mortgage

If A, in giving a mortgage on his land, should, by mistake, include some of B's land and before B found out about this error A should die, what action should or could be taken against the heirs of A to clear the title to B's land in case they refuse to do anything?—Subscriber.

A mortgage given by a person with no interest in land is not good. I cannot tell from your question just how this transaction took place, but if any action is necessary at all, it would be one to quiet title brought against the heirs of A.—Hamlet J. Barry, Attorney, 724 Equitable bldg., Denver.

Poison for Coyotes

Could you tell me whether or not I have any right to put out poison in any form on my own premises or on leased fields without being liable to fine? We are in the district where prairie dogs were poisoned two years ago and I understand a person has a right to put out poison for all pests. Would this include coyotes?—G. A. R., Lincoln county, Colo.

We do not know of any law in the state which prohibits the putting out of poison for this purpose. When you put out poison for coyotes it may be advisable to notify your neighbors, who own dogs, the location of your poisoned baits.—W. L. Burnett, Deputy State Pest Inspector.

Consult an Attorney

Ans. to C. L., Colorado: You cannot dispose of your property without providing for your wife's interest. Consult a lawyer before you take any steps toward disposing of your homestead.

For a New Dry Farmer

Answer to A. M. D., Pueblo county, Colorado:

Would advise not to expect too much from your dry farm the first year. In order to make a good start all the land should be plowed as deeply as possible. The sod should be broken at least 8 inches deep, and if rolled and disced and harrowed until fine enough on the surface to cultivate, should raise a fair crop of corn or amber cane. The work should be done as early as possible to allow the spring moisture to penetrate. If the season is favorable and the crops gathered early for ensilage, the same land could be planted to winter wheat not later than September 15, or winter rye any time before the holidays. The land already broken could be used for spring grain if it contains sufficient moisture. As soon as plowed it should be rolled, or packed by alternate discing and harrowing until quite firm, and since it is to be planted immediately, the plowing should not be over 8 inches now, but should be plowed as deeply as possible next fall to accumulate moisture during the winter months for the following season. The garden should be planted on some of the land already broken. Early vegetables do the best which mature quickly before the heat of summer. A garden should be plowed 12 inches deep in the fall, and mulched with leaf mold or old corral dirt (not fresh manure, but the black humus itself) to give the best results. Perennials like rhubarb and asparagus do well when once established; but everything can be made to grow with plenty of hoeing and cultivation. The best dry farm garden in the West raises everything that can be raised by irrigation; it is 12 inches deep, well fertilized and always receives a good plowing in the fall. New settlers often make the mistake of plowing their sod too shallow and the top of the solid soil under the plow sole becomes dry and hard and they cannot get down any deeper the following years, and poor crops are very discouraging. It is true that deeply plowed sod is hard to work, but once done the trouble is over, and good crops can be expected after the first year. It often pays to hire a tractor to do the first breaking. A good rolling levels the field in the fining work with the harrow and disc. The sod can be plowed any depth, the deeper the better, but 8 inches protects the subsoil sufficiently so that the plow will go deeper the following season. Every dry farmer should try out such crops as potatoes, Sudan grass, milo, different varieties of corn, etc., in a small way in order to discover what is best suited to his local conditions which are very variable and differ with every few miles.—E. R. Parsons.

Bring Suit for Recovery

Two years ago one of the railroads killed a bull belonging to me. I asked them to pay the amount the hull cost me, with 6 per cent interest from time claim was filed until paid. They refused to do it. The hull was killed on an open stretch, which has never been fenced and which is a regular tolling place for stock. My brand is still plainly visible on the carcass. Section foreman failed to skin and bury animal and exhibit hide as required. Am I not entitled to recover from the railroad in this case?—A. W. M., Las Animas county, Colorado.

You should bring suit against the railroad for the value of the animal killed. Let a jury pass upon the question of

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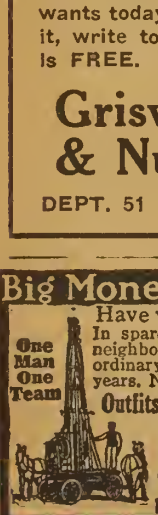

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negligence. As you state the matter, you have a cause of action.—Hamlet J. Barry, Attorney, Equitable bldg., Denver.

Feeding Value of Wheat

Answer to W. F., Wyoming: In regard to the feeding value of wheat compared with corn, wheat carries slightly more starch and more crude protein, but much less fat than corn. It was found in experimental trial at the Wisconsin station that pigs fed on wheat as the whole source of protein for long periods were unable to make normal growth. In feeding wheat, it should be supplemented by feeds rich in protein, such as alfalfa, for example. Wheat fed in large amounts to horses causes digestive disturbances. It should be ground for all farm animals except sheep, and is better when mixed with some bran or coarse corn meal to keep it from becoming pasty in the animal's mouth.

Oil Reserved on Grazing Land

Answer to W. P. D., Las Animas county, Colorado:

Regarding your question as to whether or not the government reserves the right to the oil and mineral under the section act, we have the following reply from Mary Wolfe Dargin, Register U. S. Land Office, Denver: "Under the 640-acre grazing act, mineral of every kind and character including oil is reserved to the government. If oil is discovered on a homestead entry not made under the grazing act before final proof the entryman will have to take a limited patent."

Can Make a New Filing

Answer to A. G., Fremont county, Colorado:

In answer to your question as to whether a homesteader who had sold his relinquishment could make a new filing in Colorado: We are advised by the Register of the U. S. Land Office at Denver that the department has held, if an entryman did not speculate in his right, did not lose his entry through any fault of his own, and did not sell the relinquishment for more than the improvements on the land were reasonably worth, he may make his second entry upon a detailed showing of all the facts.

Barley for the Plains

Answer to J. H. L., Arapahoe county, Colorado:

Answering your question about barley: The two-row type is the kind that has two rows of kernels forming the head; the other type has six rows of kernels. The varieties recommended for dry land planting are the Hanchen and the Hanna, which are two-row barleys. Of the six-row types the varieties that have done best in eastern Colorado are the Coast (sometimes called California barley) and the Smyrna. There is also a hulless barley, called Bald barley, or Nepal barley, which does well under dry farming conditions. This is a six-row type. It does not yield so heavily of grain, as some of the others, but is recommended especially for hogging down. Barley is usually sown at the rate of 35 to 40 pounds per acre on dry lands. Spring rye is sown at the rate of 35 pounds. As to time of planting, the earlier the better.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the veterinary department, Colorado Agricultural College.

Horse May Have Glanders

I am seeking the advice of a veterinary regarding an ailment of one of my work horses. Ordinarily the animal looks O. K. when loafing, but after put to work for an hour or more he begins to sneeze and cough and discharge mucus in unusual quantities from his nostrils. This is kept up as long as he works. What sort of an ailment is this and what remedy would you suggest for a cure? I bought this horse two years ago and noticed the discharge from his nostrils the first hour after working him, but at the time I thought it might be only a cold. However, the discharge has continued summer and winter ever since, so I feel it my duty to set about in esarch of a cure.—A. J. L., Pueblo county, Colorado.

The horse has either glanders or catarrh of the frontal and maxillary sinuses of the head. Glanders which is not common in horses, is a contagious disease, sometimes affecting the human. The state law requires that glandered horses be immediately reported to the State Veterinarian, State Capitol, Denver. If it is the other condition, commonly spoken of as nasal gleet, there is still hope of saving the animal. In case pus is empounded in the maxillary sinus there will probably be bulging of the thin bone immediately below one or both eyes. Trephining the bone and evacuating the cavity constitutes the only hope of ultimate recovery. Horses affected with nasal gleet are liable to contract glanders. This horse should have immediate attention. Consult a veterinarian, who can make a thorough examination and give the test for glanders if necessary. —G. H. G.

Goats Can't Digest Rubber Plant

Answer to E. N., Saguache county, Colorado:

The story of finding rubber in the stomach of the Durango goat and how it led to establishing the rubber industry in the West (failed in final analysis) is an interesting story. Sheep and goats will eat the rubber weed (Hymenoxys floribunda) and often with fatal results. There is seemingly no poison in the plant but it forms a rubbery mass in the stomach that is not digested and can neither be defecated nor regurgitated. Sheepmen in your neighboring town of Saguache can give you some valuable information about their experiences with this plant. The plant growing in abundance is known to be deadly for sheep and there is every reason to assume that goats would suffer in the same way.—G. H. G.

Proposition Is Absurd

I recently read an article written by a western cattleman in regard to using block or rock salt for cattle. His theory was, in using salt as above, it had a tendency to wear the roughness from the tongue, causing the cattle to be unable to eat the short grass of the West, thereby incurring loss through starvation. Would like to know if such could be true.—R. C. O., Phillips county, Colorado.

The theory of the western cattleman does not seem reasonable and is not substantiated by packing-house observations. The tongue is covered with a very dense layer of epithelial cells which are replaced fast enough to meet any emergency. If the tongue were denuded of its covering there would be as much difficulty in eating Kentucky blue grass as the "short grass of the West." I consider the proposition as absurd and not worthy of serious consideration.—G. H. G.

Cut That Failed to Heal

I have a horse that got its foot cut last summer and he seemed to get all right. Then it swelled up and he got lame and it breaks and runs, then swells up again. What shall I do?—E. E. G., Byers, Colo.

Healing of the wound at the bottom was incomplete when it healed on the surface. It is now in a fistulous condition and without surgical interference will probably never heal. The wound should be relieved of pus and extraneous tissue and drainage secured, if possible. It will be better to take this case to a veterinarian.—G. H. G.

Probably Contagious Abortion

I would like some information concerning a Shorthorn heifer. She slunk her calf after carrying it about seven months. She has had splendid care, fed on alfalfa and oats hay. Oats hay is free from smut and as good as I ever saw. One of our neighbors has had several heifers to slink their calves lately. Could it be the fault of the male? Is it a disease? If so, is there any remedy? We would like to keep this heifer as she has proven a very good milk cow. Would it be advisable to keep her another year and run the risk of her slinking again?—A. H., Eagle county, Colo.

The discase which you mention is most probably contagious abortion which is causing us a great deal of loss in the state at this time. The heifer should be isolated from the others and bred to a separate bull. On the range, treatment is particularly difficult and the spread of the disease is consequently rapid. In dairies where treatment of individual cows is practical, vaginal and uterine douches are used with advantage. In England the vaccine made of live organisms has been widely used and with considerable success. The treatment is now being used somewhat in this country, and is to be advised over the use of the dead organisms. The vaccine, however, should not be administered to pregnant animals, as it may produce abortion. It is highly unsatisfactory to sell any animals because they abort, as they stand a greater chance to develop an immunity than fresh animals brought into the herd that have never had the disease. Bulls do sometimes transmit the disease, but one cannot say whether it has been true in your case.—Dr. I. E. Newsom.

Hochbaum Leaves Idaho

H. W. Hochbaum, County Agent Leader, has left farm bureau work in Idaho, having sent in his resignation to take effect December first. Mr. Hochbaum joins the Office of Extension Work, North and West, Washington, D. C., and is associated with the county agent section, of which Mr. W. A. Lloyd has charge, to help in the organization of farm bureau work over the northern and western states.

Mr. Hochbaum joined the Idaho extension force early in the game, and was one of the two county agents employed in Idaho in 1913. He began the work as county agent leader in 1914, when only three men were employed. Since then the Idaho system of farm bureaus has been developed until the state now has thirty-four county farm bureaus and thirty counties employing agents. Out-

The farm bureau organization of Idaho ranking with the best of America, remains a tribute to Mr. Hochbaum's ability and efficiency in organization work. Assistant State Leader F. L. Williams is acting as state leader.—Idaho University News Letter.

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On Dry Land Farming Practice

WELD COUNTY FARMER EXPLAINS HIS METHODS

S. T. HORN

The article which follows is written by S. T. Horn of Briggsdale, Weld county, Colorado, and is intended as a recital of the personal observations and experiences of Mr. Horn in his own locality; altitude about 4,500 feet; average annual rainfall, 15 inches.—EDITOR.

THERE are so very many wrong notions even at this day about what is called "dry farming" that I feel it an imperative duty to at least suggest a few things that may help to clear the way to a better understanding of the true situation. There is no such thing as "dry farming," but how to accumulate and conserve the water for use in growing crops in the semi-arid regions is, perhaps, the discovery that will ultimately bring more happiness to the human family than any discovery that has ever been made. There is more than 1,000,000 square miles of land in America that must be farmed, if at all, by the dry farm methods.

Even up to the present day many misinformed people speak disparagingly of the so-called dry farm and the so-called dry farmer. You cannot successfully farm in the dry country without labor, but it is probable that less labor to produce the same results is required on the dry farm when directed by a competent mind than either in the humid or irrigation districts of the country.

Reasonably good land is the first requisite to successful farming and then the farming must be done with due consideration of the climatic conditions that prevail in the particular locality. Our new agriculture in northern Colorado is to so dress this fertile soil that it will "blossom like the rose."

You may ask, how can this be done? The task is really not a very arduous one. The farmer here should not expect to grow an average crop the first year. He may grow some sod corn, potatoes, maraconi wheat, millet and garden vegetables, but should not expect too much. The second year and thereafter he may count on a crop if he has made the necessary preparation. The ground should be plowed ten or more inches deep once before the farmer may reasonably expect good results. Deep plowing may not be done more than once in three or four years, but deep plowing is the foundation work to successful cultivation. After you have plowed your field deep you must allow it to lie fallow for awhile until it has time to settle and accumulate some moisture. You can help the ground to settle by discing and harrowing, but do not make it so fine on top that the water will not run down into it quickly.

How can you accumulate moisture for the growth of the coming crop? There are two ways: first, by the summer fallow, by which I mean to plow your ground deep in the early spring and then let this field lie without planting during the spring, summer and early fall, but discing just enough to keep it clean of weeds: second, by the winter fallow, by which I mean to list your field deep in the fall, making the deep furrows about 3½ feet apart, leaving the field in this rough condition until about the middle of next April. By this means you will accumulate in the particular field several feet of moist earth.

Although the precipitation in the winter is light, the snows that do come are either accompanied by a wind, or a wind soon follows and the result is that you gather in the deep furrows between the ridges the snow from the surrounding country in great quantities, instead of allowing it to blow from your own land and into the road, or some low place where it does no good. It is probable that you can accumulate more moisture in this locality by the winter fallow than you can by the summer fallow, for in the winter there is but little evaporation and when the snow melts in the listed furrow, the water starts to penetrate the ground several inches below the surface and the "tug of war" is to get the moisture deep into the earth so that it may be conserved for use in growing crops. It is possible by this method to gather from the average precipitation of approximately 15 inches, as much as 20 inches of water on the particular piece of land and perhaps even more than this. Now it is estimated that an inch of water is suficient to grow 2½ bushels of wheat per acre. If we store enough water so that we can actually utilize 12 inches of water we should get 30 bushels of wheat per acre; 20 inches should give a yield of 50 bushels per acre, so it is very plain that good yields can be obtained any year if we only prepare in advance. But if you have stored great quantities of moisture and do everything wrong thereafter you will fail. So you must know what to plant, how to plant, when to plant and how to cultivate.

If you wish to grow crops you should list them about 5 or 6 inches deep, but do not use the subsoiler in the spring. If the ground has been plowed deep and is moist, the roots of the plants will go down into it. If the field has been listed in the fall, split the ridges and cover corn or beans about 3 inches deep. The press wheels on the lister tend to pack the loose earth on the seed, but as you must keep the moisture in the ground, drag

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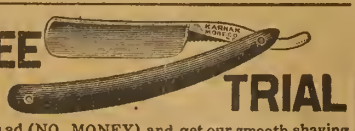

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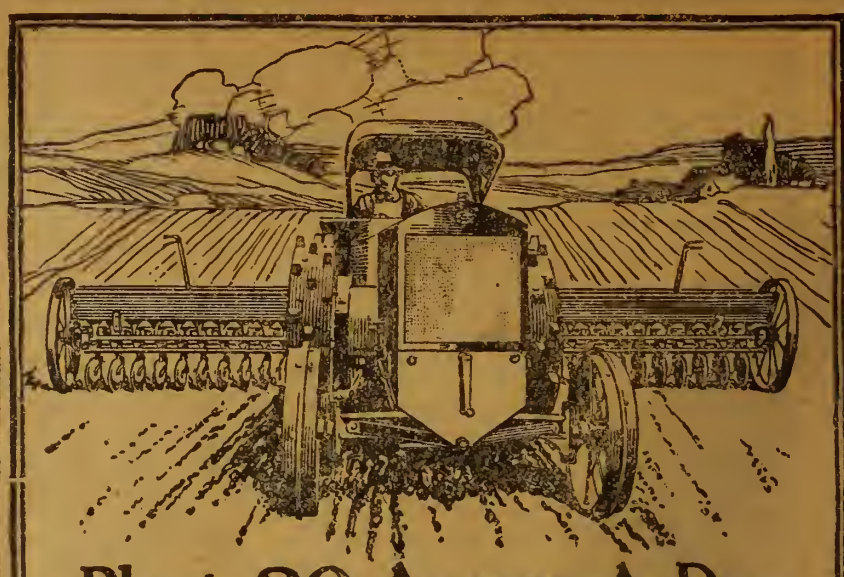

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two common fence posts lengthwise in the furrow behind the press wheels. These poste will pack the loose dirt and pulverize the clods and save the moisture, so that the seed will germinate and grow and you will secure a good stand if the seed is good. Always plant acclimated seed. Corn should be planted as early as the weather will permit, so it will have all the growing season in which to mature. Beans should not be planted before May 20, and may be planted most years as late as June 15. Don't forget that what I am saying presupposes that you have at least winter fallowed your land as I have indicated.

After the weather is warm enough, potatoes may be planted almost any time up to the 25th of June. Don't wait for any certain sign in which to plant, as there is nothing in the old idea of planting in the light or dark of the moon, or any sign of the zodiac. After planting the row crops, harrow the ground several times with the common tooth harrow, going lengthwise of the rows, and for first cultivation use a sled cultivator for the listed rows, using the knives, cutting the weeds to the center of the rows, and throw a little dirt to the plant each time you cultivate, a little more than filling the furrow the last time you cultivate. Do not cultivate any crop more than about three inches deep. Cultivate every inch of the surface and thus provide a mulch. Plow deep, cultivate shallow but thoroughly, and do not allow a weed to grow in the field.

If you wish to plant small grain, commence to level your land that has been winter fallowed about the middle of April with any instrument that will accomplish the purpose, leaving the ground rather rough at this time. This will kill the weeds that have started and prepare the ground for other weeds to start and then about the middle of May harrow the ground several times, and if you do not get rid of the weed by harrowing, float the land; this will finish up the weeds.

Now you have winter fallowed your land, stored your moisture of the fall, winter and spring, you have killed all the weeds and your ground is in a good state of cultivation. About the 20th of May, you are ready to commence to plant. Always use a drill, and you can continue to plant spring wheat, spring rye, barley, and oats up to the 10th of June and millet as late as July 1. This late planting is done so that when the dry weather comes the crop will be young and small and will require very little moisture to sustain it through the dry weather which may last for six weeks.

If you have fertile soil, moisture and heat, these things cause the plants to grow and this young crop will be growing luxuriantly through the dry weather instead of being stunted. Then we have the July and August rains to mature the crop, thus utilizing all the moisture for all the year to mature the crop, and we have no weeds to contend with which we would have by early planting, so we have no fear of the drought. So you see that man is responsible for the effects of drought and not Proidence.

We are furnished with plenty of moisture year after year, if we will only save it. The moisture that comes does very little good if the ground is not prepared to receive and retain it. Deep plowing, summer and winter fallowing, thorough but shallow cultiation, acclimated seed, planted the right time and the right way, and Providence will do the rest, and the dry farmer in northern Colorado will be abundantly rewarded for his labor. Now that I have suggested what to do, I may suggest a few things that we ought not to do if we wish to succeed on the dry farm.

We ought not to plant deep plowed land immediately, but should allow it to lie fallow for a while to settle and accumulate moisture, for there are too many interstitial spaces and this land so plowed cannot hold the moisture until it becomes settled, so if I tell you to plow deep and you plant immediately you will probably fail to raise a crop that year; and you will think that deep plowing is a failure, but it is not. As we have said before, you must let the land settle and store some moisture before you can hope to grow a profitable crop.

I have not said anything heretofore about winter wheat or winter rye, and I have grown fair crops of each, but from my observation and my experience in this locality, these grain crops are not a success after the first or second year the land is farmed. For some reason, as a rule, where the ground is planted to winter wheat, unless there is something more than the growth of the wheat to protect it, the wheat does not seem to survive the winter, and another objection to the fall crop is, you cannot prevent the weeds growing with the grain in th espring, as you can the spring crop, and you cannot store the moisture by the winter fallow. For this reason you must content yourself if you succeed in having a stand in the spring of winter wheat, with about half as much moisture as you may have for a spring crop, and again, the winter wheat and winter rye are usually headed out and ready to fill when the drought comes in June, and the result is that the weeds and wheat cannot get enough water from the soil to supply the requirements and the wheat does not fill. The yield is cut to a very few bushels, a practical failure; the reason is plain. When the water is most needed there is none. The weeds have taken most of it and the wheat right then fails. You have plenty of straw but little grain.

Bliss Triumph Potatoes for Southern Seed Trade

(Continued from page 6)

digging. They naturally ripen up early and where irrigated too late grow too large and crack open like the peach blow. So when the vines begin to show a lighter green, which is a sure sign they are done growing, keep the water off and the food in the plant will mature them and make a much better potato than to keep on watering. Ninety to one hundred days will make a good crop, ripe enough to ship. For local trade seventy-five to eighty days is plenty. For years I have felt an early potato that we could dig in early September would be a great addition so that the potato harvest could be lengthened. I have tried nearly all the early varieties. I believe the Bliss will fill the bill when we know how to grow them right, and if grown properly I believe the South will take a great deal of seed from us at a good price.

How the Farm Garden Helps Feed the Family

(Continued from page 5)

weed seeds, and tendency to pack or bake following rains or irrigation. In general, it will be found best to work the soil as soon as it is in condition following each shower.

Hand tools, which consist of a spading fork, a rake, a garden line, a measuring tape, one or more hoes, a hand trowel and a hand weeder, should be kept sharp and bright and in good condition. Keeping the tools in good shape will make gardening a much more pleasant and profitable task than it would be found otherwise. A one-horse cultivator will be found helpful in the average farm garden.

Special attention in planning the garden and the extra effort in caring for the plot planted, should make a profitable investment on the farm. At any rate, a well-kept garden affords a means of reducing the cost of living by avoiding the high cost of many products. A garden of some sort is a necessity on every farm, and it should be made a source of fresh products for table use in summer, as well as for canning, drying and storing for use in the winter.

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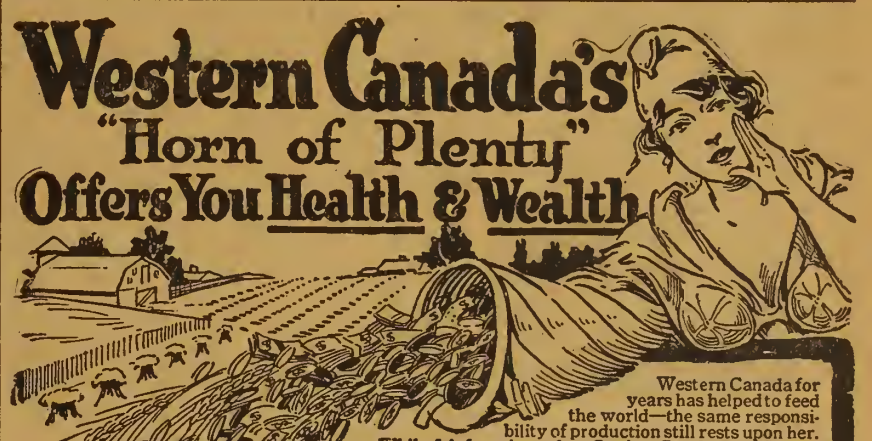

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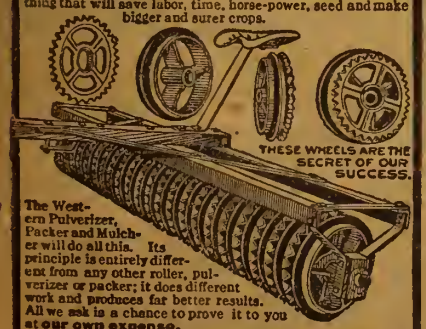

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A Pig Club Boys' Story

Below is the story of how Rue L. Clegg, a Heber, Utah, pig club boy, raised his prize Berkshire pigs, winning first on junior yearling boar in the open classes at the Utah State fair, and being designated pig club champion for the state of Utah. Besides being a good breeder, young Mr. Clegg is also an excellent judge of all classes of stock, having won medals and trophies in judging dairy and beef stock and hogs at the Utah State fairs. He has represented his county at the state fair two successive years in club work.

How I Raised My Pigs

I started to take special care of my sows about a month before farrowing in order to get strong litters. They say a pig well born is half raised. I gave the sows plenty of exercise. Fed chop, barley with skim milk twice a day. Alfalfa, coal and ashes were at hand in a self-feeder. Just before farrowing time I fed them more laxative feeds such as bran and shorts.

I fixed my pen in a warm shed facing the south. Built one corner up for the bedding place, fixing railing around the edges to prevent injury to young pigs; had a canvas fixed so they could be closed in at night.

My first litter came April 5th, eight little boars. They were very uniform, vigorous and without a runt, showing very good breeding. Weather conditions were very unfavorable for several days which kept them from exercising like they should. Lost two while they were small. They all grew and developed very nicely. I always make my choice of the litter when they are but several days old. It was interesting to watch them develop, first one shooting ahead and then another. They seemed to be very fond of dirt. Found one of the first pigs in the litter dead when a month old. Some say the cause was black teeth.

They were just four weeks old when my second litter of six little sows arrived. They were larger pigs than my first litter but had one runt. I was well pleased with them. It was also very interestiug to watch them develop. I fixed a place where the

One of Rue Clegg's Prize Winning Berkshires

little pigs could eat separate from the old sows, feeding them the same, excepting skim milk. I do not consider it advisable to feed skim milk while they are sucking the sow. My pigs were all growing and developing nicely when they were attacked by vermin. This brought their growth to a stand-still for some time. I first used tobacco then creosote and later crude oil. Between all the treatments I succeeded in getting rid of the parasites, but their visit was rather expensive.

I began to market some of my little pigs at eight weeks of age. Sold three to club members in the county, two in Duchesne county, and shipped one out of the state. The rest I kept through the summer. Ran them on a half acre of alfalfa pasture with barley, oats, waste wheat, bran, shorts and skim milk.

On the 15th of June I introduced an exceptionally well bred little gilt into my herd. Sired by Lustres Dominator, one of the most promising boars in the Berkshire breed. Her grandmother is the greatest brood sow in the West. Her development was remarkable. It took several of my pigs to pay for her, but she is such a remarkable little sow that I do not regret the investment.

About a month before fair time I began to fit them up to show. There were four registered Berkshires shown at our county club fair out of my two litters. They were all exhibited by different club members; each pig was a prize winner and they all made a good showing. Exhibited four of my club pigs at the state fair. Two took first and one second in the club fair. One pig of my spring litters exhibited by my sister took a first. Exhibited my gilt in the open class. There was the keenest of competition. Didn't take a prize but made a good showing. The sire to my spring litters was awarded first prize junior yearliug. My pigs sold in Duchesne took first prize in the county fair.

Feed conditions have not been the best in the past summer, sometimes having to feed what I could get. My sows fed on alfalfa pasture all summer and did much better than other pigs under same conditions. They are now running on the farm, in good condition and due to farrow in several days.

Another season I will be more careful and start to treat for vermin and such pests in the winter, make better pens and try to be a little more prompt in feeding. I now have on hand my two old sows, herd boar, imported sow and two from spring litters. Gave one, "Victory Boy," to the Red Cross. He will be auctioned in public. I have bought $50 worth of thrift stamps and taken out a fourth Liberty loan bond as a result of my profits in the pig project this season. I have done this work aside from my other farm work.

I have thoroughly enjoyed my summer's work, finding it interesting, educational and beneficial. My net profits for the season's club work amounted to $300.78.—RUE L. CLEGG.

Rough Feed for Beef Cattle

Every ton of straw, every ton of corn stover, and every ton of coarse, cheap hay produced on the farms should pass through the cattle or to be used as bedding after having been offered to them. Beef cattle, especially steers and dry cows that are being wintered, may be given cheaper feeds than grain, such as well-cured corn stover, straw and hay, with 1 or 2 pounds of cottonseed meal. They should be given all of such roughages, however, that they will consume with a relish. Breeding cows and young growing animals should be given sufficient feed to enable them to make a satisfactory growth.

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The Colorado State Seed Laboratory has recommended a standard label to be used by all druggists for formaldehyde, the drug used in the treatment of grains to prevent smut, flax wilt, potato scab and for cellar fumigation. Now is the time to get your supply of formaldehyde in preparation for the treatment of every bushel of wheat, barley, oats, millet, sorghum and rye that is to be sowed this spring.

All seed should be tested, cleaned and treated. Under the Colorado pure seed law, all farm seeds must be sold by label which shows the purity and germination. If you are in doubt about the seed you have and you are not familiar with testing methods, send a half pound sample to the State Seed Laboratory at Fort Collins and a test will be made free for any Colorado farmer. Ask your county agent for a ragdoll or blotter seed tester. He has a supply on hand for distribution.

The formaldehyde treatment for smut in grains is given as follows: Bunt or stinking smut in wheat, 1 pint to forty gallons of water; soak in the solution for from 10 to 20 minutes.

Closed smut in barley, 1 pint to forty gallons of water; soak 10 to 20 minutes.

Oats, all kinds of smut, 1 pint to forty gallons of water; soak 10 to 15 minutes.

Millet, all kinds of smut, 1 pint to forty gallons of water; soak 40 to 60 minutes.

Sorghum. kernel smut, 1 pint to forty gallons of water: soak 10 to 20 minutes.

Rye, stem smut, 1 pint to forty gallons of water; soak 10 to 15 minutes.

Use one of three methods: (1) Soaking method. Clean grain thoroughly. Dip loosely filled sacks in solution, drain, pile grain and cover with sacks, soaked in solution, not less than 6 nor more than 12 hours. Spread out in thin layer and dry thoroughly. Until perfectly dry, treated seed is somewhat swollen. If planted in this condition, the seeder must be set to allow more seed per acre. Do not let treated seed freeze or sprout. Treated grain may be kept indefinitely if thoroughly dried and protected from further contamination. Storage sacks and bins should be treated with formaldehyde solution. 2) Sprinkling method. Spread grain on clean floor, wagon bed or canvas. Sprinkle solution over grain as it is being shoveled around. Pile and cover as under soaking method. Dry; plant immediately or store in clean sacks or bins treated with formaldehyde solution. (3) Open tank method. Grain containing smut balls must be poured loose into solution. Stir thoroughly and skim off smut balls. Soak for length of time given in table. Remove grain, cover as directed above; then dry thoroughly.

Corn smut and loose smut of wheat and barley are not controlled by above treatments.

Flax Wilt—1 pint formaldehyde to 40 gallons water. Sprinkle flax seed. Cover and allow to stand 5 or 6 hours. Dry thoroughly.

Potato Scab—1 pint formaldehyde to 30 gallons water. Soak uncut tubers 2 hours. One solution may be used for 4 washings; then discard and make up fresh solution. Plant only treated tubers in clean soil. Seed may be eaten after treatment.

Dry Stem Rot of Potato (Rhizoctonia, Little Potato, Black Scurf) cannot be controlled with formaldehyde.

Cellar Fumigation—For 1,000 cubic feet of space use 23 ounces potassium permanganate, and 3 pints formaldehyde. Should not be less than 160 bushels of potatoes per 1,000 cubic feet. Spread crystals of permanganate in several pans. Add formaldehyde at rate of 3 pints to 23 ounces of permanganate. Keep storage house closed tightly 24 hours; then open and ventilate.

Antidote—Give ammonia in diluted solution with milk or white of egg: also inhalations of ammonia.

Progress Made by Minnesota 13 in Boulder County

(Continued from page 3)

a rough type Minnesota No. 13 when a smooth type kernel is preferred in Boulder county? Mr. McCaslin explained that the rough type was not only a personal preference, but, in his opinion an indication of a higher yielding strain. He preferred a rough kernel, and when kernels of that type showed a tendency to become smooth he felt that the strain was running out. A good many farmers disagreed with him on this point; at any rate, the Boulder county ideal of No. 13 is a kernel with a smooth, rounded crown. The Minnesota Experiment station description, accompanying this article, allows only for a very slightly wrinkled cap, which does not mean a sharp, rough crown, such as characterizes a strain of No. 13 offered on the Colorado seed market. This point had best be emphasized while the work with No. 13 is in its beginning, so that there shall be no misunderstanding as to the ideal in the mind of the farmers who are working with this variety.

The writer knows of no logical reason for the development of a strain with a decidedly wrinkled crown. It looks like an unfinished grain, even if there are no objections to it from the standpoint of quality.

The annual meeting of the Boulder County Farm Bureau was held in connection with the corn show. Mr. C. L. Hover of Longmont, in outlining the projects decided on for 1919, gave a very interesting review of the agricultural periods through which the county had passed since the first settlers came in, previous to the Civil war. He designated the present as the feeding period, when the farm units have become natural fertilizer factories, insuring upkeep of fertility and a continual income. With from $5,000 to $50,000 invested in the great business enterprise represented by agriculture in Boulder county as a whole, he urged that each unit consider its particular part in improvement of the whole, through the various projects outlined for farm bureau work in 1919. These projects include, in a broad way, the following features: organization, crop improvement, livestock improvement, marketing, the farm business and home demonstration. Each general subject is divided into from three to five sub-projects, and each subdivision has a committee of farmers at its head, whose business it is to see that the work outlined is accomplished.

Prof. W. H. Olin, Agriculturist for the Denver & Rio Grande Railway, spoke on livestock improvement, urging the farmers to extend their operations in breeding, to supply the mountain ranches of the West. He pledged the aid of his department in finding markets for purebred animals along the D. & R. G.

D. W. Thomas, Secretary of the Agricultural and Livestock Bureau of the Denver Civic and Commercial association, spoke on Farm Bureau Work and its relation to post-war problems.

The following were elected members of the board of trustees: F. S. Luethi, George I. Miller and J. H. Golden.

The annual report of County Agent Simpson was given hearty approval in the resolutions and the farmers pledged themselves anew to work with their county agent and back him up in every line of endeavor calculated to improve agricultural practices and conditions in Boulder county. The officers of the bureau are: Frank Wadsworth, president; W. A. Groom, vice-president; Clarence P. Emery, secretary-treasurer.

Corn Show Awards

Awards in the corn show were made as follows:

Minnesota No. 13—Fred Tyler, first; Elmer Rasmussen, second; William Selby, third.

Colorado Yellow Dent—J. E. Manchester, first; Richard Sammons, second; A. E. Anderson, third.

Swadley — George Scarpello, first; Clark Gilbert, second; Andrew Martindale, third.

Flint Corns—Gus Samuelson, first on White Australian; C. A. Rossiter, second on Rainbow flint; John Knaus, third on White Australian.

White Dent—C. S. Bancroft, first on Silver Mine; Charles Viggars, second on Silver Mine; George Caywood, third on White Dent.

Smooth Popcorn—Charles Snow, first.

Sweepstakes for best ten ear exhibit—J. E. Manchester on Yellow Dent.

Grand Champion ear of corn—Fred Tyler on Minnesota No. 13.

Crated Seed Corn—Charles Voake, first; Horace Selby, second; Clarence Samuelson, third.

Auction Sale of Seed

The auction sale of seed corn in half bushel crates resulted as follows, the first name being the buyer, the second the grower, the price being for the half bushel crate:

J. D. Long, grown by Carl Hixson, $14.

Frank Miller, grown by Carl Hixson, $6.00.

Ted Hixson, grown by Clarence Samuelson, $7.50.

Robert Hanney, grown by Frank Hartnaughl, $7.50.

O. C. Harris, grown by James Platt, $5.00.

F. S. Leuthi, grown by Ralph Bixler, $7.50.

Geo. Miller, grown by Charles Kelsey, $6.00.

J. D. Long, grown by Charles Voake, $8.00.

J. D. Long, grown by Horace Selby, $8.00.

J. D. Long, grown by Clarence Samuelson, $5.50.

Western Farm Life, grown by F. Hartnaughl, $5.00.

Glenn Martin, grown by J. Platt, $3.50.

F. S. Leuthi, grown by Ralph Bixler, $4.50.

F. Miller, grown by Charles Kelsey, $3.00.

Glenn Martin, grown by Carl Hixson, $5.00.

Burt Hart (untested corn), $2.50.

Burt Hart (untested corn), $2.50.

F. Wadsworth (low test crate), $3.00.

Sweepstakes 10 ear exhibit to Fred Hixson, $5.00.

Grand Champion ear to J. D. Long, $10.00.

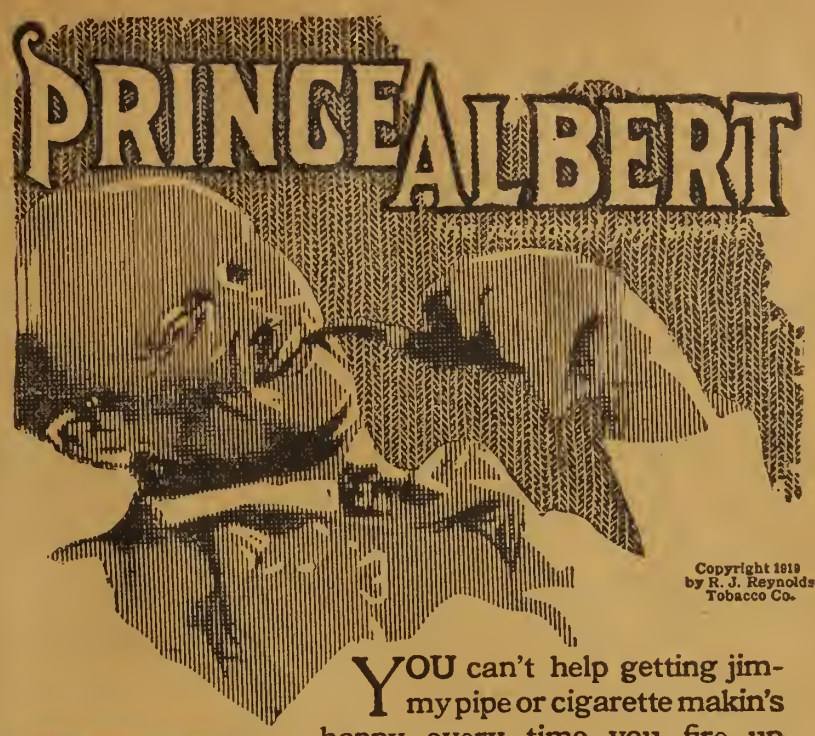
First prize stock show 10 ear exhibit, Minn. 13, to Burt Hart, $24.00.

Second prize 10 ear No. 13 to H. S. Harmon, $5.00.

Third prize 10 ear No. 13 to S. H. McGillvray, $4.00.

Ten ear dry land No. 13 to S. H. McGillvray, $2.00.

Ten ear exhibit No. 13 to Glenn Martin, $2.00.



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STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "Cowardice," "The Bondboy," "The Crucible of Courage," Etc.

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PRECEDING CHAPTERS BRIEFLY RETOLD

John Randolph, son of Captain Walt Randolph, on the Missouri River steamboat Morning Star, which was snagged and sunk in 1864, learned from his father that, unknown to any one but himself and one other, there was one hundred thousand dollars in gold in the steamboat's safe. As soon as his duties as mining engineer would permit, John started west to the town of New Bend, near which the Morning Star—due to a shift in the river channel—lay buried under many feet of silt. There he met first, Captain Moss Gregg, his father's pilot at the time of the sinking; Gregg's daughter, Mystery, and his son, Arkansaw; also a strange character, a sort of lawyer and office-seeker of the neighborhood, Joel Langworthy by name.

From Gregg John learned that four men in the last twenty-five years had come to get the treasure of the Morning Star—which Gregg and every one else in the neighborhood supposed to be the nine hundred barrels of whisky in the steamer's hold, since they knew nothing of the gold—but one of them had been found dead and badly clawed, and the other three simply disappeared without a trace. He also learned that Caleb Moore, an old storekeeper who had been almost ruined by the shifting of the channel, which left his big store a mile or more from the river, now owned the land where the Morning Star lay, and had always refused permission to excavate.

Nevertheless, John went to see him. Moore's objection, he found, was because of his hatred of whisky, which he would not allow to be turned loose on the world; but when he heard of the gold he was inclined to relent, though strongly advising against touching the stuff, which was stained with blood and crime.

John Randolph is fascinated by Juliet, Caleb Moore's granddaughter. He spends an eventful night as a guest of Moore, during which a spectral visitor attempts to choke him. In the morning Captain Gregg's son, Arkansaw, tells him a strange story.

Arkansaw seemed reluctant to go into the perils of that road, with the dark forest pressing nearer and nearer to its wheeltracks year by year. Randolph was in no humor to spare him, no matter what his reasons for avoiding the issue might be.

There are no animals in this part of the country that could do a man damage, I know," he said, "and outside of that I don't see what the danger could be, unless it's thieves."

"They's varmints of one kind an' another around," Arkansaw vaguely held out, leaning to his oars hard on the last stretch.

"Skunks and rabbits," Randolph said, depreciatingly.

Arkansaw was making the shore, looking landward as he pulled now with this oar, now backed water with that, coming in with admirable nicety, touching the bank as lightly as a falling leaf.

"Yes, they's worser'n that," he declared.

"What is it, then?"

"It's ghostes, 'y gunny!"

Arkansaw went ashore with his oars, and Randolph followed him with the fish. Arkansaw led the way up the steep bank, making no further reply to the last question. When he had gained the top he stopped, looked about him with what seemed a questioning distrust, and lowered his voice almost to a whisper when he replied.

"It's the snappin' ghost!" said he, with the solemnity of one passing a precious word in secret conclave.

"I never heard of one," said Randolph, moved to smile by the man's ludicrous sincerity.

"Well, it's there in them woods, all right," Arkansaw said, sighing as one who has passed a peril. He led on toward the well, and Randolph let it go at that, knowing that he should have the rest of it out of Arkansaw in his own time and fashion.

They put the fish in the trough and sat in the shade, and Arkansaw was sweating a great deal, it seemed, for a man of his toughness over that small exertion.

"I don't reckon you ever did hear tell of a snappin' ghost before, the way you looked," said Arkansaw.

"No, I never did. What kind of a creature is it, where does it come from?"

"Where does all ghosts come from?" Arkansaw shook his head, helpless of an answer to his own question. "This varmint ain't a plain ha'nt ghost. It stands up like a man, and it's got a face on it like a man, and legs and arms to it, but it's got a body like a wolf or a dog. Maybe it's some kind of a bat, I don't know. Anyways, it prowls them woods along the river road at night and chases folks, and tries to suck their blood away from 'em, hot and foamin'."

Arkansaw spoke with such conviction that it was plain to see the belief in this monster was as deep in him as the roots of his life. Randolph made inquiry, with polite interest, for more details.

"I don't know just when it first come here, but I reckon it was twenty or twenty-five years ago—maybe longer. Between Moore's place and the head of the Narris is them woods you passed through—you know that as well as I do. They stand there about like they stood when Adam was goin' on all-fours, I reckon. That varmint lives in there, somewhere. They've combed them woods for him with dogs and guns many a time without ever scarin' up hide or hair of him; but he's there; you can gamble your last dollar he's there!"

"But nobody ever has seen him," said Randolph, seeing the story glimmer out as all such superstitions fade upon fearless approach everywhere.

"Yes, he's been seen," said Arkansaw mildly, not with the asperity of one who held the proof in his hands. "More'n one's seen him, and one man's stood up and fought him and lived to talk about it."

"Who is he? Is he still in this country?"

"Yes," replied Arkansaw, in the same even tone, "he's here, alive and livin', as the feller said."

"Well, I'd like to talk to that man!" Randolph expressed a challenge of the truth of the tale in the fervency of his words. He faced Arkansaw with a gentle patronage, as if to assure and comfort him, and show him how superior knowledge will elevate a man above the terror of such wild tales.

"Well, you air a talkin' to him." Arkansaw let a big sigh free after the words, as if the mewing of the secret had been a burden, and its confession a vast relief.

Randolph looked at him sharply, resenting a little what he believed to be Arkansaw's attempt to play on his urban simplicity. Arkansaw's solemn face was warrant for his complete sincerity. Whether it should sift down to be true in any slender particular or false in the whole at last, Arkansaw believed what he had told. Randolph respected his convictions in the matter of the snapping ghost. He asked for the whole story.

Arkansaw looked about him again before speaking, with sly caution, as if he feared the creature might resent the telling and spring on him from the roadside corn.

"Before that happened to me," he said, "I never took much stock in it myself. I'm not a superstitious man, it don't run in our fam'ly. Up to the time that varmint come hand to hand with me, I put it down to the imagination of folks that was simple in spots and scary all over. But I tell you there's lots of things in this world a man can believe that he never thought he could, just like he can eat dog, I reckon, if he comes down to starvation.

"That was three years ago this fall, when I was doin' a little fishin' over in Skillet Lake. There was a good deal more water in the lake then than now, for it's dryin' up scan'lous, Joel Langworthy says. Well, I had a few throw lines I used to go over to tend to morning and night. I'd been over there projec'in around one evening, settin' my lines and takin' off fish, and it set in and clouded up and got dark before I hardly noticed. I loped off for home, it gittin' darker every jump. I was passin' through a draw over there at the upper end of the lake when I heard something follerin' me in the path, making a kind of a flop-flap like a dog trottin' in the dust.

"I never used to be a scary kind of a feller, but that time I felt m' back begin to shiver and m' hair begin to crawl like you'd turned a handful of ants loose in it. I knowed it wasn't no dog, n'r no painter, for a painter ain't been seen in this country in my time, but I was so dang scairt I couldn't make m' neck turn to look back of me and see. Wouldn't 'a' done me any good to look, for it was already as dark there as the inside of a jug, and I didn't have no more gun 'n a rabbit. That flop-flap was gainin' on me, and I just natur'ly linked out and run, and I run like mammy's two-headed little man, I'm here to tell you!"

"I'll bet you did," said Randolph, interested now, and sympathetic.

"I dropped them fish, and I sailed, but I might as well 'a' run from my own shadder. That thing caught up to me before I'd went a hundred feet, and it'd 'a' downed me, too, if I hadn't spunked up enough to turn around and clinch it as it come on. I tell you, I bowed up m' neck and spit fire around there for about a minute, as the feller said, and I bawled till I reckon you could 'a' heard me two mile, for I was scairt, I was scairt somethin' scan'lous! That thing stood up like a man, but it was hairy like a wolf, and it growled like a wolf, and its breath was as hot as steam out of a b'iler. Say, I tell you I done some straddlin' and gruntin' for about a minute, man!"

"But it must have been a man, Arkansaw—I never heard of a ghost having breath."

"It was a ghost, a downright ghost, I tell you! Wait till you come to it, and you'll see."

The recollection of his desperate encounter had heated Arkansaw until sweat was pouring down his tough cheeks. The spark of excitement was flaming in his eyes now; he leaned forward, his hands clenched, his muscles set, as if he braced himself for the struggle with his hot-breathed assailant again.

"It clawed and it bit, and lunged at me with its teeth snappin' trying to git me by the throat. I couldn't see it only dim, like you see a fish deep in muddy water, a kind of a pale white now and then when I'd throw it off from me a few feet and set myself for a new tussle. We wove and rasseled and tore around there for I don't know how long, for that thing socked its claws in m' boot-heels, as the feller said, and hung on to me like a catamount.

"It never hit like a man—clawed and bit and hung on. We rolled in the road and clinched and broke, and one time it got me down and made a snap at my windpipe. I just had strength enough left in me to push ag'in its dang face with m' open hand, and, I tell you, that thing had the face of a man. I got m' wind in a second, and I flopped it over off of me and was goin' to bust it wide open, but it just seemed to 'vaporate out of my hands like nothin'. Just like nothin', dang my melts if it didn't!"

Arkansaw paused, whether for effect or breath, Randolph could not tell, for he was panting, and he twisted his head with the conviction of a man who had made his case and defied the world to come forward and shake it.

"That certainly was some fight!" Randolph said, to let it be known that he appreciated it.

"Some fight! You' right it was. It was a reg'lar cyclone let loose. I was mad clean through by that time; madder 'n I was scairt, and I didn't aim for that varmint to git away without sockin' it another good 'un, anyhow, and I went scrambiin' around and crawlin' and grab-

(Turn to page 22)

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Our illustrated catalog gives other points of construction details which commend the Waterloo Boy to all tractor buyers—also many field scenes which will interest you. Sent free on request.

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15 acres Army Goods. Large illustrated cyclopedia reference catalog—428 pages—issue 1917, mailed 50 cents. New Circular 5 cents.

FRANCIS BANNERMAN & SONS 501 Broadway, New York

Colorado as a Corn State

Ten years ago (1909) Colorado produced 4,903,000 bushels of corn. In 1918, in spite of an enormous wheat and bean acreage, corn production was 11,067,000 bushels, an increase of 125 per cent for the decade. This statistical information was given prominence through the corn exhibit made by the Agronomy department of Colorado Agricultural College at the Stock Show. The yield by counties was graphically shown by a map on which there was a dot for each 4,000 bushels. Yuma, Logan, Phillips and Sedgwick counties—in fact, northeast Colorado—is the principal corn section, Yuma having produced two million bushels and Logan one and a half million bushels in 1918.

Some corn is now grown in every agricultural county in the state at 6,000 feet or lower and tests are being made at higher altitudes, with the object of securing ensilage. Ear exhibits were shown by the agronomy department from localities in the state varying from 3,200 feet to 8,000 feet in altitude. The latter was a sample of primitive Indian corn from Saguache county, in the San Luis valley. From the same county came ears of the Jamison High Altitude corn, bred by W. G. Jamison of Sunnybrook farm in the Cucharas valley at 7,200 feet. This is a cross of native or Indian corn with a dent corn brought into the valley many years ago from North Carolina. Last season seed was planted at Center, Saguache county, and at several other points where the altitude is about 7,500 feet. At Center the corn ripened.

A dozen of the leading varieties grown in Colorado were shown. From the Arkansas Valley came corn that for size and type of ear equalled the cornbelt product. That from the Montrose district was similarly large. Smaller ears are produced in the 5,000-foot counties, where standardization is going to Minnesota No. 13 and a few other varieties that are proving reliable under both irrigation and dry land conditions at a mile above sea level.

"Standardization is a necessary feature of corn improvement in Colorado," said Prof. G. S. Ray, who was in charge of the exhibit. As to average yields, the dry land counties ordinarily produce 20 to 25 bushels per acre, while Otero county (Arkansas valley) and Montrose (Western Slope) average right around 40 bushels. The silo is mainly responsible for the great increase in corn acreage.

Building Up a Dairy Herd

Matheson, Colo., Jan. 25, 1919.

Mr. W. S. Edmiston, Mgr., Western Farm Life.

Dear Sir:

Yours of recent date received and contents noted. Will say that you were not misinformed in regard to my being interested in farming and stock raising, as I am trying to make the desert bloom as a rose and to build a herd of dairy cows that any state can be proud of in years to come. I came here from Missouri six years ago with one horse, two cows, three heifer calves and forty hens. Our cows were mixed breeds and I determined to build up a Holstein herd. I had traded for a relinquishment of 160 acres. Today we are milking thirteen Holsteins with a registered polled Holstein sire, and we have twelve head of fine horses. We recently shipped eight gallons of cream to the Hollywood creamery at Colorado Springs and received $20.65 for the same. Isn't that enough to interest anyone in farming and stock raising?

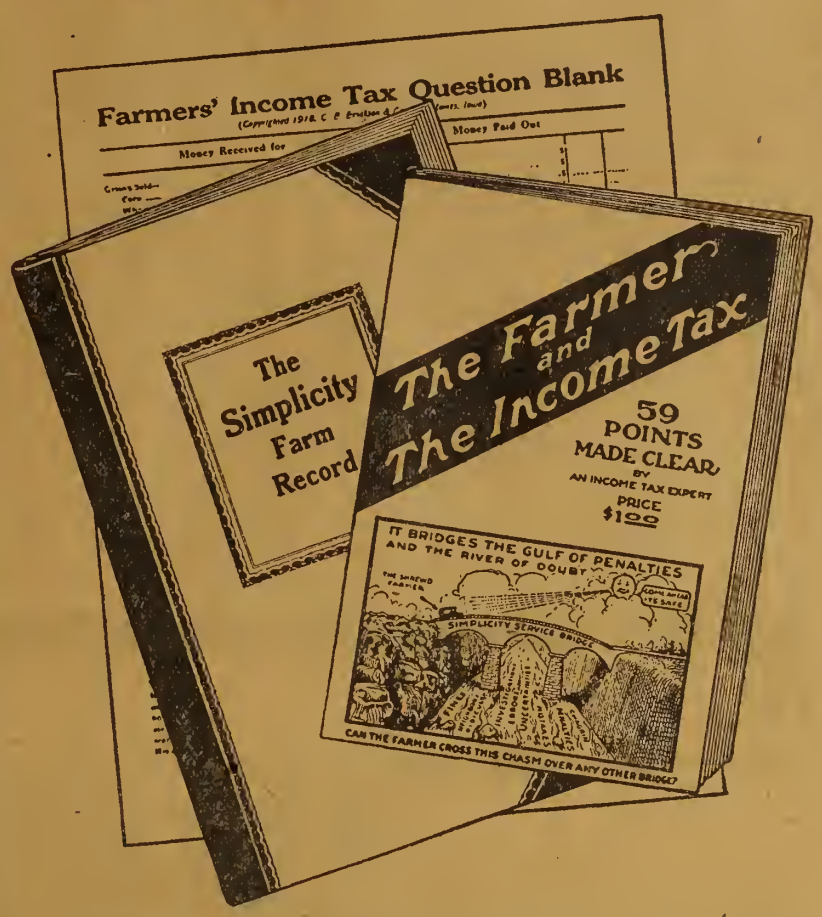
I came to Colorado in 1903 and went to the Ozarks of Missouri in 1912. Was there nine months, just long enough to sink $3,000, and came here broke in March, 1913, but today our holdings would net us at least $10.000 above all debts. I have taken several farm papers, but like Western Farm Life best of all.

If you should ever come to this part of the country, please give us a call. We are located five miles northeast of Matheson on the Rock Island railroad. Our buildings are on the north side of tbe railroad and we are sure contented and happy here.

Respectfully,

JOHN GEBAUER.

FREE Simplicity Income Tax Service—Two Books—Question Blank



IGNORANCE of law excuses no one. Laws are made to be obeyed, and for those who do not willingly comply, a penalty is imposed.

A majority of farmers and stockmen are subject to this tax this year, and there is no use in trying to dodge it, for each one will be checked up some day.

Government tax is as sure as fate.

Because a farmer did not keep any books or did not make out a return as required by law, does not mean that the Government cannot check him up. If the Revenue Officer decides that he wants to know what you made he will find out regardless of the expense or effort he is put to.

Penalties ranging from 50 per cent to 100 per cent increase in taxes, and also heavy fines may be imposed for neglecting to file your report. If you have no written record of your transactions you will have to make up one from memory. This means uncertainty, and probably financial loss. The only sure way is to have it all down in "black and white."

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Steamboat Gold

(Continued from page 20

bin' after it, and the first thing I knowed I grabbed right into a bunch of bones layin' right there in the road! It was a human bone skeleton. I knowed it the minute m' hand felt it, and I had it by its dang old foot. That's what I grabbed into. That snappin' ghost had 'vaporated away to a skeleton of bones in less'n two seconds, right there in my hand. Now, if it wasn't a ghost, I wisht you'd up and tell me what it was?"

"Did the living part of it come back?"

"I never hung around there to see, I tell you. I busted out of there on a run—land o' little taters, how I did run! No train ever traveled as fast as I streaked it home that night."

Arkansaw's shirt was wet at the shoulder blades with sweat; his breath was coming short, as if he had passed through that struggle but a moment since. But he grinned, and the fright died out of his eyes. Randolph knew that the story had been related with the conviction that it was true, and with no attempt whatever to beguile. Its simple vividness had made a queer, creepy impression on him, for he could see the struggle and its unexpected end as plainly as Arkansaw ever had lived it, whether the assailant had been beast or man.

"It's a strange experience for a man to go through, Arkansaw," he said. "Did you ever go back to see if the skeleton was still there?"

"I took m' gun and went over there the next day, but it was gone. The road was mussed up some where we'd rasseled around, but I never could find a single track but my own."

"Not a track?"

"Not one. A man 'd 'a' made tracks, and a wolf 'd 'a' made 'em—even a dang bone skeleton 'd 'a' made some kind of a mark in the dust, but a ghost wouldn't 'a' made any tracks, because a ghost never was knowed to make 'em.

"No, I never heard of one leaving tracks," Randolph admitted, thinking the tale over from a new point of speculation. Could it be that some wild, witless creature, human in form, bestial in desire, roamed the woods on that dark river's shore? Could this creature have been the wily, still visitor at his chamber window last night?

"Well, dang my melts!" said Arkansaw, starting up from his spell of silence, "if I don't clean them fish for dinner, Mystery—she'll snatch me bal'-headed inside of a minute."

CHAPTER X

THE SCHOOLMASTER COMES

Mystery Gregg had not put the scythe to the forest of jimson weeds in the dooryard of her home, for one thing, and another had come between her and her intention until Arkansaw had come home, bringing fish for dinner and the stranger who sought the wreck of the Morning Star to share the meal. So Arkansaw and Randolph looked over the weed wilderness as they sat on the porch and talked and watched the slow traffic along the road in front.

Scarcely a traveler passed without drawing upon the hospitality of the well and as they paused to drink Arkansaw told what he knew of them and their folks, their physical imperfections and moral shortcomings, their marriages, bereavements, possessions, and expectations. There was a homely humor in the descriptions of Arkansaw that lifted many a commonplace clodhopper out of the ordinary in the eyes of the stranger that long, lazy day, and a softness of charity for the frailties of body and soul which told that he could judge without derision and weigh without damnation.

"What a preacher you'd have made, Arkansaw!" said Randolph sincerely, as the young farmer closed a humorously pathetic story of a white-headed old negro who had driven away from the well.

"Well, I aimed to be before maw died," Arkansaw confessed, a dream in his eyes as he let their sharp sight leap to the hilltop beyond the river.

"It isn't too late yet," Randolph encouraged.

"If I could git over this dang cussin' habit!" Arkansaw lamented. "Maw she nearly had me broke off from it, for you know a cussin' preacher wouldn't make his salt in this day and age. Folks wouldn't take to him; he wouldn't make his salt. If I was like that feller, Joel Langworthy, you saw here at the well yesterday evenin', I'd be whoopin' her up, red-hot—I'd be handin' 'em out hell-fire right on the shovel! That man can talk—he could rope 'em in right and left—he's got a gift."

"A gift of gab?"

Arkansaw was serious; he twisted his head in his wise impressive way, and made a humming noise of depreciation and denial, his pursed lips held clenched until he could take his feet from the porch railing and spit. Thus freed, he laughed.

"Grandmaw used to tell about a feller that wore such a high collar he had to stand on a stump to spit over it," he said. "Like me, only it's my feet. I never try to spit over my feet 'less I'm a standin' on somepin' high."

"So Joel's got a gift, has he?"

"You' right he has—the whisperin' gift."

"The whispering gift? What's that?"

"He can tame horses with it. He can tame the wildest stud-horse you can fetch him. He's done it more'n once."

"That isn't so much of a gift, is it? It wouldn't be much use to him, or to you, as a preacher that I can see."

"A man that's got the whisperin' gift—or a woman, either—can draw people with it, the same as he can animals, if he wants to. Used to be an old woman back in Kain-tucky when grandmaw was a girl that had the whisperin' gift. She was as ugly as a mud fence stake-an'-rider'd with tadpoles, and she smoked and dipped and cussed, but she could whisper a young man up to her and marry him any time she wanted to. She done it more'n once, grandmaw used to say."

"But Joel doesn't appear to whisper the voters up on election day," Randolph suggested.

"He could if he could be all around at one time—if he wanted to put the strain on his mind, I reckon. Anyhow, Joel he don't want to make a show of his power—he's mighty touchy on it somehow, and won't even tame down a horse for a neighbor any more. Used to a good while ago—tamed a stallion for Dutch Gus, over on Little Sugar, that was dangerouser than any line that ever was put in a cage. Killed a hired hand, and mighty nigh bit Gus's leg off. Joel went in the barn alone with him and shut the door. What it was he whispered to that horse no man knows, but d'rec'ly here he come leadin' him out when folks begun to think it was about time to start a wagon off for a coffin. That horse he was as tame as a calf after that, and no matter what time of the day or night Joel used to pass Gus's place that horse he'd nicker to him, and come a tearin' up to the fence like he was meetin' kin-folks if he was loose. Beat anything the way that horse he'd take on after Joel right along till he died."

"I've heard of Irish horse-tamers who had the knack of saying magic words to an animal and breaking its wild spirit that way, but I never heard it called a whispering gift before."

"That's what it's called here, and I don't reckon one man in a billion's got it. If I had Joel's gift you wouldn't ketch me hangin' around down there in the Narris, runnin' for office and feedin' stock and potterin' around like him."

"You'd be preaching and calling them up to repentance."

"No, I wouldn't—not by forty rods! I'd be up in Kansas City makin' five dollars a day tamin' range horses for them stockyards fellers. You can git ten dollars a day a head more for broke horses 'n you can for range ones, and I bet you they'd be proud enough to fork over five dollars a day to a man that could tame fifteen or twenty head.

"They could afford to well enough," Randolph agreed, amused by Arkansaw's peculiar blending of shrewdness and simplicity. "Did Joel ever tame any other horses but Dutch Gus's?"

"Yes, he tamed a pile of 'em around here, but he ain't touched one for eight or nine years. He seemed to be kind of ashamed the way that stud of Dutch Gus's took on after him, like he was a half-brother or a blood relation of some kind."

"Sensitive about it," nodded Randolph.

"As a feller with a sore neck. Well, look a-yonder! Mystery"—calling into the window—"here comes Hugh!"

"Already?" said Mystery with soft intonation of surprise. "He must have come down on the two o'clock." She was near the window and must have heard their talk about Joel and the whispering gift.

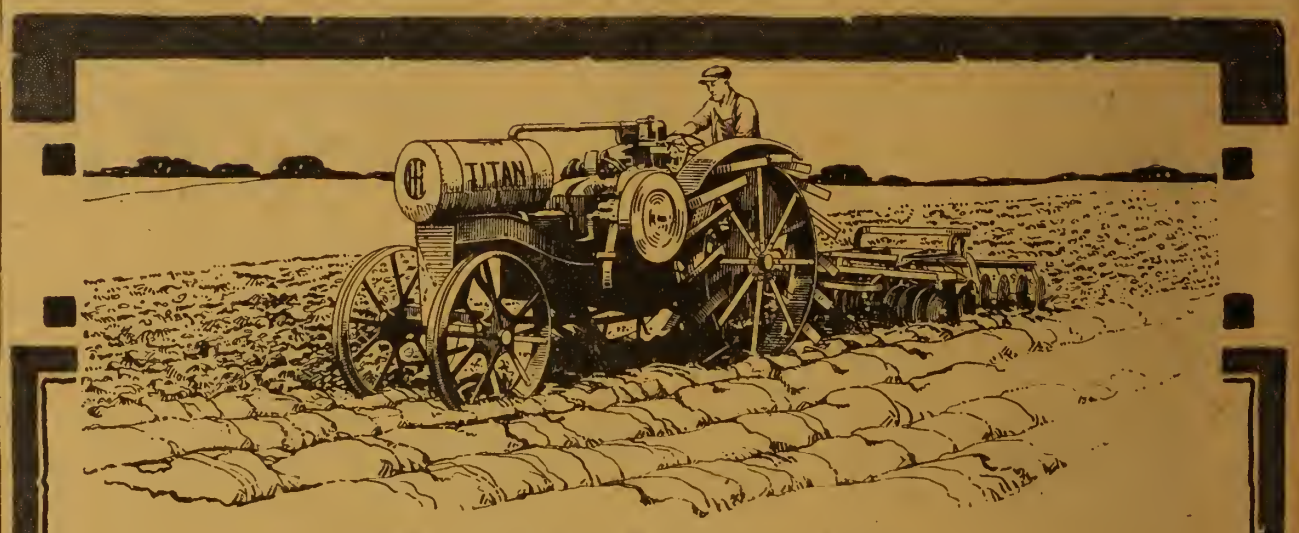
The visitor was coming forward with a gait too brisk for a dweller in that place. He carried a small bag slung over his shoulder by a strap and a guitar-case in his hand. Off a little way down the path he raised his straw hat to Mystery in grave respect. Arkansaw went forward to receive him at the steps, sending his greeting ahead of him in loud words.

Arkansaw presented the visitor as Mr. Atchison, and Mystery took his hard little straw hat and carried it into the house like some precious thing that she feared might blow away, handling it as she would have touched a turkey egg. Mr. Atchison gave it up with a preoccupied and self-distant air, and refused to take off his coat at Arkansaw's solicitation, seating himself solemnly, brushing his long reddish hair back from his forehead with a sound rising from his bosom like a sigh.

He was a man of fair stature, raw-jointed and red, dressed in a suit of unbleached linen, which he carried in the manner of a man conscious of setting up a style of which there was no precedent, and doubtful of its reception. He was a meditative man, with a drawing of concentrative effort about his features which caused him to look as if he considered whistling softly, or as if he had left off a tune but shortly and had not yet composed his face. The hinges of his jaw were prominent, his face lean and studious. He held his chin high, with a little outstraining pose; his eyes were hollow and hungry, with a look in them as of one who had failed but had not surrendered.

Randolph gathered from the conversation that he had been away in the city and from Mr. Atchison's eyes that he was in love with Mystery Gregg; that he was the schoolteacher in that district, of which Moss Gregg was an officer. He also remarked of Mr. Atchison that when he was not drawing his face in that contemplative, soundless whistle, he sat biting his teeth together as if holding himself to some resolution by driving his will. This dry biting made the muscles lump and swell in little kernels on his hard jaw, and gave him a cast of determination that redeemed his homely face.

The schoolmaster was chasing forty pretty closely, Randolph estimated, and he was such a hard and muscular man that his walk over the hot white road from the station had not even marred his tall white collar, above which he



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held his chin like a horse looking over a half-door into pastures which he could not crop.

He thawed out into a pleasant and genial man after a little while, and Randolph put his first stiffness down to the sudden coming into the presence of his adored lady, who treated him as if he was a boy. He was a man of large general information and no small learning, and seemingly above both the appreciation and the need of that community.

It was difficult for Randolph to adjust his mind to the limitations of his visit to the Narris country, sitting there among them on the porch that declining afternoon. It seemed to him that he had come into a part there as naturally as if he had been born to it, and Arkansaw and Mystery accepted him on that footing of peculiar equality with themselves which isolated people usually are slow to accord. Only the schoolmaster seemed apart in his solemn way—a way that made Mystery laugh at him, all out of her character of slow serenity, and play with him with her eyes, and ripple around him like sunny waters around a grim old rock.

Almost at the same hour that he had passed on the day before, Joel Langworthy came driving again to the well in his dusty buggy, which appeared to not have benefited in any particular by the rain. He drew himself a pail of water, hitched his team and came in, waving his hand in all-embracing greeting, taking his hat off midway of the path to express his respect for Mystery, and coming on bare-headed and reverently in his exaggerated chivalry.

Joel shook hands with them all, smiling and full of apt words, refusing the chair proffered by Mystery, and seating himself on the steps.

"I've only got a minute to stop," he protested, although he settled his hat on his knee as if he meant to make a comfortable stay, "I just saw you-all up here lookin' so cool and comfortable I couldn't pass without comin' in to say howdy!"

"We'd 'a' took a slight if you'd 'a' passed on, Joel," Arkansaw told him.

Mystery did not add her welcome in words, but there was more in the silence that had fallen upon her at Joel's coming than any spoken greeting could have given him. Randolph marked with surprise that her cheeks had grown strangely pale and her eyes strangely large, as if from fright. But there was that looking out of them which betrayed the adoration of her heart for this extraordinary man.

He was not alone in marking this sudden change in the young woman. Hugh Atchison saw it, and the hunger in his eyes deepened. He drew his chair around a little as if expressing a protest, or announcing to the company that he had withdrawn from it, and took a little blue book from his pocket, which he made a pretense of reading. But Randolph, watching his eyes, saw that they were fixed over the page upon the fair half-face of Joel Langworthy, whose oiled tongue was capering like a colt in a pasture. Now and again the schoolmaster lifted his gaze to Mystery's face, with dumb yearning call, as if he struggled by spirit communion to break the enchantment that held her captive, heart and soul, at Joel Langworthy's feet.

Gracefully, in the long practise that had made it an art, Langworthy had settled himself on the steps with the blighted side of his face turned from them.

The talk ran on, from crops and politics to the school, Atchison replying courteously enough when addressed directly, but taking no initiative. Joel flashed his quick eyes to Randolph presently, coming in a politician's way last to the point first in his mind.

"They tell me you've come here to explore the wreck of the old Morning Star, Mr. Randolph."

"I was under the impression that you knew it yesterday, Mr. Langworthy," Randolph laughed, "for news seems to leak out of a stranger here in the Narris before he is aware that he's leaving a trickle behind him as he goes along."

Langworthy's dark face clouded with a flush at Randolph's first words, and cleared with a smile as he proceeded in compliment to the penetration of those insular people.

"Oh, you do us too much credit," he said. "I could have guessed yesterday, if I'd had the curiosity"—he turned his eyes about as if to call witnesses to his guileless and unsophisticated nature—"for when a stranger comes in and hunts up Captain Gregg, after a visit to the Narris, we put two and two where they belong to make four. We've had long experience in it; others have been here on the same business, Mr. Randolph."

Langworthy shook his head and dropped his voice to low pitch as if he spoke of the dead.

"There is nothing to conceal in my mission here, as I have told Captain Gregg and others," Randolph said. "I have come here in the hope of exploring the Morning Star and searching for a key"—he turned with malicious suddenness upon the theme that Moore's expression of the night past had suggested, feeling, somehow, that Joel Langworthy did not wish him well of his quest—"a key that was lost when she went down, and which means considerable to me if I can find it."

"A key?" said Langworthy, surprised out of his polite smoothness; "what a strange thing to hunt for in a wreck!"

Arkansaw turned an astonished glance upon Randolph, and the schoolmaster lifted his wistful eyes from his pretended reading. Mystery looked up from her contemplative study of the worn boards, flashing a glance at Randolph from her splendid eyes that thrilled him like sudden music.

"Why, I thought, Mr. Randolph—" she began, caught herself blushing in confusion.

"A key," repeated Randolph convincingly.

"I never heard of quite so strange a search," said Langworthy thoughtfully. "Do you think you have much of a chance to find it after all this time—don't you suppose it's rusted away by now?"

"It's a chance that I'll take if I get permission, Mr. Langworthy."

"A key," said Langworthy, turning it over with a sound of strangeness. He laughed and looked up quickly into Randolph's face. "We're a curious crowd down in the Narris, Mr. Randolph, and we'll never be able to take a night's rest again till we know what that key's wanted to unlock. Since there's nothing secret, as you said—"

"Certainly not," said Randolph, fixing his impertinent questioner with grave eyes; "we'll call it the key to the world, and let it go at that."

No change came over the placid features which Langworthy presented to the company, but Randolph knew that he understood.

"Well, I wish you luck in your search for it, Mr. Randolph," he said, "and if you find it, I hope it will let you in to enjoy the ease, the pleasure, the fame, and the consequence which are denied to so many of us in this life."

Langworthy spoke oratorically with studied inflections and declamatory attempts to polish it off and make it beat like a tune, succeeding only in causing it to sound hollow and insincere, almost ridiculous, in Randolph's ears. The schoolmaster glanced over his page with contemptuous look, shut up his book and put it in his pocket.

Joel shook hands all around again, and parted from them as tenderly as if he was about to embark on a perilous voyage, a reunion after which was most uncertain. When he was gone, Arkansaw went to hitch up and drive to the railroad station after Randolph's baggage, a task for which he had been engaged the day before. Atchison invited Randolph to walk with him to the schoolhouse, which stood a little way along the road past Moss Gregg's well.

CHAPTER XI

CALEB MOORE BRINGS NEWS

"I use the schoolhouse as a study in vacation days," Atchison explained as they set forth; "my little library is there—I do a good deal of work between terms. I want to show you."

"How long have you been here?" Randolph inquired.

"This will be my fifth year," Atchison replied, letting go a little fluttering sigh, as if he could lift no stronger protest any more against the limitations of his life.

"What do you think of that man Langworthy by now?"

"Well," said the schoolmaster thoughtfully, holding a long pause after the word while he walked on with bent head, "a man seldom is like the face that he presents habitually to the world."

"I liked him better yesterday, the first time I saw him, than I do today."

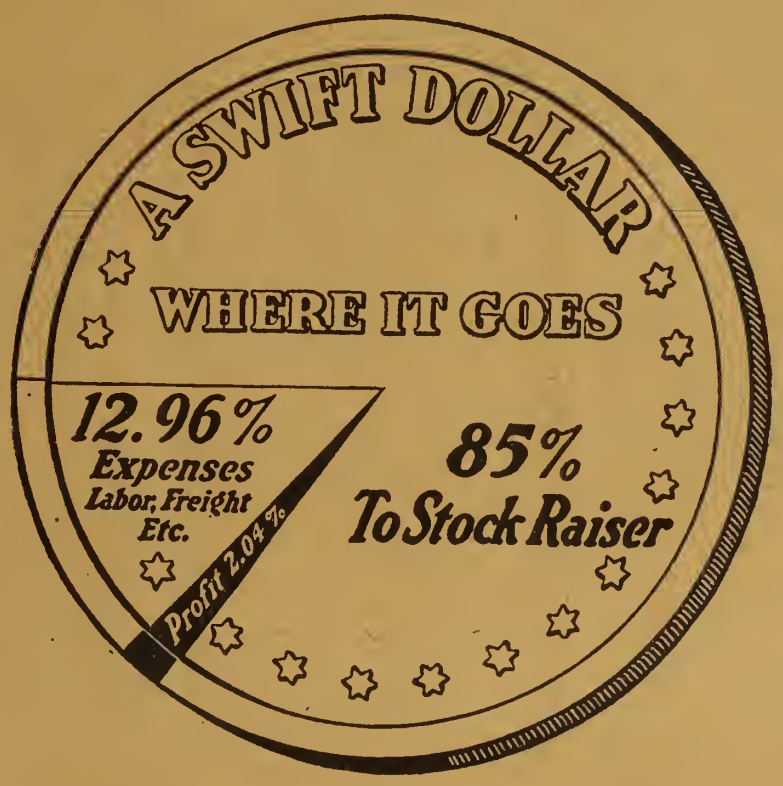
"That is contrary to the general experience, for Joel generally improves on acquaintance. In many ways he is a remarkable man. I'm glad it rained last night—it will revive the grass around the schoolhouse."

They came in sight of the school as he spoke, standing back a little from the roadside, the low white building fronted by a broad, deep lawn, tall walnut trees towering darkly cool above its modest roof. It was so unusual for a country school that Randolph stopped in surprise to look again. White posts supporting a looping chain divided the grounds from the road, and on either hand shrubs and flowers were grouped in artistic balance. Above it all there spoke first the force of a directing hand, and the new vision that Hugh Atchison had brought into that slumbering community at the river side.

"Of course it wasn't this way when

(Turn to page 30)

The Swift Dollar for 1918



The above diagram shows the distribution of the average Swift dollar received from sales of beef, pork and mutton, and their by-products, during 1918.

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Losses from Pig Eating

A Colorado breeder who is noted for careful handling of his hogs, under all conditions, recently suffered a considerable loss through sows eating pigs. They did not begin to eat them until a week or ten days after farrowing. The ration before farrowing was corn, oats, bran and about 10 per cent tankage in a heavy slop; nothing for thirty-six hours after farrowing and then twice daily a thin slop of oats, bran and 10 per cent tankage. When pig eating was detected the tankage was increased, in the hope of stopping it, but without success. The breeder is looking for information as to how to prevent a repetition of this costly experience. He suspected that lack of corn after farrowing may have had something to do with the development of the abnormal appetite. It was a case where all usual precautions had been adopted; usual remedies were known and applied. New light on the subject will be welcome. Prof. Morton's suggestions are as follows:

Pig eating by sows is nearly always due to a constipated, feverish condition. It practically never occurs with sows that farrow in late spring while upon pasture. It occurs when sows are upon dry feed and usually also when they are confined in small pens without much exercise. It is very difficult to stop the pig eating after the sow has begun it. The first thing to do is to give immediately a heavy dose of salts in the swill, or if they will not eat the swill with the salts in, give a dose of some other physic in a capsule put down their throats. There are now little instruments for holding open the mouth of a hog while shooting the capsule down the throat with a balling gun. Sows can be handled very readily and fairly rapidly in this way. A sow prior to farrowing should receive little or no corn in her ration, as that tends to increase feverishness at farrowing. You could not improve on the slop you give the sows after farrowing. I am inclined to think in this case that the difficulty is caused either by the ration before farrowing or by lack of exercise, or a combination of both. A good way to handle sows prior to farrowing is to scatter whole oats on the feeding floor or on the ground, if the ground is hard and dry, and let the sows get their feed by traveling around to pick up the scattered oat kernels. This gives them exercise, and oats are the best grain feed for a sow prior to farrowing anyway. I believe you have water before the sows at all times so that is not likely to be a part of the trouble with your sows. In some cases, however, sows are fed heavy slop and are not given any clear water to drink, and this results in constipation and fever. Most people think that pig eating by sows is simply a hunger for meat, and that it can be stopped by feeding salt pork or meat meal to supply the craving. This is not the cause. The sow starts eating her pigs simply because she is cross, abnormal, feverish, and either has a dead pig in her pen that she starts to eat or snatches at a live pig in her ill temper and getting a taste of the blood, starts in to eating the pig. Prevention is the way to handle the difficulty, and care should be taken to see that sows are brought to farrowing in as normal condition as possible.—G. E. M.

Sows Not Doing Well

Answer to G. G., Morgan county:

It is very difficult to tell without seeing your sows, just what the trouble is. It may be the feed or it may be something else. If the sows are to farrow again this spring I would feed whole oats and bran, or a limited amount of tankage. There are two other frequent causes of hogs growing thin and not feeding well. One is intestinal worms. You can secure worm capsules from your local veterinarian. Another cause is necrotic condition of the intestines, caused by the same germ that is responsible for sore mouth in pigs. This trouble is usually marked by scours, and is difficult to handle. Your local veterinarian should be called in on this, and aid you in keeping the entire herd protected against the germ that causes the sore mouth and intestinal trouble. In the case of worms it is just a question of giving a worm expellant, the same as you would give any physic.—G. E. M.

More About Milking Shorthorns

I have read with much interest the article by R. W. Clark in your January 1st issue. I was especially interested because the views therein expressed are not those held by us as breeders of Milking Shorthorns, nor by most such breeders, as we understand them.

Mr. Clark says: "A number of Shorthorn breeders in this country have established an advanced registry in milk production, similar to that of the dairy breeds, so that now selection of breeding animals can be made on the basis of production. This is going to result in a change of type and higher milk production with greater certainty in transmission of both qualities to the offspring. * * * This line of improvement offers special inducement to Shorthorn breeders. Their cattle will travel exactly the same path the Holsteins did so many years ago, and there will be a corresponding change in type and production. * * * He must keep dairy type and production always in mind and adhere to them most rigidly and not delude himself into thinking that he is soon going to break records in dairy production."

This would seem to indicate that Mr. Clark thinks that the Milking Shorthorn breeders are attempting to develop a strictly dairy type to compete with those already established, especially the Holstein. This we are not trying to do. We are trying to develop this breed along lines suited to ordinary farm conditions, and this we feel has not been the result of the Holstein line of development.

What has been the Holstein line of development?

Mr. Clark indicates this is asking for big records.

No breed has given the attention to big records that the Holstein has. It is common knowledge that these large records are made by loading the frame with an excess of fat by heavy grain feeding and then milking this off under conditions never duplicated on the ordinary farm.

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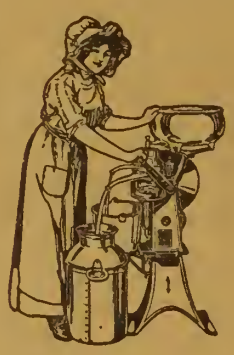

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a breed suited for the dairyman who demands a breed that will pay the largest return for special care and feed.

The result has been the development of a large cow demanding and paying for an immense amount of feed. Where cattle are kept in the corral and their feed taken to them there is no breed that will pay as large gross return as will the Holstein. But such an animal is unsuited to pasture conditions as we have them, or to average farm conditions. Such conditions generally mean poor shelter, irregular milking and a ration poor in grain but strong in roughage, much of which must be gathered by the animal herself from our native pastures.

The special purpose dairy breed advocate says that we should improve these conditions to suit the special purpose dairy breed instead of attempting to develop a breed suited to the conditions. Unfortunately for his argument, he has not been able to show a profit by so doing that pays for the added expense, which explains the popularity of the Shorthorn in the face of the special purpose dairy propaganda covering a period of more than forty years. Anyone who knows how active has been the campaign against the dual purpose cow must marvel at the vigor of sentiment which keeps them the most popular farm cow in both the United States and England. This popularity in Colorado is readily explained by results such as were obtained by the Douglas County Cow Testing Association, which closed its first year's work last June. In this association were 390 cows about equally divided between Holsteins and Shorthorns. In spite of the fact that the Holsteins were in the hands of some of the most skillful dairymen and that they had cost much more than the Shorthorns, the Shorthorns, on the average, paid a better net profit than did the Holsteins, the leading herd was Shorthorn, the leading cow was Shorthorn. A clearer cut proof of the value of this breed under ordinary farm conditions in the dry land territory could not be imagined.

At the National Western Stock Show just closed, five cows were entered in the milking contest, four Holsteins and one Shorthorn. In this contest prizes are given for quantity of milk produced during three days of the show week, for butter fat, and for the cow that produced her butter fat at the lowest feed cost. In this contest our Shorthorn cow produced less milk than any of the four Holsteins, but was second in butter fat and produced her butter fat at a feed cost of 23.9 cents per pound, while the lowest feed cost of any Holstein was 32.3 cents and the next lowest Holstein was 43.1 cents.

We do not expect to change our type to the extreme dairy conformation and function. There are enough dairy breeds now. Probably there are more good dairy cows than there are good dairymen to handle them. We can see no point in trying to produce another Holstein in the Shorthorn breed, for the Holstein is now most efficiently filling the place, and it is an important one, that is hers without question. We strive rather to produce a cow of profitable milk production under general farm conditions and will still meet the ever growing demand for farm meat production. Such a cow will not break records in dairy production any more than the useful farm horse will win a Kentucky Derby, but—"they also serve."—C. H. HINMAN, Bonvue Farms.

A Good Livestock Record

Thirteen eggs on Monday, a colt on Tuesday and seven pigs on Wednesday! That was the record on the dry land farm of A. T. Chapman of Hoyt, in Adams county, and it was so promising that Mr. Chapman immediately set out for the Stock show in Denver, to look over the livestock. He believes in plenty of stock on the dry land farm, because that means production the year around. He has been successful with cash crops, too. Last fall he harvested 60 acres of pinto beans, which yielded 720 pounds per acre. He sold his crop at Fort Morgan at 6 cents a pound, having been fortunate enough to dispose of it before the slump came.

Profit in Dairy Cows

A total of 682 cows were enrolled during the past year in the Arkansas Valley Cow Testing association. The second annual report of Harold J. Ryan, the tester, recently made public by the State Dairy Commission, makes a very creditable showing, confirming the value of the work, which is to be continued. Shortage of feed caused the dropping out of 61 cows during the year; 113 were sold for dairy purposes; thirty-eight went to the butcher and 16 died. The 309 cows that completed the year gave a total of 2,072,000 pounds of milk 70,046.2 pounds of butterfat, valued at $56,823.65 and showed a total profit above cost of feed of $25,824.19.

The following table shows herd averages for the year running from about $42 to over $160 per cow.

OWNER OF HERD	No.	Breed	Lbs. of Milk	Lbs. of B. F.	Value of Product	Cost of Feed	Net Profit
E. P. Gilbert & Son	21	Holstein	5,993	197.2	$140.27	$ 83.02	$ 57.25
Maxwell & Dingus	13	"	5,111	182.6	141.12	93.31	47.81
A. P. Mead & Son	19	"	6,017	226.6	172.19	84.96	87.23
F. A. Froman	25	"	6,532	241.6	191.40	79.78	111.62
M. F. Ralston	37	"	6,606	214.2	177.74	117.18	60.56
Harry Heath	18	"	8,996	286.7	242.65	82.42	160.23
Wagner & Gilbert	42	"	6,520	211.0	175.29	109.23	66.06
W. P. James	19	Mixed	4,638	176.5	135.59	82.19	53.40
J. M. Williams & Son	40	Holstein	6,613	221.5	186.97	97.13	89.84
Nowells & Marshall	14	"	8,572	278.1	237.52	114.06	123.46
Puntenney & Oursler	9	"	4,597	155.2	122.10	80.06	42.04
A. C. Model Dairy	18	"	9,243	292.0	245.13	161.54	83.59
Geo. D. Shell	14	"	7,013	263.2	197.99	94.15	103.84
Jens Jensen	20	"	7,168	239.8	200.87	101.88	98.99

Comparison of these records with 1917 shows decided improvement. In 1917 there was but one cow that produced over 365 pounds of butterfat and there were five in 1918. In 1917 seven cows produced over 300 pounds, while 1918 found 35 cows going over the 300 mark. The average pounds of milk per cow was 6,109 in 1917 and 6,706 in 1918. The average pounds of butterfat in 1917 was 216.48 and in 1918 it was 226.69. The average yearly profit above feed cost per cow in 1917 was $62.32 and in 1918 it was $83.58. The record herd averaged 7,682 pounds of milk per cow in 1917 and in 1918 the record herd averaged 9,243 pounds.

The leading herds for milk production were the following: A. C. Model Dairy, 9,243 pounds; Harry Heath, 8,996 pounds; Nowells & Marshall, 8,572 pounds. These herds, in the same order, were the three leading in butterfat production, with George D. Shell fourth.

The cows eligible to register of production based on standard of 365 pounds of butterfat per year, were as follows:

Geo. D. Shell, cow Joan, 8,641 pounds milk, 414.3 pounds butterfat.

A. C. Model Dairy, cow No. 2, 12,038 pounds milk, 412.7 pounds butterfat.

Wagner & Gilbert, cow No. 31, 10,676 pounds milk, 387.3 pounds butterfat.

Jens Jensen, cow Fern, 7,569 pounds milk, 367.6 pounds butterfat.

Harry Heath, cow No. 15 10,923 pounds milk, 365.4 pounds butterfat.

The association averages of the fourteen herds that completed the year were as follows:

Number of cows, 309.
Average pounds milk produced per cow, 6,706.
Average pounds butterfat produced per cow, 226.69.
Average fat test, 3.38 per cent.
Average return per cow, $183.90.
Average cost of feed per cow, $100.32.
Profit per cow above feed cost, $83.58.
Feed cost per pound fat, 44 cents.
Feed cost per 100 pounds milk, $1.50.

Production of Clean Milk

Dr. L. S. Dijkstra

Not all dairymen are mindful of the fact that the production of clean milk means rendering a high service to humanity, nor that it pays far better than production under careless conditions. I do not mean to say that every dairyman should make a business of selling so-called certified milk, which retails at 20 to 25 cents a quart and is within the reach only of the

Stock need a spring tonic.

Most stock ailments come from winter conditions. Dry feed and lack of exercise weaken the digestive system, stunt the appetite, and poision the blood so that stock get wormy, do poorly, and waste feed.

Right now all farm stock need help—for it is freshening time, farrowing time, and plowing time.

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well-to-do, but I mean the general market or trade milk, which can be considerably improved at a nominal expense. I have heard it said, "I do not care whether my milk is dirty or from sick cows, because I sell to the creamery and they will never know the difference. I get my price and if I make a profit that is all I care about."

Certainly that is the wrong attitude. It goes without saying that the conscientious dairyman thinks about like this: "I want to deliver a product that can safely be used by anybody, from a health standpoint and get a price that will leave milk within reach of rich or poor."

In order to emphasize my point I wish to cite some examples from my own practice:

In 1895 a co-operative creamery was erected in by birthplace in Holland. The number of patrons was 84, with a total number of cows of 2,800. The milk was paid for on the basis of fat content and it was used in the manufacture of butter and cheese. At weekly shows, where the butter and cheese of about 200 creameries are submitted for scoring, this creamery seldom reached a higher score than 80, and there were a good many more of the same class. The cheese often resulted in a complete failure. In 1904, when at home on summer vacation, the writer tested, upon request of the manager of the creamery, the milk of each patron and the result was that over 90 per cent of the milk contained several millions of bacteria, among which a good many that would certainly cause failures in the products of the creamery. Thereupon the managing committee of the creamery decided to pay for the milk not only according to the quantity of fat, but to give also a bonus for cleanliness. That helped a good deal. When, for instance, Farmer Klaas saw that Farmer Gerrit got an extra fee for delivering cleaner milk he also tried to share in this extra income. But not only the farmers who delivered clean milk felt the effect in their purse, but the creamery obtained a higher market price on account of better quality butter and cheese. Therefore let us emphasize the following:

Only the best quallty of milk enables a creamery to produce the best quality of butter and cheese, and this in turn gives satisfaction to consumers. Aside from the fact that it is necessary to deliver a good quality milk to the creamery or factory, also the milk that is delivered in little towns, where it is impossible to have a board of health, should be of such quality that it can safely be consumed by everybody. This is not always the case and I will recite an instance here from the medical reports of my native country. In the little city of Vendam (population about 12.000) where there is no rigid control of milk products, 28 cases of typhoid fever occurred in the period from the 11th to 27th of June, 1917. It was evident that such a sudden spreading of this disease was due to some direct source of contamination, which was soon discovered, when the health officer went to the milk producer where he found the daughter suffering from this disease. Though this milk producer knew that his milk was a source of danger for the consumer, he kept silent and was so careless as to place the evening milk in the room adjoining the room occupied by the patient. Moreover the mother was nursing one minute her daughter and the next minute cleaning the utensils. It was little wonder thus that the disease germs reached the milk. This is only one instance, and so I might mention a good many more, but this one is sufficient when I tell the reader that four of the patients died.

Which milk should not be put into trade? In the first place, milk from cows suffering from tuberculosis. This means that every conscientious milk producer who is considerate of his fellow men tries to get a clean herd Secondly, milk from cows suffering from udder diseases. The writer has found in many cases pus, blood, serum, streptococci, etc., in so-called sanitary milk. The label is not a guarantee of safety.

Thirdly, the milk of sick cows. Cows that suffer from sex diseases (abortion in some cases), etc. And furthermore, every conscientious milk producer should try to produce a milk that has the lowest possible number of bacteria; in other words, that is obtained in the most cleanly way. But now I hear some reader say: "Impossible for us to produce such milk; the requirements of the board of health are too high." Or, another will say it takes too large an investment, too much money or time, or "I do not care," or "I hate to be controlled," etc. All these objections, I believe, can be removed if the milk producers, the inspectors, and health authorities will co-operate. Every milk producer should be convinced of the danger to which he exposes his fellow man by the production of unsanitary milk. The reading of good dairy and farm papers, the attending of short courses and lectures, deserve emphasis. And that a rellable, clean milk can be obtained at reasonable price, so that consumer and producer have their just due.

In producing a reliable, clean milk, that is, a disease free milk with low number of bacteria, there are three essentials, viz., a healthy herd, of which I have spoken, further cleanliness, and thirdly, cooling of the milk. As to the health conditions of the herd I have already said what is necessary.

However, the meaning of cleanliness is subject to such a wide variation of opinion that an explanation will not be superfluous. At the beginning of the clean milk campaign, healtb authorities made such high claims that it was little wonder it made many a milk producer shrink at such a humbug, I might say, as it was impossible for the producer to provide milk that could be consumed by all classes of people on account of the high production cost. I guess every reader will still remember the requirements, which were in short a stable for the cows like a royal palace, sterilization of cow, milker, feed, etc., and a cooling of the milk to a north-pole conditlon. This condition has happily pretty well disappeared. Now we know that a common stable, kept clean, and a groomed, clean cow are sufficient as to the cow requirement. As to the udder, a pail of clean water and clean rag for the cleaning of the udder and teats will do. Now we come to the receptacles in which the milk has to be obtained, viz.: the milk pails and further the other utensils that come lnto direct contact with the milk.

(Turn to page 28)

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A Narrow Window

A narrow window may let in the light,
A tiny star dispel the gloom of night,
A little deed a mighty wrong set right.

A rose, a-bloom, may make a desert fair,
A single cloud may darken all the air,
A spark may kindle ruin and despair.

A smile, and there may be an end to strife;
A look of love, and hate may sheath the knife;
A word—ah, it may be a word of life!

—Florence Earle Coates.

(Copyright, 1916, by Gertrude Moore Richards, Riverside Press.)

My Window Picture

Just rain and snow! and rain again!
And dribble! drip! and blow!
Then snow! and thaw! and slush! and then—
Some more rain and snow!

It won't be long until the real thaws will be revealing the yards we may not have seen since some time last fall. The windows, though they be narrow or wide, that look out on the yards not only let in the light, but may also tell us that some of last year's corn stalks are blown up before the door, a tin can or two bas wandered from its moorings in the dump pile, or a few broken bits of farm tools were left lying there.

There is much talk of the good or bad effects upon one's character of one's "outlook upon life"; but how many of us stop to consider that a great part of a woman's outlook upon life is bounded by the framework of her kitchen window? Most kitchens were placed by the men who built the houses in the most undesirable and darkest part of it, with no regard to the view outside, and it is no wonder that the faces of women on the farm have so often grown depressed and weary and their eyes faded. No matter what our characters may be, we cannot keep the things which come into our everyday lives through our eyes from having their influence upon us. Beauty and orderliness of surroundings cannot help but make for beauty and orderliness of soul.

You may not have a very beautiful view from your kitchen window, but there are surely some spots of brightness in it, and an orderly yard as a foreground helps to bring every bit out of it. A real "burying ground" for every bit of refuse not burnable is one requisite; walls which may be only broken bits of stone, piled in regularly, is another help. Nature scrubs and cleans and puts away by the simple method of "dribble, drip and blow" and then she decorates. Ours is a little more complicated fashion, but we've always found a certain relief and enjoyment in the tidied-up surroundings. There is a bit of nature's beauty everywhere and it is our pride to keep it going on, because

"A man's best things are nearest bim,
Lie close about his feet."

E. D.

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Beets, Crosby's Egyptian,	"	5c
Sweet Corn, Golden Bantum,	"	10c
Cucumber, Early Fortune,	"	10c
Lettuce, Mammoth Big Boston,	"	10c
Cantaloupe, Burgess' Delicious,	"	10c
Radish, Fireball,	"	10c
Onion, Monntain Globe Danvers,	"	5c
Tomato, John Baer,	"	10c

9 packets worth 80c

These are distinct strains remarkable for their earliness and productivenes, and are indispensable to the progressive market-gardner and all produce vegetables of exquisite quality. Plant these seeds and you will be weeks ahead of your neighbors and make the largest profit on your land.
Full description of these varieties and all the best and latest garden, flower and field seeds will be found in our Catalog which is sent FREE.

GRAND JUNCTION SEED CO.
Box 4400 Grand Junction, Colo.
10 years in the seed growing business

What Mary Wants

Dear Sarah:

Your notes are altogether too brief about you and in revenge this is going to be a blear-eyed "yours hastily." My water system desires are beginning to be accomplished in spite of Marvin's comments, for our neighbor comes in next Monday to help us lay the pipes, and the sight of those trenches will make me feel as if my "warfare" is going to bring victory. But remember if you have read my letter to Marvin he will be forever suspicious of lemon pies, and you will have to invent a new seducer.

This time of year always makes me think of "when the dawn comes up like thunder," and this is just the hour before the dawn when we're waiting to bear the "thunder" of plows and harrows, sweating animals and hungry men. I feel the tenseness now of that waiting, and everywhere I look are seed catalogues and price lists of machinery, and all is in preparation for the fruitfulness of the earth.

Already I am looking askance at the jars sitting emptied upon my shelves, regardless of the ones which are still full, and planning on what should go into them next summer. There is always one fly in the ointment, and that is that I have to depend upon a neighbor boy to spade most of my garden and the children and I "do the rest." It has always looked as if the family's eating should be as important as the horses' and that two hours of plowing wasn't more than its due as a preparation, when I take the rest of the care of it.

But you know "how busy the men are" in the spring, and you must tell me what to do. John hates dried beans and eats quarts of the string ones, either salted or canned. My canned ones are gone. Shall I begin a campaign of the dried variety, asserting that those are the sort we must consume next winter, since the others only seem to do well on "plowed ground," or shall I offer to have some plowing done?

Waiting your advice,

MARY.

Gardens in General

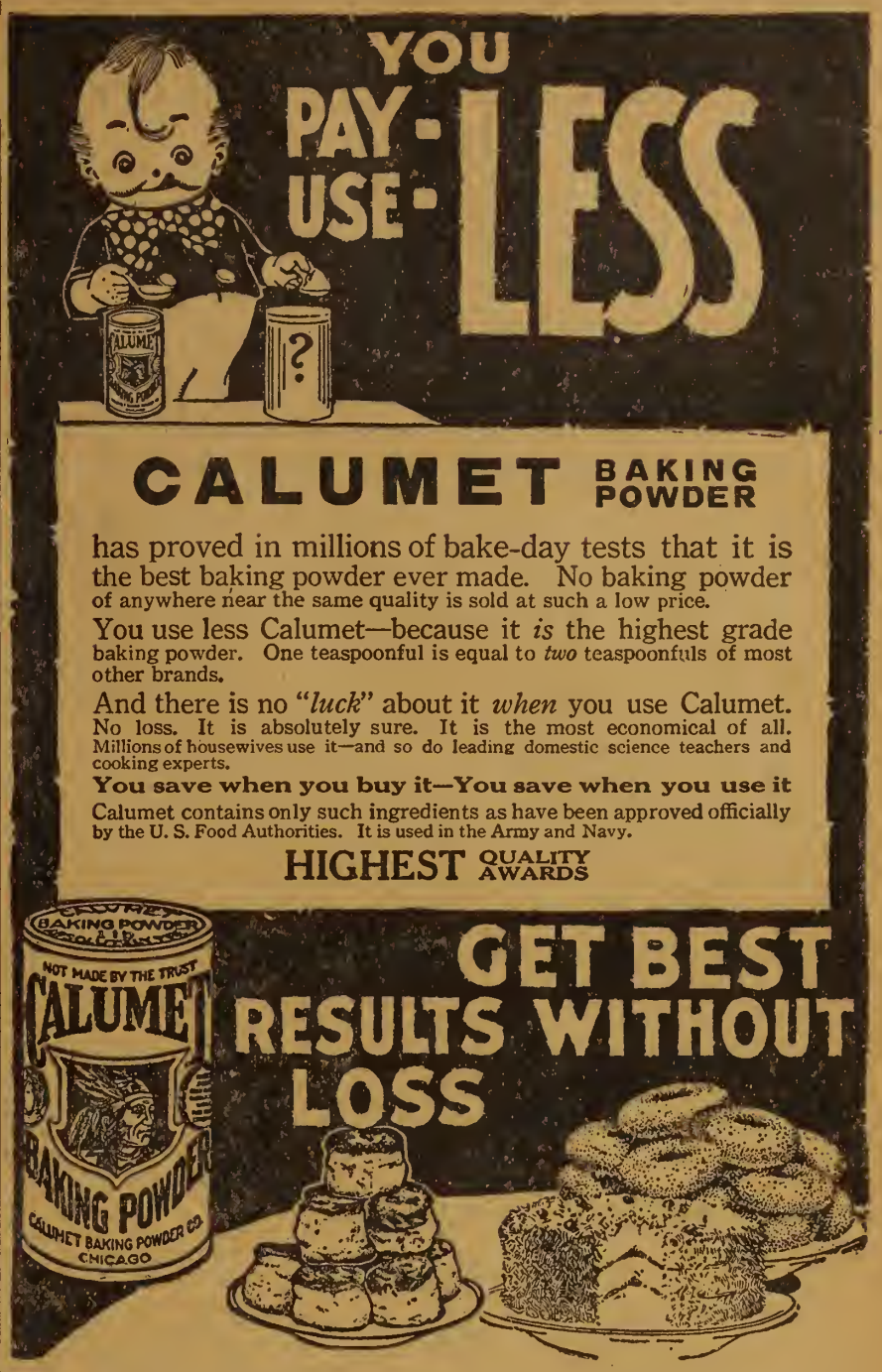
As the title says, this is not an advisory article on the sort of seeds to select for your garden nor the times, seasons nor methods for planting each sort. Some wiser head than mine on Western Farm Life can give you all that advice. But this is meant to state the fact that "gardens in general" are as much a means of livelihood as the wheat and corn and deserve as modern methods of preparation. "Mary" is trying to get "John" to see that his farm machinery will help as much in their gardens as in their crops, and she is right.

It is a pretty safe wager to make that four "Marys" out of five helped their "Johns" in some part of the sowing or garnering of things last year and are ready to do so again. Surely four or five hours with a plow and team is no more than fair co-operation for those hours with the pitchfork or on the "go-devil" in an emergency in the hay field. A man's sense of justice will make him see that it is just co-operation too if he stops to think of it. The gardens in general will pay much better for it, too.—E. D.

A Word of Acknowledgment

In her letter of last issue, Mrs. Horton of Monte Vista did not tell of the very pleasant meeting and picnic dinner the listeners and speaker had that day, but the speaker, who happens to be the editor of this page, remembers it very well, with a gratitude for her hospitality. Now it is a still greater pleasure to find that both memory and peas "have kept" on both sides.—E. D.

Yours is a newsy and practical farm paper. I do not wish to be without it. —Charles R. Carter, Craig, Colorado.



PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2729—Ladies' Costume. This will make a splendid street or calling dress. It is nice for velvet, corduroy, serge, poplin, duvetyn, satin and taffeta. It will lend itself effectively to combinations of materials. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 6 yards of 44-inch material. Width of skirt at lower edge is about 1⅞ yards.

2724—Waist. 2734—Skirt. Here is a smart afternoon frock, for which velvet or satin could be used, combined with Georgette crepe. It would also be fine in serge with satin for cuffs and collar. The tunic portions are fitted with pocket sections. Pattern 2724 supplies the waist design. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. The skirt is cut from pattern 2734, in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure. To make the dress for a medium size will require 6¾ yards of 36-inch material for the entire costume. The skirt measures 1⅞ yards at the foot.

2722—Good Style for School Dress. Mother's girl will be pleased with a dress like this in serge, gabardine, satin, jersey cloth, velveteen or any of the nice ginghams or linens. The dress may be worn with or without a shield, and the sleeve finished in wrist or elbow length. Cut in sizes 6, 8, 10, 12 and 14 years. Size 10 will require 3½ yards of 44-inch material.

2719—A Popular Style. Serge or gabardine would be nice for this model, with cuffs and collar of pique, drill or satin. Plaid or check suiting may be combined for this dress. The sleeve is cut for wrist or elbow length finish. Cut in sizes 4, 6, 8 and 10 years. Size 8 requires 3¾ yards of 27-inch material.

Cream Checks Buy Groceries

Sometime ago the Sentinel published a story about a farmer getting over $8 for a can of cream. Knowing how well we like to boost the dairy game, Harley Halter showed a cream stub he received from the Gifford Cream company on December 27th for $12.53 for about six gallons of cream, or 48 pounds. The test was 39 per cent and the price 65 cents.

Halter says that was just a few days' product from six or seven cows, part of the milk going to the calves. He remarked also that it is a little chilly some of these mornings to milk, but that he likes to be able to pay his grocery bill as he goes, and that he does it nicely with his cream checks.—Two Buttes Sentinel.

Do You Know?

That the San Juan County Farm Bureau saved for its members $65,000 this year?

That the Union County Farmer-Stockmen Bureau work on only two items was worth $197,513?

That subsidiary marketing associations of the Dona Ana County Farm Bureau secured top market prices for $159,800 worth of farm produce?

That the Eddy County Farm Bureau saved $32,185 for its members through its various activities?

That the Colfax County Farm Bureau has been worth $61,910 to its members this year?

That farmers and stockmen of San Miguel county are $103,303.17 better off because of the fact that there is a well organized Farm Bureau there to help them in handling their farm business?

That the total value of the work of these six Farm Bureaus this year amounted to $619,711.17?—New Mexico Farm Courier.

Test, clean and treat all seeds for this year's planting.

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

What Does Early Hatching Mean?

Early hatching means chicks that are past the danger point before the hot weather sets in.

Early hatching means chicks less troubled by lice and disease.

Early hatching means more chicks raised.

Early hatching means a longer growing season.

Early hatching means better grown chicks.

Early hatching means higher prices for the surplus cockerels marketed as broilers.

Early hatching means well matured pullets which begin to lay in the fall.

Early hatching means eggs from the pullets while the hens are molting.

Early hatching means eggs in the fall and winter when prices are highest.

Early hatching means early maturing pullets that become broody earlier the following spring.

Early hatching means greater profit.

Chickens Molt Too Soon

Is there any unusual cause for young chickens to molt the first fall? Mine do and won't lay until spring.—W. L. S., Lincoln county, Colo.

There is a possibility of hatching chicks too early for good winter laying. The proper time is to get them hatched just early enough to bring them into full maturity about November. Young chicks will go through several moults during the chick period, but when coming into lay in November will not give any trouble by moulting.

Fowls Have Diphtheritic Roup

Ans. to A. B., Pueblo:

If your fowls are troubled with diphtheritic roup you have as much trouble on hand as the hog breeder with hog cholera in his herd and will need to be just as careful and thorough in your campaign of cleaning up. The only thing we have found to be of any help is silver nitrate used to burn out the sores. In very bad cases we would suggest that you try no remedy at all but destroy the birds. It goes without saying that every affected bird should be isolated and that all litter and refuse of any kind over which those fowls have ranged be burned. Yards, buildings and fences should all be thoroughly sprayed and saturated with some coal tar product like zenoleum. This disease is likely to break out a year from now, so the best precautions you can take are none too sure. We are sending you Farmers' Bulletin No. 530 which describes this disease quite fully on page 12. You will also find the other remedies mentioned.

About Ducks and Geese

Please tell me how to feed my ducks and geese for eggs. I have only 2 geese and the gander. Intend to try them. I have 6 ducks and one drake. Do you think I should get another? I have wintered them on cooked potatoes and rutahagas. They have had wheat and once in a while a few peas. Also alfalfa leaves. The geese eat alfalfa and wheat mostly. They are all in good flesh but not real fat. I don't want to hatch any ducks before early in May and then I am going to use an incubator and not hatch any late ones, as those were what I lost so many of last year. Do duck's eggs require the same heat and care as hen's eggs while hatching. Please tell me how you think best to handle young ducks.—Mrs. B. R., Chaffee county, Colo.

We are sending you some bulletins on ducks and geese which will answer your questions more fully than we can by letter. It seems to me that you would have better success in feeding ducks and geese to use more ground feed; while vegetables are a splendid feed, one can overdo a good thing, and to make a mixture of about one-half vegetables and one-half ground fed will give better results. The ground feed may be made up of bran, middlings, corn chop, ground barley and ground oats or anything obtainable. Two or three of these grains would be better than any one. You will find that your geese will thrive on green pasture in the summer with practically no other feed. Duck eggs require the same heat in the incubator as chicken eggs.

Newcomer Wants Advice

Will you he so kind as to send me literature pertaining to successful poultry raising in Colorado? I am a "tenderfoot" in this state and find that poultry here must he treated differently than in the warmer climate from whence I came. I read your department in Western Farm Life with much interest, and, I hope, profit.—H. C. D., Kit Carson county, Colo.

Under separate cover we are sending you such bulletins as we have on poultry keeping that we think will be of interest to you. Much of the material you read, especially about the immense profit derived from this business, should be taken with a grain of salt. Because of so much misunderstanding and because of so many untrue statements by promoters we have tried in the columns of Western Farm Life to present the practical commercial side of poultry keeping, by trying to bring the actual experiences of men who are really making a success of the poultry business in a commercial way. There is no better time to get into the game than right now, and we know that there is a good legitimate profit in the business for anyone who will be consistent and conservative. We also believe that there is no state offering better opportunities, on the whole, than Colorado.

A Poultry Reading Course

Would you kindly advise me where I can purchase books, which give practical instruction in poultry raising, especially on poultry houses, incuhator houses and brooder houses.—R. R., Chaffee county, Colo.

We are suggesting as poultry books: Poultry Production by Lippincott, published by Lea and Febiger, Philadelphia, Pennsylvania, and Productive Poultry Husbandry, published by J. B. Lippincott Company, Philadelphia, Pennsylvania. I would suggest also that you write to T. M. Potter, Downers Grove, Illinois, for his book. "Don't Kill the Laying Hen," also suggest that you write to Reliable Poultry Journal Publishing Company, Quincy, Illinois, for catalog of their booklets. Some of these you will want; others will be of no interest to you. If you equip yourself with one of the two books mentioned, Potter's book and some of the pamphlets of the Reliable people and subscribe to the Reliable Poultry Journal and any others you may care to have, I think you will be as well prepared to get a thorough poultry course as can be had through the printed page. I have a set of the books and pamphlets sent out by poultry correspondence schools and there is nothing in them that is not contained in these books I mentioned and the cost is many times more. If there is any advantage in the correspondence schools it is in the fact that the material comes in small quantities and one is obliged to take the medicine in regular doses; if you can control yourself in the study of these other books and be thorough in your work you are getting the same results. Of course it goes without saying that you should have a flock of birds and practice on them as you go along. With these helps and practice, possibly a visit with one or two good practical poultrymen there is no reason why you should not be able to master the game. We are sending you under separate cover a number of government bulletins. It would be a good plan to write to the Department of Agriculture at Washington or to your representative in Washington asking to be kept on the mailing list for future publications.

Production of Clean Milk

(Continued from page 26)

On our farm we follow a simple method; that is, we rinse the utensils first in cold water, wash them afterwards in hot water with a cleansing solution (soda), rinse afterwards in hot water, and put them in a sterilizer. When, however, the milk producer is not bound to deliver milk with a certain limit of bacteria, as the certified milk, of which it is required, that it does not contain more than 10,000 bacteria, the utensils may be placed in a dust free room, where the sun has free access. We use only one strainer and that is on the top of the cooler. Strainers and clarifiers generally serve to take dirt out of the milk, but it is far better to prevent dirt from getting into it. Also, the dairyman must be clean. We have had several milkers with an inborn capacity or instinct to be clean, and that is indeed an excellent quality, but we have also had many dressed up in white suits who were clean to look at, but whose practices were not in conformity with their exterior appearance; in other words, who were dirty. Not the clothes make the milker but his deeds.

As a final factor for the production of a clean milk cooling should be mentioned. It matters little how clean the milk has been obtained, if it is insufficiently cooled; all the trouble and care is futile. For the cooling it is not necessary to have expensive machines, or brine pumps. A good cooler, through which water of about 52 degrees Farenheit circulates, will do. For certified dairies a brine pump makes the work easier, but it is not absolutely necessary, as we obtained even with well water of 54 degrees Farenheit bacteria counts as low as 600.

Co-operative Hog Shipping

Co-operative shipping of hogs was demonstrated by a carlot exhibit at the stock show. This shipment comprising 66 hogs, originated in Larimer county and was consigned to the Prey Brothers Commission Company at the Denver yards. Six farmers contributed to the lot, their offerings ranging from one animal to thirty. There were several breeds, and both light and heavy hogs, but all good, marketable stuff. They brought 16 to 17 cents. The shipment was made up by County Agent D. C. Bascom, who notified the farmers of the plan for a try-out of co-operative shipping. Prey Brothers took care of the farmers' interests at the yards, sorting the shipment first as to class and then, after the sale was made to the Coffin Packing Company, they were again sorted according to ownership, so that each owner could be credited with his share of the proceeds. The hogs were marked with the owners' initials by clipping. W. W. Swearingen, familiarly known as "Billie, the Hog Man," answered many questions about the shipment from farmers who were interested.

Hog shipping associations have been organized in the Montrose district, on the Uncompahgre Reclamation Project and found successful in solving the marketing problem for farmers having limited numbers of hogs. Then there is the Holyoke, Colorado, Hog Shipping Association, which for several years has had a carload of hogs at the Denver yards every Monday.

Farmers desiring detailed information about the formation of such associations should write to the Agricultural College at Fort Collins for copy of a bulletin by Prof. R. W. Clark entitled "Co-operative Marketing of Livestock."

Europe Likes American Milk

European people have learned to like American dairy products. Exports of condensed milk to Europe rose from 16,000,000 pounds in 1914 to 530,000,000 pounds in 1918, and there were notable increases in exports of other dairy products. Much of this may be due to abnormal war demands, but the United States Department of Agriculture believes that there is both an opportunity and a tendency to expand in this direction over prewar requirements. A normal increase in dairying in this country, the department thinks, is fully justified, provided there is the necessary increase in feed crops.

HOLSTEINS IN THE MILKING CONTEST

In the milking contest held at the recent National Western Stock Show, two cows from the B. F. Simpson Holstein herd, made a remarkable showing. They were Ismay Belle de Kol and Ozark Peggy Mercedes. The latter was first in milk production, first in butterfat, and second in feed cost per pound of butterfat. Ismay Belle de Kol was second in milk production.

Save the Baby Chicks

Our book, "CARE OF BABY CHICKS," and a package of GERMOZONE are the best insurance against chick losses. Those formerly losing more than half they hatched now raise better than 90 per cent. To you who have never tried GERMOZONE, we will send postpaid, book and package as above. You pay, if satisfied, 75c; 60 days' trial. We trust you.

Druggists and seed dealers sell GERMOZONE, the best poultry remedy and preventive. For old and young.—bowel trouble, colds, roup, musty or spoiled food, limber neck, chicken pox, sour crop, skin disease, etc. Sick chicks can't wait. Do it now.

GEO. H. LEE CO., Dept. 445 Omaha, Neb.

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IMMENSE PROFITS easily and quickly made. We furnish stock and pay you $2.00 each and expressage when three months old. Contracts, booklet and full information 10c. Nothing free. Address

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Kills prairie dogs, ground hogs, ground squirrels, pocket gophers. Saves alfalfa. Experimental stations approve. 1000 tablets F. P. $1.25. Warranted. Ask your druggist or send direct. Booklet Free. Address

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For Prairie Dogs, early season best. Put tablets outside holes.

$4800 A YEAR on a 50-foot lot raising Rufus Red Belgian Hares and Flemish Giant Rabbits. We furnish high grade stock and pay $7.00 a Pair, also express charges, for all you raise from same. We need 3000 weekly. Get our FREE BOOK telling how to feed, breed and house. Get started right. Don't breed common rabbits.

DAVIS & SON, 128 AVE. 31, LOS ANGELES, CAL.

62 BREEDS Most Profitable Pure-Bred Chickens, Geese, Ducks, Turkeys. Hardy fowls, eggs, and Incubators at lowest prices. America's Pioneer Poultry Farm. Write for valuable Poultry Book FREE.

F. A. NEUBERT, Box 381 Mankato, Minn.

Poultry Book Latest and best yet; 144 pages. 215 beautiful pictures, hatching, rearing, feeding and disease information. Describes busy Poultry Farm handling 53 pure-bred varieties and BABY CHICKS. Tells how to choose fowls, eggs, incubators, sprouters. Mailed for 10 cents.

Berry's Poultry Farm, Box 66, Clarinda, Iowa

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

L. D. GOOCH, SEWARD, KANS., WILL SELL R. C. Brown Leghorn cockerels $2 each if taken soon.

SINGLE COMB WHITE LEGHORN COCKERELS, $2.00 each. Eggs and chicks. Mrs. C. C. Cole, Levant, Kan.

SINGLE COMB WHITE LEGHORN EGGS, LAYing strain. Cockerels, $2.25 each. Vivien Hind, Madison, Kans.

FANCY SINGLE COMB BROWN AND WHITE Leghorn cockerels, $2.00 to $3.00. H. N. Holdeman, Meade, Kan.

PURE-BRED SINGLE COMB WHITE LEGHORN cockerels, $2 each. From healthy flock. W. E. Roggenbach, Wisner, Neb.

HEWITT'S S. C. BUFF LEGHORNS, BLUE ribbon winners. Eggs $2.50 a setting; $6.00 per 50. Mrs. Philo Hewitt, Lexington, Neb.

EGGS—SINGLE COMB WHITE LEGHORNS, Ferris highest laying strain; $5 per hundred. Chicks, 15c each. Mrs. Anna Hege, Sedgwick, Kans.

HAVE A FEW WHITE LEGHORN PULLETS left, also some yearling and 2-year-old hens and cockerels, priced right. Ralph Hixenbaugh, Pine Bluffs, Wyo.

PURE BLOOD SINGLE COMB BROWN LEGhorns. Setting eggs from healthy range flock, $1 per 15; $6 per hundred, prepaid. Order today. C. O. Johnson, Boyero, Colo.

WINTER LAYING SINGLE COMB WHITE Leghorns, standard bred and Hoganized, 250-egg hens. Flock laid Jan, 1917, 91¼ per cent. Eggs and chicks. Barlow & Sons, Kinsley, Kan.

EXTRA GOOD SINGLE COMB WHITE LEGhorns, pure white, low-tailed, males mated to heavy laying females. Eggs $6.00 per 100; setting, $1.50. Order now. E. D. Allen, Inland, Neb.

S. C. BUFF LEGHORN EGGS, 15 FOR $2.00; 120 for $10.00. Six pens trapnested at $3.00 and $5.00 setting. All prepaid. Few cockerels. Free "Book of Buffs." Pearl Haines, Rosalia, Kan.

"RUSSELL'S RUSTLERS," AMERICA'S FAmous Single Comb Brown Leghorns. Free catalog. Winners at largest shows. Eggs prepaid, $2.00 per 15 and up. Geo. Russell, Chilhowee, Mo.

BREEDING OF BRED TO LAY SINGLE COMB Brown Leghorns in large quantities a specialty;; 50 for $4.00; 100 for $7.00; 150 for $10.00, prepaid. Cockerels, $3.00 to $6.00. Chas. Bowlin, Olivet, Kan.

HATCHING EGGS FROM SINGLE COMB White Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Order now for future delivery. Robert Shumway, Fountain, Colo.

UNIVERSITY PARK POULTRY RANCH—BABY chicks and hatching eggs. Single Comb White Leghorn chicks from 241 egg trapnested stock, $18 per hundred, prepaid. Write for circular. 2520 S. Clayton St., Denver, Colo.

SINGLE COMB BROWN LEGHORN COCKERels, $2, $2.50 each. Also one White Holland tom. Leghorn eggs for hatching in season, $1.50 per setting of 15; $7 for 144 eggs. Mrs. Cooper May, Route 2, Garfield, Kans.

BUFF LEGHORNS—BEST LAYERS ON EARTH. Baby chicks. Hatching eggs now ready—$1.50 for fifteen, prepaid. Book orders early. Number of customers disappointed last season. Classy cockerels. Champney, 25 South Logan, Denver, Colo.

SINGLE COMB WHITE LEGHORN CHICKS, 15 cents; from world's best strains, Young Smith and Ferris, from hens that pay $8 each per year from eggs. Layers, winners and payers, $5 to $25 each. Clara Colwell, Smith Center, Kans.

SINGLE COMB WHITE LEGHORNS—OUR Leghorns are bred to lay more eggs at all seasons than common hens and especially in winter. It pays to get eggs and chicks from a heavy laying strain. Fourteen years in the business. Hatching eggs and chicks. Riverside Poultry Farm, H. D. Walker, La Junta, Colo.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and facts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Colo.

PLYMOUTH ROCKS

PARTRIDGE PLYMOUTH ROCKS—THE beauty and utility breed. Eggs for hatching, $3.00 for fifteen eggs; after May first $1.50 for fifteen eggs. Satisfaction guaranteed. A. R. Stover, Manzanola, Colo.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Blunt, Route 1, Greeley, Colo.

ORPINGTONS

"SHANKS ORPINGTONS" S. C. BUFF. EGGS for hatching, utility, $2.00 per 16; $6.00 per 60, and $12.00 per hundred. Exhibition pen eggs at $3.50 and $5.00 per 15; $12.00 per 60; 80 per cent fertility guaranteed. A few good males and females to sell at bargain prices. F. M. Shank, Route 2 A., La Junta, Colo.

S. C. BUFF ORPINGTONS—EGGS, $2 FOR 15, or $7 per 100, postpaid. Mrs. S. S. Tate, Orlando, Okla.

$6.00—100 BUFF ORPINGTON EGGS, $6.00. Worth $10.00 for only $6.00. C. R. Wilson, Route 3, Herman, Neb.

BEST WINTER LAYERS, WHITE ORPINGTON eggs, $1.50 per setting of 15. Mrs. W. H. Persyn, McClave, Colo.

S. C. BUFF ORPINGTON COCKERELS FOR sale. Eggs for setting. Pens now mated. Chas. I. McKee, Wood River, Neb.

FINE BUFF ORPINGTON COCKERELS, $2.00 to $5.00. Eggs, $1.50 for 15, or $6.00 per hundred. Mrs. Frank Neel, Beverly, Kan.

WYANDOTTES

WHITE WYANDOTTE COCKERELS, ONLY A few left. Mrs. Geo. Wheeler, Otis, Colo.

WHITE WYANDOTTES, "KANSAS BEST," $1.00 to $3.00 per setting. D. E. Twiggs, Clearwater, Kan.

WHITE WYANDOTTES—COCKERELS OF quality, $3 and up. Miss Anna Lansdown, Fort Lupton, Colo.

REGAL WHITE WYANDOTTE EGGS, $1.50; $2.50; $5 setting. Satisfaction guaranteed. Frank Henderson, Solomon, Kans.

RHODE ISLAND REDS

ROSE COMB RHODE ISLAND RED COCKerels from Beans Blue Ribbon stock. John McCrory, Sterling, Kan.

FOR SALE—PUREBRED RHODE ISLAND RED cockerels. Best layers. C. E. Gordon, Overland, Colo. Phone Englewood 290J2.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

ROSE AND SINGLE COMB RHODE ISLAND Red eggs for hatching, $3.00 per fifteen, or $15 per hundred. Good hatch guaranteed, exhibition stock. J. M. Woita, Weston, Neb.

DISPERSION SALE ROSE COMB RHODE Island Reds. Cause: death of Mrs. Huston. Mated pens, hens, cockerels, cocks sired by roosters costing $50.00 to $75.00. Sacrifice prices. W. R. Huston, Americus, Kan.

FOR SALE—S. C. RHODE ISLAND RED EGGS for hatching at $1.50 per setting of 15 eggs; or $5.50 per 105. The whole flock is headed by nice, large boned, dark red cockerels. Order early. Mrs. Joe Brandl, Route 7, Hartington, Neb.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

SUSSEX

RED SUSSEX—LIMITED NUMBER EGGS, TWO cockerels and few females for sale. Won at Chicago Coliseum in 1916 and 1917. Rees Evans, Box 29, Ardmore, Okla.

ANCONAS

ANCONA COCKERELS—GOOD STOCK. $2.00 and $4.00 each. J. L. Moulton, North Loup, Neb.

S. C. ANCONAS—FOR MORE EGGS TRY OUR Anconas, bred from the famous Sheppard strain which holds the world's records for egg production. They fill the basket with large white eggs. Price, $2 per fifteen; $8 per hundred. Mrs. J. B. Shenk, R. F. D. 2, La Junta, Colo.

SEVERAL VARIETIES

S. C. RED COCKERELS FOR SALE, $3 EACH or two for $5. Ed Grotenhuis, Crawford, Colo.

LARGE CHOICE ROSE COMB RED COCKerels, $5 each. Mrs. J. W. Songer, Kearney, Wyo.

ROSE COMB RED COCKERELS. TWO, THREE and five dollars each. Mrs. C. H. Jordan, Wakarusa, Kan.

BARRED ROCKS—THE WINNING, USEFUL kind. Cockerels and pullets. Arthur Gillette, 4423 S. 16th St., Omaha, Neb.

LIMING'S HEAVY WEIGHT WHITE ROCKS. Eggs, $2 per 15. Quality Fruit and Poultry Farm, Manzanola, Colo.

WINTER LAYING BARRED ROCK AND White Orpington eggs, $5 per hundred. Myrtle Stuller, Bristol, Colo.

EGGS—IVORY STRAIN WHITE ROCKS, NONE better; send for description and prices. A few cockerels to close out, $5.00 each. E. Kaselack, Lyons, Kan.

EGGS FROM BIG BLACK LANGSHANS. EXTRA good, in perfect health, great egg producers. $2.00 for 15; $10.00 per 100. Ollie Ammon, Netawaka, Kan.

EGGS FROM OUR WINNING BARRED ROCKS. Pens mated with State Fair, Omaha and State Show winners. Send for catalog. Schwegman Bros., Walton, Neb.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

S. C. WHITE AND R. C. BROWN LEGHORNS, White Wyandotte Barred Rock, S. C. Reds. Roosters, 2.25 each, or three for $6.00. Barred Rocks and S. C. Red yearling hens and pullets, $15 per dozen. Wm. A. Draves, Lemoyne, Neb.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize winning, heavy laying strain. Write for mating list. E. A. Miller, Alma, Neb.

DO YOU WANT A GOOD, SMOOTH, VIGORous White Rock cockerel? Fifteen years linebred from persistent layers. Only a few left. Price is $5.00. W. E. Vaplon, Fort Collins, Colo.

EGGS FROM BUSHBY'S WINTER LAYERS, single comb, reds. $7.50 hundred, expressed from Pueblo. Flock established twelve years. H. A. Bushby, Rye, Colo.

TOLIVER'S PRIZE-WINNING WHITE ROCKS—won at Denver Stock Show. First and third hen, second cockerel. Setting eggs, also cockerels and pullets for sale. F. L. Roy Toliver, Box 144, Fort Collins, Colo.

SINGLE COMB BROWN LEGHORNS AND Barred Plymouth Rocks. Bred for winter laying. Eggs, $1.50 per setting, $6 per hundred, prepaid. Investigate our record. Mrs. W. A. Estes, School, Mo.

PUREBRED BLACK AND WHITE MINORCAS, barred and white Rocks, Rhode Island whites and reds, white, brown and buff Leghorns, Black Langshangs and Buff Orpingtons. All orders filled for eggs at $7 for 100 and $1.50 for 15. C. W. Hamilton, Garnett, Kans.

100,000 BARRED ROCK AND RHODE ISLAND Red eggs wanted for hatching, also other breeds. Farmers please answer. Our cash price, $2 to $3 per case more than Denver commission houses. The Denver Incubator Co. and Hatchery, 175 S. Broadway, Denver, Colo.

FOR SALE—ONE HUNDRED BARRED ROCK cockerels Our barred rock cockerels are raised not only from prize winners but the best of layers; breeding stock at $5 each; prize winners at $10 to $15 each. Write J. R. Anderson & Son, Fort Morgan, Colo.

BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

TURKEYS

WHITE HOLLAND TOMS, $6.00. Mrs. G. W. Combs, Fowler, Colo.

FIVE WHITE HOLLAND TOMS, $7.00 EACH. P. L. Kimler, Atwood, Colo.

MAMMOTH BRONZE LARGE BONE TURKEY toms, 12.00. Hens, $7.50, or three for $21. Wm. A. Draves, Lemoyne, Neb.

MAMMOTH BRONZE TURKEYS FROM 40-LB. toms and 22-lb. hens. Young toms, 24-26 lbs., $10.00; hens, $7.00. Laura Ullom, Lamar, Colo.

GIANT MAMMOTH BRONZE TOMS. PRIZE winning stock, thrifty range-raised, $8.00-$15.00. No hens left. W. H. Streeter, Dighton, Kan.

PUREBRED BOURBON RED TURKEY EGGS, 12 for $5.00; postpaid, fertility and safe delivery guaranteed. Vivian Anderson, Oswego, Kan.

GIANT MAMMOTH BRONZE TURKEYS, BEAUtiful plumage, finest in America. Not related. Toms two years old, $24; hens, eight, $12 each. Fancy eggs, $8-$10 dozen. Brooks Turkey Farms, Staley, N. C.

BABY CHICKS

BABY CHICKS—ORDER EARLY, GET CHICKS from the winter layers. Price list. Sarver's Poultry Farm, Hastings, Neb.

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatchery, Smith Center, Kans. Shipped anywhere, 15 cents.

YOUNKIN'S DAY-OLD CHICKS—BARRED Rocks, Reds, White Wyandottes, Buff Orpingtons, 17c. White Leghorns, 15c. 50 or more prepaid. Younkin's Hatchery, Wakefield, Kans.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take cars of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

DENVER BABY CHICK CO., 2436 W. 43RD Ave., Box 1323 Denver, Colo. Booking orders now for quality baby chicks. White Wyandottes, Buff Orpingtons, White Orpingtons, Rhode Island Reds, White Rocks and Barred Rocks and Leghorns. Strong and vigorous chicks from carefully selected, heavy-laying stock. Live delivery guaranteed. Prompt attention to all orders, large or small. Write at once for prices.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have been making the Denver Incubators and hatching and selling baby chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18. Why not buy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live. Hatching eggs, $7.50 per hundred. Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

HIGH GRADE HOLSTEINS FOR SALE—9 cows and 8 bred heifers, $1,500. Wilson Counts, Hasty, Colo.

REGISTERED POLLED DURHAMS—LARGE, growthy, bony, quality bulls. Two years old next April. Mott Rathbun, Ord, Neb.

FOR SALE—HIGH GRADE HOLSTEIN OR Guernsey heifer calves, $24 crated or $30 prepaid. Herbert Taft, Whitewater, Wis.

FOR SALE—MILKING STRAIN SHORTHORNS. Three young bulls, roans, grandsons Rose Glenside. W. A. Wight, Las Animas, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

HEREFORD CATTLE FOR SALE—100 HEAD young Hereford cows and 50 calves for $8,000. One carload Hereford yearling heifers at $30.00 per head. Address Owner, Box 35, Hillside, Fremont County, Colo.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $150 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemoor Farm, Littleton, Colo., Caldwell Martin, Owner.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES

IMPORTED BLACK PERCHERON STALLION for sale, 11 years old, weight 2,100 pounds. Sure breeder. John Gruber, Eustis, Neb.

REGISTERED BELGIAN STALLION COLTS, two years old. Registered mares, weanlings up to bred mares. Good Jack. E. T. Purinton, Wilcox, Neb.

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo. On U. P. R. R.

FOR SALE—THE SURPLUS STALLIONS from small herd of registered Percherons. Lanyon Stock Farm, Gresham, Neb. Branch barn, Harrah, Okla.

FOR SALE—IMPORTED BELGIAN STALLION, Maurice de Frasnes, American No. 7926, coming eight years old. Sound, good producer. Address, Timothy Thut, Route 2, La Junta, Colo.

FOUR REGISTERED PERCHERON STALLIONS. Two, three and six years old. Weight 1,600 to 2,100 lbs., color black. Prize winners at Denver Stock Show. R. A. Chase, Box 185, Fort Morgan, Colo.

THE MILLS PERCHERON HORSE FARM OF Hastings, Neb., has for sale four purebred stallions, 200 Hampshire bred sows, 20 Hampshire boars and 50 barred Rock cockerels. Can use Liberty Bonds.

"KING," DAPPLE GRAY PERCHERON STALlion, foaled May 20th, 1911. Purebred and best of dispositions. Sire and dam weighing 2,100 and 1,800 respectively. Shows four seasonsof large, heavy-boned, growthy colts. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

WANTED TO HEAR FROM OWNER OF GOOD farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

FOR SALE—720-ACRE STOCK RANCH ADjoining forest reserve. For particulars, write I. D. Russell, Pagosa Springs, Colo.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WHITE SWEET CLOVER REASONABLE—SOW on snow, wheat or corn stubble. John Lewis, Madison, Kan.

A SMALL AMOUNT OF CHOICE RED FODDER cane seed at $5 per hundred. H. E. Morton, Oberlin, Kans.

SUDAN GRASS SEED RAISED ON DRY LAND, 1918 crop, commercially cleaned. A. J. Tatman, Wiggins, Colo.

FOR SALE—LARGE WHITE BLOSSOMED sweet clover seed. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

WANTED—160 BU. MACARONI OR MARQUIS wheat. Send sample and price. Ira L. Sager, Elizabeth, Colo.

FOR $1.00 WE WILL SEND YOU POSTPAID 10 apple, peach or pear or 7 cherry or plum, all budded, or 20 grapes, gooseberry, currant or rhubarb, or 25 raspberry, blackberry or dewberry, or 50 asparagus, or 100 spring bearing or 50 Everbearing strawberry plants, or five 2-year roses or 50 seedling, or 10 transplanted red

(Turn to page 30)

FIRST PRIZE HEIFER CALVES
1919 Denver Stock Show
Sold to COLORADO STATE REFORMATORY
Buena Vista, Colorado

SECOND PRIZE BREEDING HEIFERS
1919 Denver Stock Show
Sold to CYRUS A. TOW
Norway, Iowa

The Hereford Corporation of Wyoming

CHEYENNE, WYOMING
Box 876

DENVER, COLORADO
406 Live Stock Exchange

RANCH SIX MILES EAST OF CHEYENNE

We have on hand for sale some good coming two-year-old Bulls
Write Us

Farmers' and Stockman's Exchange

(Continued from page 29)

cedar or otber evergreens. Many otber bargains. Catalog free. Manbattan Nursery, Manhattan, Kan.

ALFALFA SEED—I SELL IT CHEAPER THAN any Denver bouse. The free sample tells the story. Alfalfa John, Beaver City, Neb.

ALFALFA SEED—CERTIFIED GRIMM AND Common. Extra fine seed. Prices and catalog free. J. D. Long, Seedsman, Boulder, Colo.

WANTED, SEEDS—ALFALFA, SWEET CLOver, millet and cane spletz. Mail samples, advising quantity for sale to Mitcbelhill Seed Co., St. Joseph, Mo.

SWEET CLOVER, WHITE BLOSSOMS, RE-cleaned, no hulls; sow now, 10 lbs. per acre; 30c per lb., F. O. B., sacks free. Pearl Haines, Rosalia, Kan.

10 LARGE PACKAGES OF GARDEN SEED sent anywhere prepaid for 50c. Regular 10c size; one eacb of watermelon, muskmelon, cabbage, carrots, cucumbers, lettuce, tomato, pepper, pumpkin and onions. Catalog free. Home Nursery Co., McCune, Kan.

FOR SALE—WHITE SILVER MINE AND CATtle King seed corn. Guaranteed. 98 and 100% vital. $5.00 per bu., money witb order. John Lichty, Axtell, Kan.

BEANS FOR SALE—GOOD WHITE NAVY beans, 10c per pound in lots 120 pounds, sacked. F. O. B. Rushville. From grower to consumer. F. C. Kohout, Rushville, Neb.

ONION SETS

FOR SALE—WHITE SILVER SKIN BOTTOM onion sets, run 10,000 per bu.; $4.75 f. o. b. G. C. Curtis, Hutchinson, Kan.

HELP WANTED

Advertisements nnder this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 eacb. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements nnder this head will be insertsd at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisber Mfg. Co., 204. St Louis Mo.

BUY RICH, RIPE AND MELLOW OLD KENtucky leaf tobacco, direct from producer to consumer; no doping or doctoring, just tobacco; 50c per pound, postpaid. Francis-Qualls, Dukedom, Tenn.

SPIRITUALISM—WHENCE? BIBLICAL SEcret, facts. Hundred pages, ten cents. Greig, People's Bookman, Parker, S. D.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

AUTO

TIRES, FORD, $6.75. LARGER SIZES IN PROportion. Lowest tube prices. Booklet free. Economy Tire Co., Kansas City, Mo.

WANT A BELT POWER TRANSMITTER FOR your Ford? Then don't pay more than $12.50 for it. Buy the Simplex; simplest, handiest and most practical. Information free. Frank R. Weisgerber, Salina, Kans.

KODAKS

KODAKERS—SAVE MONEY ON YOUR FINishing. Send me two negatives for free samples and prices. Saunders, Box A-308, Boulder, Colo.

KODAKS, CAMERAS, PHOTO SUPPLIES—Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c eacb and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention tbis paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. Tbe Colorado Honey Producers' Association, Denver.

PURE EXTRACTED ALFALFA HONEY. 60 lbs. in can, $13.50. One case, two cans, $26; guaranteed. J. Van Engen, Producer, Crawford, Colo.

LUMBER

LUMBER—SHINGLES—POSTS SOLD DIRECT. Karlot Lumber Co., Tacoma, Wasb.

POSTS — LUMBER — SHINGLES. LOWEST prices, delivered your station. Send lumber list for estimate. Pay after unloading. Kirk Co., Box 1138-S. Tacoma, Washington.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Evchange, Seattle, Wasb

BICYCLE SUPPLIES

FREE CATALOG OF BICYCLE SUPPLIES Everything for the bicycle; prices very low. Write today. William Mullin, Box 4, LaPorte Colo.

TYPEWRITERS

REBUILT TYPEWRITERS OF ALL MAKES, $15 up. Salina rebuilts make good. Write for price list of typewriters and office supplies. Salina Typewriter Co., Dept. F, Salina, Kans.

FARM MACHINERY

WANTED — THREE OR FOUR BOTTOM lister, 40-80 Avery. Kelly Ambler, Stapleton, Neb.

TRACTOR OWNERS—WE SEND EXPERT mechanics, repair, overhaul tractors, engines, autos, anywhere. Reasonable prices. Supply parts. Expert operators furnished. Tractor Service Co., 1717 15tb St., Denver, Colo.

Steamboat Gold

(Continued from page 23)

you came," said Randolph conclusively.

"The natural possibilities were present, we improved them," the teacher said, his homely face quickening with modest pride at this spontaneous praise. "The boys take care of the lawn when I am away. I bought them a lawnmower. The board wouldn't have anything to do with it; suggested a scythe; stood out pretty stubbornly for a scythe, in fact."

Atchison unlocked the door, requesting Randolph to wait outside until he had opened the windows and shutters and let in the air and light. He went banging the shutters back against the weather-boards up one side, back along the other, and appeared in the door presently, perspiring and smiling, host in his own proper domain.

"I employ myself here at times during the vaction, relieving in some degree the monotony of bare walls," said the master. He waved his hand with lofty gesture, his head thrown back, his eyes roaming the interior, but all in the attitude of self-depreciation and reluctant modesty of one who works from the heart.

"Fine!" said Randolph, surveying the bewildering display of chirographic art which the walls presented; "great stuff, Mr. Atchison, gr-eat stuff!"

The master had turned the walls of the schoolroom, from wainscot to ceiling, into one great blackboard, upon which he had expended his penman's passion for curves, stems, strokes, with a result truthfully amazing, if not entirely satisfying to the critical estimation.

When the wonders of the walls had been canvassed and Atchison had satisfied himself that his possessions had not been disturbed in his absence, they turned back again toward Captain Gregg's, where, the master explained, he boarded while keeping the school.

Randolph expressed surprise as they returned along the road where the shadow of the corn reached far and broke the last blistering touches of the sun, that a man of Atchison's parts should sequester himself in the backwoods when he might be giving, as well as receiving, more in a bigger field. Atchison let go that soft fluttering little sigh again, which seemed to rise from his lips unconsciously.

"I could have done better. I have just refused an offer with a much bigger outlet, Mr. Randolph, but I've stayed on. A man creates ties, you know; they grow up around him unseen. He's not aware of them sometimes until he attempts to go away. Then they assert themselves in their small, tender hold upon his heart; they twine and pull and hold him back. Many a man has wasted the noble energy of his life in a quiet place, unknown and buried, because he lacked the courage to rend the ties that clasped him like the fingers of innocence."

"That is true. I have known such instances myself. All my life I have been passing the stranded hulks of men who died alive before I was born because they were not brutal enough to break away. It calls for a certain tincture of brutality to make a go of it in this world, Mr. Atchison, don't you think?"

"Yes; that is why so many of the unworthy succeed. Ah-h-h, if only the worthy alone could command the passport to success!"

(To be continued.)

Glendale Stock Farm

Irvindale Rowdy
Grand Champion, Chicago, 1918
Grand Champion, Denver, 1919

Breeders of
Belgian horses,
Polled Hereford cattle.

Young Stock
Always For Sale.

J. D. BRUNTON, Aspen, Colo.

WRITE GALLOWAY TODAY OF WATERLOO

For new 1919 Book. Save $25 to $200 on Gasoline Engines, Manure Spreaders, Cream Separators and other implements. Sold direct from factory. Our 300,000 satisfied customers prove merit of goods and direct selling system. Close shipping points. Mention implement interested in. Write today.

Wm. Galloway Co., Box 1827 Waterloo, Iowa

Holstein Cattle

We offer cows and heifers due to freshen soon, also calves. All bred for production. Write W. C. KENYON & SONS, Box 39, Holstein Stock Farms, Elgin, Ill

Majestic Sunbeam Herefords

Herd headed by "Majestic Sunbeam" by "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" by "Statesman" — Dam "Armour Sunbeam" by "Beau Brummel Jr." by "Beau Brummel" by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by "Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM in good flesh weighs 2,500 pounds. He is the biggest boned Hereford Bull in the country. Has all the bone of the old Bates strain and of the Cruikshank Shorthorn, but yet he is a Hereford

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Will sell 20 head of Majestic Sunbeam heifers, from two to four years old, all bred to "Beau June," guaranteed to be in calf, at private treaty.

Also have several head of big-boned yearling bulls, sired by Majestic Sunbeam, and a few yearling bulls sired by "Beau Andrew" from Majestic Sunbeam heifers.

It is a pleasure for me to take parties to my ranch and show them "Majestic Sunbeam" and "Beau Andrew" bulls and heifers.

If you are looking for best blood and quality and the biggest boned bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and bulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards **DENVER, COLORADO**

I also have for sale five registered Airedale dogs three months old. The best bred Airedale dogs in Colorado. Price $15.00.

Percheron Stallions and Mares

CHAMPAGNE
No. 51753 (65402)

NEGRO
No. 131780 (113149)

Sure Breeders
Sound
Bone and Fine Quality
Colorado Acclimated

Zang's Elmwood Stock Farm

Department H, Broomfield, Colo.

THE ADOLPH J. ZANG INVESTMENT CO., Owners

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

Do you notice the Majesty's are "going over the top" in all departments? I have recently added "Majesty's Feather Lad" to my herd. He is out of a daughter of old Royal Majesty, with a test of 712 lbs. butter, and a show cow, and sired by a grandson of Royal Majesty. He is fine individually, too. Where can you beat this breeding? I have one or two splendid bull calves of Majesty breeding, and can spare a few heifers.

In Durocs, am all out of fall boars, but have a few splendid spring boars, by an Alblan Chieftain boar, and out of Critic-bred sows. Sold out of spring gilts. Have a yearling bred sow to sell.

A. M. McCLENAHAN, Greeley, Colorado

THE L. G. DAVIS HEREFORDS

ANXIETY BRED — Beau Carlos 2nd No. 352001 — The Greatest Living Hereford Sire

SIRES IN SERVICE — Bonnie Weston No. 558495 — Son of Bonnie Brae 15th

Wyoming 4th No. 603868—Champion Senior Yearling Bull of the 1919 Show. Sired by Grand Champion Wyoming.

Yearling bulls and heifers for sale at Colorado ranch, 2309 S. Federal Blvd. Ranches near Saratoga, Wyo., and Denver, Colo. Visitors always welcome.

Address L. G. DAVIS, Saratoga, Wyo.
Hotel Wellington, Denver, Colo.

DUROC-JERSEYS

We have the finest crop of Duroc-Jersey pigs that we have had in a number of years. They are sired by a son of Orion Cherry King, a grandson of Orion Cherry King, who is by a Grand Champion boar at National Swine Show two years ago, and by a boar of Golden Model breeding. We can give you as good a selection as can be gotten in the West. Write us your wants.

COLORADO AGRICULTURAL COLLEGE
Animal Husbandry Department **Fort Collins, Colorado**

HOLSTEIN BULL CALVES FOR SALE

MONTROSE COLORADO
PVR
PAHGRE VALLEY RANCH
QUALITY

POSSIBLY

we have just the individual you want. At any rate, we have some mighty good ones with fine advanced registry backing and from a clean herd. We offer only calves bred and raised by us. Let us tell you of them before you buy your next herd sire.

Prices $100 to $1,000

PAHGRE VALLEY RANCH
MONTROSE, COLO.

MILKING SHORTHORNS

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

THE HOME OF "BIG SENSATION"

Weight 1,204 Pounds
Largest Hog in the World

Big type Poland Chinas, choice bred gilts for sale at all times. Call or write.

A. J. ERHART & SONS
Ness City, Kansas

Shorthorn and Polled Durham Cattle

Valentine's Last. X12216. 452008 head of beef herd. Claywood White 427350 at head of milk type

STATE INDUSTRIAL SCHOOL
Golden, Colorado

Angora Goats For Profit

Raise Angora Goats for mohair, mutton (Angora Venison) and natural increase.

We will supply you with from three to a car load of these hardy, profitable animals. Nearly every farm can profitably handle Angora Goats. Write for full particulars, photographs of our herds, prices, etc.

RIKER LIVE STOCK COLONY
825 Flatiron Bldg., San Francisco

Registered Hereford Cattle

Herd Sires { Beau Aster 412145 / Prince Domino 499611

Young Bulls For Sale
Inspection Invited
Write us

Valley View Hereford Ranch
FULSCHER and KEPLER, Props.
Holyoke, Colorado

DEMING RANCH

Big type Poland China — with guarantee. Splendid line of bred sows and gilts for the season's trade. Over two hundred fall pigs ready to ship. All stock cholera-immune and furnished with Recorded Pedigrees. Write us your wants, or better still, come and visit our herd.

H. O. SHELDON, Herd Manager
Oswego, Kansas

Montair Durocs

We have a good March boar, the growthiest in his litter, at a price that will surprise you. Only two or three July boars left. We are sold out on bred sows and gilts.

GEO. E. MORTON & SONS
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Western Farm Life

DENVER, COLO.

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March 15·1919

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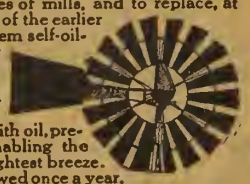

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Idaho Sheep Decrease

E. F. Rinehart, field animal husbandman of the University of Idaho, has devoted a large portion of his time during the past three years to investigation of the breeding, management and marketing problems in connection with mutton and wool production in southern Idaho. His report, which follows, should be of a great deal of interest to sheepmen.

In spite of the need for more sheep and wool, our range sheep are rapidly decreasing. A conservative estimate is that there will be 500,000 fewer range ewes wintered in Idaho this year than in the past. The situation is due to lack of profit and a general feeling of discouragement. The following are the main reasons for the present condition:

1. Curtailment of the range. The open land of the public domain has been taken up to such an extent that there is a serious loss of the spring and fall range upon which the range sheep industry has had to depend for existence.

2. Heavy losses on the range. Losses by straying have been exceptionally heavy. This has been due partly to the weather conditions and partly to the inefficiency and carelessness of the herders.

3. Increased expenses. Wages, supplies and feed have increased to such an extent that it now costs from $7,500 to $9,000 to run a range band one year.

4. Reduction of loans. The banks are cutting down on the valuation of sheep. In some cases only 50 per cent as much is loaned as last year.

Contrary to popular opinion, the sheep industry is not in thrifty condition. During the past few years the writer bas kept in close touch with several bands of sheep and kept account of all expenses. Only with the best of success, involving a certain amount of good luck, has any profit been made this year. There is a general feeling among the sheepmen that the money they have in sheep would be a better investment in farm lands, or even loaned out on interest. This condition has arisen, not because of a surplus of sheep, or a lessening of the demand for the products of the industry, but because of the custom of depending upon a few men to carry on the industry in this state. The demand for the products is so great that there is no reason or no excuse for a slump in the price of sheep.

The need for more sheep and more wool has never been greater than at the present time. (Written during the war.) The number of sheep in the United States is sufficient to supply only one-half of the wool needed in normal times. Each soldier requires thirteen times as much wool as the average civilian, hence with 3,000,000 men under arms there is an additional requirement for 1,800,000 pounds of wool. In times of peace the wool is used time and again in various forms of shoddy. In the case of an army in the field much of the wool is withdrawn from future manufacturing.

The return of the soldiers to civilian garb will require more wool. Never yet has the world supplied enough wool for all to be well clothed. At the present time the situation is more serious. The drop in sheep is not due to a surplus but to the failure of many people with an abundance of feed to bear their share of the burden.

In sections of the state a large percentage of farmers are keeping small flocks of sheep on the farms. Special mixed grass pastures are provided, or use is made of the ditch banks. Field investigations show that in most cases the ditch banks have as high a carrying capacity as the pastures. Where use is made of the waste feed on the ditch banks and in cleaning up the fields after harvest, the sheep are carried at less expense on the farm than on the range. A survey of the farm that carries sheep in this way shows that, aside from the profits, the sheep are an actual benefit. Considering the value in destroying weeds and the good profit returned from the waste feeds.

Thousands of good ewes have already been sent out of the state. Many of these will be slaughtered. Thousands more are for sale. They are moving rapidly. When they are gone buying will be more difficult. Now is the best time to buy a flock for the farm.—Idaho University News Letter.

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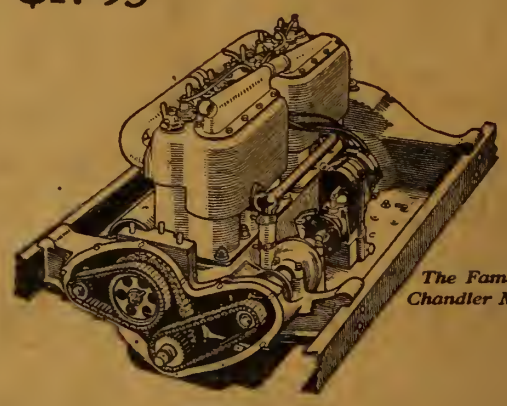

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Volume XXI | DENVER, COLORADO, MARCH 15, 1919 | Number 6

Silos Essential to Success in Western Stock Farming

WHAT FIFTY FARMERS WHO HAVE SILOS SAY ABOUT THEM

FARMING in the mountain states will not become a universally paying business until silos are as common on the general farm and ranch as wells and windmills. Whether the cash crop is wheat, beans, sugar beets, or potatoes, fertility must be maintained if the farm is to last and the farmer to keep out of the poorhouse; and that means a balanced program with livestock as the foundation. With only a four or five months' pasture season in most of our territory from the Kansas line to Nevada, and from Montana to Mexico, seven to eight months on dry feeds takes the profit out of the stock business. Grass puts on the flesh, brings milk and makes money in summer and silage will do it in winter. Silage will tide us over the occasional summer drouth.

Gradual restriction of the free range has heaped up the hay cost until the next hard winter may break up many a stockman. We had to pay as high as forty dollars a ton for hay in a few mountain sections in the winter of 1916-17, and in one case I know of baled hay was shipped in by parcel post to save stock, so it is high time we were studying the silo question.

Down in Oklahoma I know one stock raising farmer who has five silos in a row. H. C. Lockabaugh, the big Shorthorn breeder at Watonga, Oklahoma, can't get along without silos. John Painter, our own noted breeder of Lakeside Herefords, is a feeder of silage to his breeding cattle and stock cattle. Our steer and lamb feeders in Larimer, Weld and Boulder counties are building silos 40 feet tall, costing them from $800 to $1200, and one is not enough for them on a farm or in a feed lot. They are putting up two. One Weld county feeder has two high silos for corn and a trench for beet tops.

Ten years ago there were not over 100 silos in Colorado. Today we have more than 2,000. But we have some 70,000 farms and ranches. More than half these should be equipped with silos.

Colorado has made a hundred per cent increase in dairy farming in the last four years. If there is one class of farm where silage is indispensible it is the dairy farm. This is particularly true of the dry lands, where we are long on roughage and short on succulence and protein. We need silos to make the rough feeds palatable and to save the whole crop of corn or grain sorghum. In the irrigated sections where the variety of feeds is greater, we have nevertheless, the most rapid extension of silo building, because ensilage feeding is concentrated economy of feeds. It releases land for cash crops where land is worth $250 to $350; makes more manure available to keep up the fertility of this high priced land, by increasing the number of stock kept, and pays for itself in added profits from finished beef or mutton.

Corn crops on irrigated land have brought a return of $80 to $150 an acre (at war prices,) and left the manure on the land of the farmer who sold his corn ensilage at $10 a ton in the silo to feeders. On dry lands silage has meant a cash return of $40 to $60 an acre from corn, in milk or cream. Many a dry land farmer has made his first real money, outside of an occasional lucky speculation in wheat when the rain came right, when he sunk a pit silo and began to feed dairy cows.

ALVIN T. STEINEL

Waiting for the Cream Truck at Willow Croft Farm, Littleton

Out of two thousand or more Colorado farmers who have silos I'll defy anybody to find 25 who are sorry—unless it may be a few who built what is for them, the wrong type of silo. A canvass made by the county agents in all parts of the state this winter brings universal approval of silos and ensilage feeding. If 2000 farmers are practically unanimous for the silo, the others are missing a good thing. Our crops suitable for ensilage are: corn, kafir, milo, feterita, cane, beet tops, Russian sunflowers; beet tops and wheat straw mixed; oats and field peas mixed; weedy corn, Russian thistles, rain-damaged alfalfa, hailed corn, bean vines and corn, mixed.

You can feed on ensilage, dairy cattle, beef cattle, fattening steers, stock cattle, breeding cattle, hogs, sheep, fattening lambs, horses and mules, chickens and turkeys. There is no better combination than alfalfa and ensilage and no ration easier to produce, more economically fed and paying bigger on our irrigated lands. On the dry lands, ensilage from corn or the grain sorghums, fed with dry bean vines, is an ideal combination. In the mountains we have field peas and oats for ensilage, though, in the higher altitudes our root crops will supply succulence without ensiling.

No line of argument goes farther than the testimony of a satisfied silo customer. Read what good farmers all over the state, using all types of silos and feeding every class of stock, have to say about silos, which they built "at all prices" from $7.50 to a thousand dollars:

George E. Garrett, Fort Collins: Two cement stave silos, one costing $800, the other $1,000; capacity 220 tons each. Feeds dairy cattle, sheep and hogs. Fed out 4,000 lambs out of No. 1 silo, cutting his hay cost one half.

M. O. Patten, Sterling: Pit silo cost $66. Feeds dairy cattle and sheep. Cows give more milk than when they are on grass.

F. R. Lamb, Cotopaxi: Three pit silos, total cost $180. Makes quick gains in beef cattle on silage and it makes an excellent tonic for stock cattle and hogs.

William Lindenmeier, Fort Collins: Two cement stave silos, costing $550 each. Feeds dairy cattle, beef cattle and sheep. Saves hay. Do not need much land to grow feed tonnage that I get with silos; more tons of feed per acre.

W. L. Jenks, Sterling: Pit silo; cost $90. Feeds dairy cattle, horses, hogs and chickens. Saves crop and is so much better than dry feed. Silo has paid for itself every year. He built it in 1914.

Arthur Dudley, Apache: Pit silo, cost $50. Fills with corn and kafir. Satisfactory when fed with alfalfa. Silo enables him to raise his own feed on dry land and it is very convenient in feeding.

F. W. Pearce, Englewood: One cement silo and one wood stave. Feeds dairy cattle, beef cattle and sheep. Has had silos since 1913. No waste of corn; saves other feed. Has had no sick animals since feeding ensilage.

Ralph Eggleston, Mt. Morrison: Hollow tile silo, cost $585. Built in 1914. Feeds dairy cattle; also sheep to a limited extent. Cheap feed; can save all of corn plant. Silo has paid for itself.

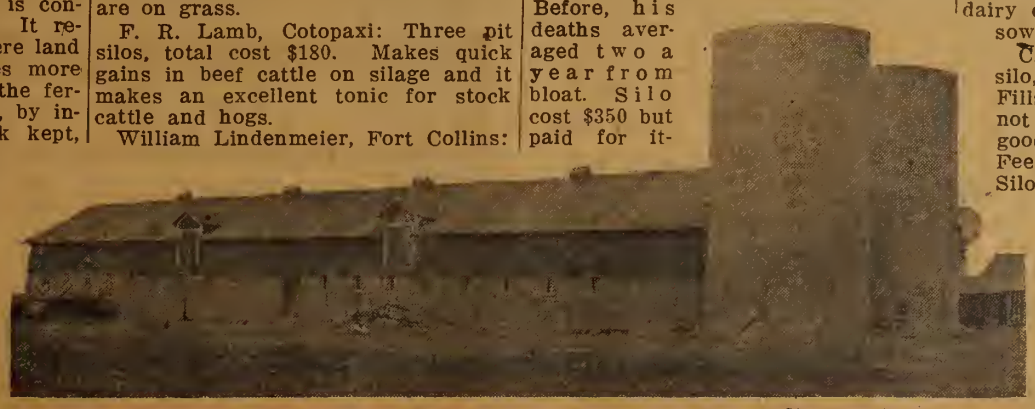
Roy Hinton, Golden: Hollow tile. Cost $600 in 1916. Feeds dairy cattle. Keeps stock thrifty; no dry coats in winter. Will build another silo.

W. C. Swinehart, Brighton: Hollow tile. Feeds dairy cattle, calves, beef cattle, horses and hogs. Wonderful feed for young stock. Cut his cost of butterfat production 25 to 40 per cent after began to feed silage. Stock in much better condition. Caused increase of 48 pounds of butterfat to each cow on test.

Carl J. Birsagil, Fowler: Hollow tile. Feeds dairy cattle. Enables him to keep more cattle on small acreage; excellent feed. This winter sold silage at $10 a ton in the silo.

E. J. Mathews, Cory: Metal silo. Feeds dairy and beef cattle. Considers corn ensilage worth as much per ton as alfalfa hay, when fed right.

George S. Turner, Canon City: Wood stave silo. Fills with corn, oats and second cutting alfalfa. Feeds dairy cattle and hogs. Saves veterinary bills. Gets large amount of feed per acre. No bloat since feeding silage. Before, his deaths averaged two a year from bloat. Silo cost $350 but paid for itself first year in saving of feed and increased income.



Two Silos Furnish Succulent Feed for the Dairy Herd at Kubanka Farm, Near Strasburg, Colorado

Joe Berganeo, Gardner: Wood stave silo. Fills with alfalfa, barley and Russian thistles. Says this silage compares well with corn. Feeds dairy cattle and hogs.

C. W. Braun, Golden: Wood stave silo. Feeds dairy cattle. Says silage is absolutely necessary in the production of milk, if any money is to be made.

O. H. Chambers, Golden: Wood stave silo. Cheap feed. Cows give down milk well in winter when on silage.

Carlos W. Hall, Denver: Wood stave silo built in 1914. Silage enables him to keep larger herd, gives him cheap feed which cows relish in winter. Silo has paid for itself many times.

Geo. D. Kendall, Beulah: Wood stave, creosoted. Fills with corn, weeds and barley. Nothing as good as corn. Feeds to dairy cattle and to horses, if silage is of best quality. Makes more milk. Silo saved him $150 the first year in hay.

Frank Cuzak, Rye: Wood silo, made of two-by-sixes. Fills with sunflowers and finds this silage satisfactory. Feeds dairy cattle and a few head of beef stuff. Gets more milk. Cream test went from 29 and 30 to 31 and 32 when silage was started.

W. A. Hobson, Swallows: Hollow tile. Not satisfied with crops other than corn for silage. Feeds dairy cattle, beef stuff and horses. Gets best results when feeding with alfalfa. Harvesting the corn crop all at once instead of all winter, saving of loss to crop, getting double value out of corn, are the advantages he finds in a silo.

Victor H. Akin, Fort Collins: Two Hollow tile silos. Feeds sheep. Increases amount of stock that can be fed. Well satisfied with silage for sheep.

Fort Lewis Agricultural school, Hesperus: Concrete silo. Use for dairy cattle. Increases milk flow, provides green, juicy feed in winter. Hard to fill with Ford car, but now have tractor for power in cutting and filling.

E. J. Maxwell & Sons, Durango: Stave silo. Use corn and field peas and it makes good silage.

Ed P. Biggs, Allison: Stave silo. Feeds dairy cattle. Uses corn silage but can put in anything—weeds, sunflowers, all makes good winter feed when ensiled. Prefers cane, as that makes twice the tonnage of corn in his section.

W. F. Haas, Atwood: Concrete silo. Cost $400; capacity 68 tons. Fills with corn, alfalfa and cane. Feeds dairy cattle and has wintered brood sows on silage.

C. F. Boyd, La Veta: Concrete silo, cost $289; capacity 112 tons. Fills with corn and alfalfa. Does not like alfalfa silage. Silage is good feed for weaning calves. Feeds also beef cattle and hogs. Silo paid for itself the first year.

Elmer Becker, Apache: Pit silo. Fills with corn, milo and stock beets. All satisfactory. Feeds dairy cattle, sheep and some to hogs. Saves waste.

E. E. Harrison, La Veta: Pit silo with 10-inch concrete wall all the way down. Cost $400 in 1913. Fills with corn

(Turn to Page 17)

The Bennett Farmers Hold Unique Silo Institute

VISIT SILOS AND DISCUSS THEIR CROP SAVING EXPERIENCES

FARMERS of the Bennett district, on the line between Adams and Arapahoe counties, about thirty miles east of Denver, recently held a silo institute. It was different from the old time program meeting. A snow storm interfered somewhat with the proceedings on the first day, when it was planned to inspect silos on the farms of F. W. Haupert and George J. Gordon, but on the second day the clouds had cleared away and silo visits were made.

The writer was unable to stay over for the second day's meeting, but he found the first day's session one of the most interesting he has ever attended. The group of a dozen farmers gathered at the school house in Bennett and there they had an open forum on silos and silage feeding that was worth money to all of them. Ideas were freely exchanged on all phases of the question. It happens that Mr. Haupert owns a high silo, while Mr. Gordon has two pit silos. While there was some discussion as to the relative merits of the two types the farmers never lost sight of the main point—that of having some kind of a silo on the place to save their crops in good seasons and bad. A hail damaged corn crop is still fit for ensilage. A drouth stricken crop can all be saved, instead of being blown away, or frozen in the field. Mr. Haupert brought an exhibit to the meeting—a handful of frozen cornstalks taken out of the shock in the field.

"That's the kind of stuff we expect our cows to eat in winter when we haven't got a silo," he said.

The Bennett farmers who have silos are in the habit of filling them with anything that will produce the necessary fermentation. Two of them have tried bean straw, mixed with corn. Mr. Haupert has had good success with it, but Mr. Gordon doesn't like the combination. Others thought the best plan is to feed the bean straw dry, along with corn silage, and thus get more value out of the combination.

Mr. Haupert told his silo experiences about as follows:

F. W. Haupert's Silo Talk

"I have been rehearsing my speech for two weeks in the barn and looking a cow in the face. I do not know how you will receive it, but the cow didn't kick. I have had a silo for only three years and I think the way to start my story is to tell what I did, or tried to do without a silo. I came to the Bennett district eight years ago and worked at my trade, not intending to go to farming right away. There were no dwellings to be had in town and rather than put up a house I bought a relinquishment on 160 acres for $1,200, which had a house on it It was only a mile from town, so I got both a dwelling and a farm. In 1911—it was our worst dry year—I put in six acres of cane, but it never came up. In the fall of that year I sowed this six acre field to wheat, which I intended to use for chicken feed. On the 4th of July, 1912, we had a hail that ruined my wheat.

"That fall I put in 25 acres to wheat which gave me a total yield of 126 bushels. The next year I got 300 bushels from 12 acres of wheat. I had 16 acres in wheat following that which gave me 280 bushels. This encouraged me to start right as a wheat grower, so I put in 90 acres, having acquired power and implements, and it came through the winter fine. On the 18th of June, 1916, I looked over that wheat field in the morning and figured on what a good crop I would have. At 4:30 that afternoon we had a hail storm and all it left me from the 90 acres was a total of 270 bushels. I put in 85 acres again that fall and all I got was 312 bushels. In 1917, from 50 acres, I had a yield of 16 bushels per acre on 10 acres and 11 bushels per acre on 40 acres. You will see from this that out of 7 wheat crops I had just two that paid. Two crops were ruined by hail and three by drouth.

"If I had been working for wages and I got paid two years out of seven you might know that I would have quit my job. I began to experiment with corn and I had better luck as far as hail and drouth was concerned, but the question is, what did I do with it? I fed two cows and two calves and fattened a hog. The rest of the crop was wasted or blew away because I followed the old plan of raising corn for grain and forage. While I had only a few head of stock and I seemed to do very well with corn, my feed was always gone by spring.

"In 1915 one of these farm survey men came around from the college and asked me what I was doing in the way of crop raising. I told him, and then he asked that question, 'What are you doing with your feed?' By that time I could say I was feeding two cows, two heifers, two horses, and a few hogs. He said, 'Well, you don't seem to do very much with your crop.'

"That opened my eyes and I realized that I would have to change my plan of farming if I expected to make anything at all. In 1915, which was a good year, I saw my corn growing so tall that I wanted a silo awful bad. I had 42 acres and I knew it was going over 4 tons to the acre. If I would have had the nerve to go $400 in debt that summer and build a silo I could have saved that crop. In the dry state it carried the same few head of stock and no more. I know now that if I had siloed that crop it would have carried the same number of stock through five years instead of one.

"In 1916, which was a dry year, my corn was planted early—May 3. The July drouth caught it in tassle and I will say that looking at it in the field it did not look as though it were worth 50 cents an acre as feed. It was full of smut and the ears were small. That year I decided to put up a silo, for it was the only way I could get anything out of that corn crop. This 20 acres of short corn went only about a ton to the acre, but it carried 14 head of stock through the winter and spring with the addition of a little wheat straw. If that crop had not been siloed I would have had to buy feed.

"In 1917 we had another year of rainfall. My Parsons' white dent corn grew only about two feet tall. I could see the ground in that cornfield all summer. A potato digger was about the only implement with which one could cut the ears, as they started right at the ground. I gathered up all of this corn, put it in the silo and together with bean straw and Russian thistles I got through 16 head of stock. What I need now is another silo. I am carrying through 20 head this year on corn and bean straw silage and have enough to last me until April 15."

Geo. J. Gordon's Statement

Mr. Gordon's statement was, in part, as follows:

"My experiences are similar to those of Mr. Haupert. I came here 8 years ago the same as he did and took up a homestead. I had been a common laborer in the beet districts and had no capital. I have been accused of selecting a homestead in the rain belt, but there's nothing to that. I have been trying to dry farm this land and while I have been lucky in not being hailed out, my success otherwise has been due to hard work and diversified crops. I agree with Mr. Haupert, we can raise lots of roughness but it doesn't go very far unless we put it into a silo. In 1916 I had 20 acres in corn and, like Mr. Haupert, I thought I could not afford a silo. I got very little out of that crop. The next year I built two pit silos, one 7x24, and the other 10x24. I wanted the smaller one for summer use, but am sorry now that I did not make the diameter larger. In fact I am carrying more cows than I expected to handle, because I find silage makes my crops go a lot further, and what I need now is more silo capacity.

"Twenty acres of corn last season filled the big silo and half filled the little one. Out of the big one I carried 14 head of milk cows 150 days. I had 10 acres in cane that year that grew tall and fine, but used it in the old way as roughage and it was soon gone.

"I fed 12 shoats and two sows in addition to the cows. I could not begin to carry through so much stock if I did not have the silo. I did not have much success in siloing bean hulls and corn together. The spots in the silo where the bean hulls were thick turned black and the silage was not very palatable. The cows will eat it but they will not clean it up like they should. I think I made the mistake of not mixing it about half and half."

Dairy Barn and Silo, Red Cross Farm, Milliken, Colo.

Second Day's Meeting

Adams and Arapahoe counties were represented by their County Agriculturists, George R. Smith and Walter A. Groom. The writer was unable to remain for the second day and he is indebted to County Agriculturist Smith for the following report of the proceedings:

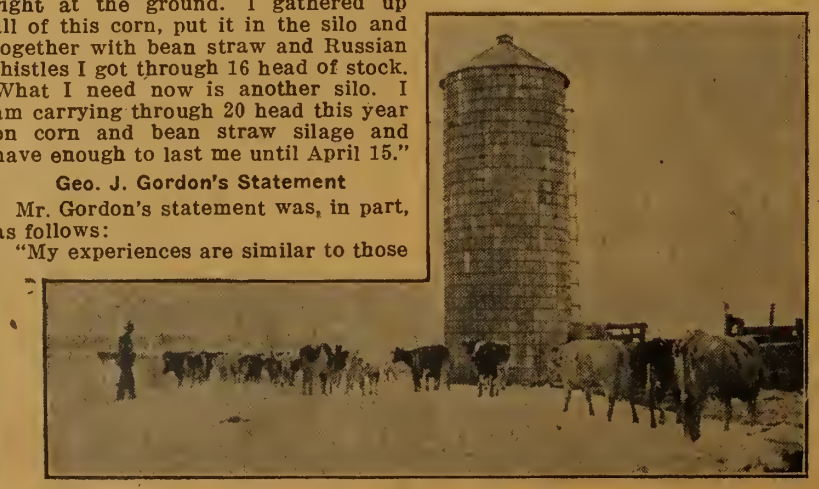
"We began the day by meeting at the school house and the morning was taken up in discussion of general farm methods, more in the form of round table discussion. After dinner six auto loads of farmers first visited George Renner's farm. Mr. Renner gave a talk on the silo and his experience with it in connection with dairy cows. He said that it was the best investment on his place and that no farmer should attempt to get along without one. He had a silo half full of excellent silage which showed no signs of spoiling or drawing away from the sides of the silo.

"The next man visited was Mr. Hess. He gave a talk on feeding silage to beef stock. Mr. Hess has done a great deal of feeding back in the east. I believe Iowa, and he said that he could make more money feeding here than he could back there with the high priced land. Some of Mr. Hess' land is on the creek bottom, so that he has some alfalfa to feed with his ensilage. He is feeding during the entire year, combining his summer feeding of ensilage with alfalfa and rye pasture. He was very favorable towards rye pasture. Mr. Hess said he would have saved seven or eight hundred dollars if he had put up another silo last fall, instead of leaving his corn in the field. Mr. Hess is feeding yearling stuff which he buys late in the fall and feeds for about a year before he disposes of them. Much interest was shown in these meetings at the silos and the speakers were questioned on every phase of silage feeding.

"After these two meetings we returned to the school house. It was planned that the afternoon would be spent completely in talks by farmers on some special line or lines of work which they were following. Several men were scheduled to speak but were not there because of the bad roads, but two talks were given, one by Mr. Geo. Gordon on the result of planting his corn seven feet apart, making a semi-summer fallow. Under that system, even with an unfavorable year, Mr. Gordon said he got 20 bushels of corn to the acre and it left his ground in fine shape for large drill to go in and seed his winter wheat. Mr. Preble was the second man who spoke and he told of his experience in testing seed corn. He showed how to operate the rag-doll tester and what it would mean to farmers to plant only tested seed. After the talks by farmers a talk was given by Dr. Osborn, Professor of Sociology of the State University, on Child Welfare. This was very much appreciated by the large number in attendance.

During discussion of various types of silos the writer mentioned a semi-pit he had inspected several years ago at Pawnee City, Neb. This silo is on the farm of F. W. Chase, father of the two Professors Chase, both well known experts in farm engineering. The Chase boys planned this silo as the most economical type for filling and feeding out, for the conditions existing on their father's farm. The silo is 33 feet 7 inches in depth and has a diameter of 12 feet; capacity 78 tons. It is built of reinforced concrete, 20 feet in the ground and approximately 13 feet above ground.

Only one-half the horse power is required in filling as in the filling of a high silo of the same capacity. A five-horse engine is used in cutting and filling. Another advantage is in throwing out or lifting the silage. In the portion above ground this is accomplished by forking. When the silage level gets below ground where forking is no longer convenient a hoist is used that works automatically. This carries a box, with a capacity of 250 pounds of silage and a man. The man lets himself down, fills the car and hoists himself up with the load. It takes 9 minutes to drop the car, load it, pull and dump into the feeding cart from which the silage is distributed to the mangers in the dairy barn, to which the silo is attached.—A. T. S.



Holstein Herd and Silo on Jarosa Ranch, Longmont.

Machines should be gone over thoroughly and prepared for the coming season. All adjustments should be made, a plentiful supply of various sized bolts, nuts, and screws should be secured and everything got in shipshape order for the rush season of spring work.

Lars Carlson Talks On Baby Chicks and Brooders

WHY HE PREFERS INCUBATORS TO THE NATURAL MOTHER HEN

W. E. VAPLON

To the Editor:

PURSUANT to your request I made a special visit to Mr. Lars Carlson a few days ago. It happened to be Washington's birthday and Mr. Carlson was at home, and as usual, busy with his flock. He is making a new brooder house 5x5 and 4 feet high for a colony lamp brooder and I was rather pleased at this, because I was to see him on the baby chick question.

My first question was in regard to brooding. "Mr. Carlson, I see two brooder houses but not a single brood coop: how do you handle your hens that have chicks?"

"I don't have any; I am hatching and brooding entirely by artificial means."

"Do you think that the better way; don't you think hens hatch better and raise the chicks better than the incubator and brooder?"

Mr Carlson answered my questions by saying: "I can not answer that question in a positive way, but will simply tell you what seems best to me. A hundred eggs in an incubator require little more care and attention than fifteen eggs under a hen. The incubator never breaks the eggs. I can care for it in the house. It requires feeding but so does the hen. Incubator chicks do not have lice. Sixty or seventy chicks come as easily as ten or twelve by the hen. It is a fascinating game. We all like to care for it, especially when the chicks begin to hatch. I attribute much of the general love for poultry in our family to the incubator and brooder. The incubator never leaves the eggs and generally hatches as good or better a percentage than does the hen and it is always broody. As for the brooder; even if I hatched altogether by hens I should use the brooder, setting a number of hens at the same time and putting all the chicks in the brooder. I would rather handle fifty or sixty chicks in a brooder in a nice warm room than ten chicks with a hen in an outdooor coop.

"To take care of my season's chicks with hens would require a great deal of care and time and would mean outdoor work in all kinds of weather. The colony brooder in that building will accommodate two hundred to three hundred chicks and under such conditions is little more work and much pleasanter work than caring for three or four hens with thirty or forty chicks. In this day anyone raising more than a hundred chicks should use brooders. The brooder provides an even temperature, never gets wet to chill the chicks, never steps on the chicks; it never runs away from them nor drags them through the mud; it doesn't gobble up all the chick feed and the nice tender scraps we save for the little ones. It doesn't kick over the water dish nor fight with another brooder nor stay outside at night and allow the rats to get the chicks. My loss of chicks in brooders, after the first few weaklings go West, is so trifling that I can count it as nothing. Incubation and brooding by machines is the solution of many of our most serious chick problems, in my opinion."

"But Mr. Carlson, they tell us that incubator chicks are not as strong as chicks hatched under hens."

"They—who are they?"

"Why, everybody, and there must be something in it."

"Maybe so, but in two weeks I'll have my first brood in this new brooder house; come over to see them and tell me what you, yourself, think about it. Look at that pen of fowls, thirty hens and a cockerel, not one had a natural mother or nurse; that cockerel weighs 9¾ pounds. You would yourself guess the hens at better than seven pounds, on the average. In January that pen of nineteen pullets laid three hundred and forty-one eggs, many having laid since early November. One day we got sixteen eggs; not so bad for 'weaklings', is it?"

"Mr. Carlson, you spoke of thirty hens in that pen with one cockerel. Do you only keep one male bird in that pen?"

"No—I have another in a coop inside, changing every two or three days; but say, come to think of it, I had only one in the pen during the month of January and a neighbor bought a setting of eggs and the other day hatched out eleven strong chicks; two others died at hatching, one egg held a dead chick, one egg had been broken. One year I had sixty hens running at large with one two-year old cock bird; it was after hatching season and I had broken up my pens, disposing of all but this one cock. Several neighbors wanted eggs and said they would risk the hatch; never knew of better hatches, running from eleven to fifteen chicks."

"We are often asked how many cocks should be kept to a hundred hens on the farm; what would you say?"

"I should consider three or four to the hundred better than more."

"Excuse me, Mr. Carlson for getting away from the chick subject as I did not want to trouble you with more than a few chick questions. At what temperature do you start the brooder?"

"At hatching temperature, never lower but rather higher. Come over to this house and I can explain my methods better. This hover has the canvas curtain around it; the hover is galvanized iron, the lamp is in a round box in the center and lifts out. The chicks cluster around the box that holds the lamp and can not pile up. The heat pours down upon them from above but they can get away from it if they wish. However, we confine the chicks within the curtain for the first two days, letting them out at meal time and making them go under after filling up. This one-foot rabbit netting covered with burlap is used to keep them under, being draw around the hover rather closely. If the night is cold it is pulled up tight, if warm it is kept rather loose but the chicks can not get out. When feeding the first two days the wire is extended; you see it is longer than the circumference of the brooder and by drawing the ends in, the chicks are gradually pulled under the hover. After they get acquainted with the warm spot and know where it is they are given more play room and in four or five days have the entire floor."

"I have known very few who advocate so high a temperatude as you mention. Do not most writers advocate so high a temperate as you

"I believe so, but I am afraid such instruction is the cause of much loss in baby chicks. Even were that temperature high enough, and I do not believe it is, the tendency would be for most people to let the temperature run lower rather than higher. I have some trouble in real cold weather keeping the temperature in my brooders up as high as I like but there is never any danger of too much heat when chicks can get away at will."

"At what age do you let the chicks outside?"

"Almost any time after they have learned to find their warm corner and the weather permits. Their range is extended gradually, but on stormy or windy days they are confined to the building. When they are well feathered they are allowed to run at will as by that time the cold weather is past and there is no danger of chilling."

"That brings up a question I had almost forgotten; how early and how late do you hatch?"

"All hatching is done between March 15th and April 15th. As you know I raise only a limited number of chicks getting them out in three hatches, but if I were hatching ten times as many I think I would follow the same plan and get my chicks out in as short a period as possible, say, not to exceed six weeks. I am not so anxious to get early laying pullets as I am to have well matured pullets lay in early winter, therefore I try to get my chicks out between March 15th and April 15th. I have had Plymouth Rock pullets lay at the age of one hundred forty days but such pullets never acquired the large frame and vigor you see in my hens. As the

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Russian Sunflowers and Rye Good In Rotation

WESTERN SLOPE DAIRY AND BEEF MEN LIKE SUNFLOWER SILAGE

GEORGE LA GRANGE

First hand information about sunflower silage has been hard to obtain, as it has been tried only in a few localities. The accompanying article by George La Grange of Fama Jersey farm, Grand Junction, Colo., coming from a man who has used sunflower silage, is particularly interesting. He also makes mention of experimental work done in Illinois with corn stover ensilage. We cannot get up any enthusiasm for that kind of silage. Certainly it is better than feeding dry stalks, but the grain has to be replaced in some other way if we want results in meat or milk making. When silos first became popular, we thought mainly of tonnage and succulence, but in late years we have dropped that idea for the better one of making ensilage that had food value, plus succulence. A great many statements are made to the effect that there is little difference in food value between corn stover silage and corn ensiled with the grain, but the proof in careful feeding tests is otherwise.—EDITOR.

IT now looks as though a prediction I made a couple of years ago, that sunflower ensilage would revolution tionize the livestock industry of the West, would be realized. The great tonnage that can be produced on an acre of ground together with its increased feeding value, as compared to other silage crops, has made friends for it wherever it has been tried.

Here in the Grand Valley, where the first experimenting was done with the crop in this state, we have never gotten any further than using it as a dairy feed. But during the past season a considerable acreage, in small plots, was planted by men in Delta county who have since fed it to both fattening cattle and to sheep. The use of this new feed was evidently a success, for from every feeder whose report I have seen comes the information that he will increase his acreage in 1919.

Several years ago we proved to our satisfaction, and also to the satisfaction of a lot of "doubting Thomases," that as a succulent feed for dairy cows it was unsurpassed, and now that our neighbors are having such good results from feeding it to beef cattle and sheep, we feel like 'thanking our lucky stars' that our calves got out and, by ravenously eating the leaves from the stalks, showed us that the plant was good for something besides the production of seeds to be used as chicken feed.

Maturing to the siloing stage, as it does in about 60 to 70 days, gives us the chance to put the ground into rye, which, being sowed so early, gets a good start in the fall and consequently comes on early in the spring, so we can cut it about the first of May for a hay crop. This we have found to be an excellent roughage for dairy cows, and used in conjunction with alfalfa hay, it seems to be somewhat of a balancer of the ration, for our Jerseys do not only respond by an increased milk flow, but also they take on that "bloom" which all good breeders like to see in their cattle.

Use Rye for Hay

By the first of may this rye crop will have attained a height of about four feet and will be good for about two tons of hay to the acre in this locality. In putting up this hay we have found it has to lay longer in the swath than does alfalfa, especially where it is very heavy. As soon as it is off the ground, the field is irrigated and by the time the ground has gotten dry enough for plowing, a nice green coat of manure is ready to be turned under. This is the fertilizer which helps to produce the big tonnage of sunflowers, and by this system of rotation and the application of a light coating of barnyard manure after the sunflowers are harvested, we have found we can get more feed per acre than we could by growing two crops of sunflowers each year.

In localities where the soil condition is such that the land can be pastured, it might be possible to get a considerable amount of feed by pasturing the rye, but of course if stock was allowed to eat it too close in the spring, the hay crop would suffer.

Stover Ensilage

We are beginning to realize that vast amounts of feeds are wasted in various ways every year. About the most appalling of such wastes is where corn stalks are allowed to stand in the field. Actual experience has brought to light the fact that stover silage has almost as much feeding value as regular corn silage. This being true, why not husk out the corn and put the fodder into the silo? It will take nearly double the acres to fill a given silo, but there is so little feed value in the stalks that are left in the field after the corn is husked that the farmer will be ahead of the game.

To say that a ton of stover silage contains almost as much feed value as a ton of regular corn silage sounds to many like a greatly overdrawn statement, yet hard headed farmers have come to that conclusion from actual experience. Prof. Rusk of Illinois Experiment Station conducted an experiment last winter which showed that beef breeding cows were carried through the winter season on stover silage cheaper and came out in the spring looking as well as the ones that had been fed the whole corn silage. These cows were fed a pound of linseed meal per day and all the silage they would eat. Normal silage last year at the Illinois station, which contained 7.35 bushels of corn per ton, including cost of harvesting, had a value of $10.95 per ton. Linseed meal cost 3 cents per pound. On this ration it cost 24.8 cents per head per day to winter beef cows, while with stover silage the cost was reduced to 7.8 cents.

Back in the middle states some of the farmers are feeding their dairy cows no other roughage than the stover silage, adding linseed meal to get the necessary protein for the ration.

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Corn In the Arkansas Valley Under Irrigation

EXPERIMENT STATION SEEKS TO DETERMINE BEST VARIETIES

PHILO K. BLINN

What is being done by the Colorado State Experiment Station in corn development is brought out in a preliminary report of progress made by Philo K. Blinn, the specialist in charge of the Arkansas valley sub-station at Rocky Ford, where twelve varieties were grown on test plots under irrigation last season. The report shows yields running all the way from 40 to 110 bushels per acre. The question of yields is secondary. Prof. Blinn's figures should be carefully studied, especially as to period of maturity, height of ears from the ground, and like characteristics of the varieties tested, and the relation of these characteristics to Southern Colorado conditions. An interesting point for the Northern Colorado corn grower is the performance of White Australian, Swadley and Colorado Yellow Dent, which varieties seem to have run true to short season form, maturing in 90 to 95 days.

Corn Tests at Rocky Ford

WITH the increasing construction of silos there is an insistant demand for an answer to the question: "What varieties of corn are best suited for filling our silos?" The answer to this question will doubtless vary for different sections of the state that have different altitudes and different growing conditions.

The question has evidently been pretty well answered in Boulder county, where the county agricultural agent with the aid of the Boys' and Girls' clubs has demonstrated by comparative tests that the Minnesota No. 13 is a corn that is especially well adapted for that section of the state. But there are large sections in the state where the altitude is much lower, where the season is longer, and the average temperature much higher, where some of the later maturing strains of corn will doubtless succeed better in giving the highest efficiency to our silos.

With a view to determining these facts the Colorado Experiment Station has instituted a comparative test of varieties of corn at Rocky Ford. The first test was made during 1918. The results were so positive that it seems that a report on the matter might be valuable to the farmers, at least as a progress report, which can be checked with the experience of farmers in similar sections of the state.

The test was rather preliminary in nature, as it was difficult to secure a very large list of varieties to test, and the basis of comparison had not been was to make it as reliable a comparison as possible by supplying as uniform conditions as it was possible to secure, and make the test in a good number of replications in order to offset, or overcome, any variations of soil, moisture, or fertility in the different plats, in the average final comparisons.

There were twelve varieties in the test, and six replications of each, with the exception of two varieties that only had four repetitions in the test. The planting of the plats was so arranged that each variety occurred in six different sections of the field, which would overcome any variations in soil, cultivation, or irrigation in the different sections of the field.

Each variety plat consisted of one hundred hills, planted in a square of ten hills, planted forty inches apart each way, thus making an area of approximately four square rods, or one fortieth of an acre; a fairly reliable area for comparisons.

Previous to planting, the field had been plowed, harrowed, and leveled. The field was marked out for planting in "check rows," forty inches apart each way. In the direction to irrigate the rows were laid off with shovels on sugar beet cultivator; the hills were then planted in the bottom of these furrows opposite the check marks. The hills were planted with about three grains to the hill, and planted about one and a half inches deep. Irrigation water was then run through these furrows, soaking the bottom and sides of the furrows, without flooding any portion of the field. After two days the soil had dried sufficiently to harrow, and the field was then harrowed in both ways, making a fine soil mulch over the whole field. Conditions were very favorable and the corn germinated very well as the tabulated record will show.

The field was cultivated June 15 with a spring toothed cultivator. On June 22 a rain of 2.15 inches fell. The field was again cultivated June 29. The field was furrowed out to irrigate the first time after germination on July 1. Irrigation was applied July 3. The field was hoed free of weeds in July. Rains occurred as follows: July 15, 1.50 inches; August 8, .77 inches.

The field was again irrigated August 23, and during the first week of September about 1.25 inches of rain fell. The corn was cut and shocked the last week in September. Frost held off until October 23, which was almost a week later than the latest date of first frost on record at Rocky Ford. The corn matured exceptionally well, in spite of the fact that the test was not planted until May 22, which was all of ten days late for the date of planting corn in the Rocky Ford section. The season was very warm and exceptionally favorable for growing corn.

The results of the test can best be shown in a tabulated statement of the records and average yields accompanying this report.

Conclusions

1. It is evident from this test that the very early sorts of corn are not the best suited for Arkansas Valley conditions.

2. The Silver Mine was evidently the best in this test, and experience of farmers in the vicinity of Rocky Ford for the past few years seems to corroborate the same conclusion, or at least it is one of the best where the seed has been acclimated.

3. That there is very little difference between the first five varieties in the test. It is also evident that the same test should be repeated for several years with the addition of other standard varieties that were not included in this year's test, before final conclusions are drawn.

4. It seemed evident that for ordinary seasons where well matured corn was required by early September, that corn of the type of the Silver King would be very desirable, as it combined good forage production with early maturity. This strain seemed to be more seriously injured by the corn ear worms and blackbirds that stripped down the husks almost a third of the length of the ears, which largely accounts for the lighter yield of this strain. This injury may have been magnified by the fact that the Silver King was just in the right stage when the blackbirds began to congregate in the fall, the other strains being either too far advanced or too late. This report is presented for publication merely as a preliminary progress report for co-operative exchange of information.

If there are any farmers or stockmen interested in the question of corn for silos, who have results or suggestions that will aid in the prompt solution of this question, the writer of this article will be glad to hear from such parties. We will add that at present we have no seed corn to supply. But the ultimate object of this experiment, when the final conclusions are drawn, will be to encourage farmers who are well equipped for the work to engage in growing pure strains of acclimated seed corn best suited for Colorado conditions, to fill the ever growing demand for dependable seed. Following is the tabulated statement covering the test:

VARIETY NAME	Average per cent of stand in all plats of each variety	Average per cent of hills with only one stalk	Average date the tassel began showing	Average height of stalks September 1, 1918	Average height of ears from the ground	Approximate date of maturing, 1918	Rank in order of average yield of all plats of each variety	Yield of corn in the ear per acre
Iowa Silver Mine	98%	5%	Aug. 4	11 ft.	6 ft.	Oct. 1	1	7800 lbs.
Boone County White	96	17	July 31	10½ ft.	6½ ft.	Oct. 1	2	7440 lbs.
Leaming's Yellow Dent	99	5	July 31	10½ ft.	5 ft.	Sep. 25	3	7360 lbs.
Reid's Yellow Dent	99	6	July 31	11 ft.	6 ft.	Oct. 5	4	7280 lbs.
Bloody Butcher	98	14	Aug. 4	10½ ft.	6½ ft.	Oct. 5	5	7260 lbs.
St. Charles White	93	19	Aug. 4	10½ ft.	6 ft.	Oct. 5	6	6160 lbs.
Silver King	99	5	July 18	9½ ft.	5 ft.	Sep. 10	7	6040 lbs.
*Calico	74	45	Aug. 4	10½ ft.	6 ft.	Oct. 1	8	4640 lbs.
White Australian	96	11	July 12	8 ft.	2½ ft.	Aug. 20	9	4320 lbs.
Mexican Flint	99	2	July 4	5 ft.	1½ ft.	Aug. 15	10	3760 lbs.
Swadley	92	15	July 18	8½ ft.	4 ft.	Aug. 25	11	3600 lbs.
Colo. Yelo Dent	96	12	July 8	5½ ft.	2½ ft.	Aug. 25	12	2920 lbs

*Low germination of seed cause of poor stand.

Log Grange Hall Once An Overland Stage Station

ANSEL WATROUS

Virginia Dale was one of the most noted localities in the western country in the early days. It was known far and wide, its name and fame being spread from ocean to ocean by Overland Stage traveler, described by magazine writers and newspaper correspondents and discussed in public places all over the country, often in terms of praise, and again with awe and superstition.

It was the first division point northwest of Denver on the Overland stage route, and was established in June, 1862, when the stage company moved down from the North Platte route. Joseph A. Slade, better known in those days as Jack Slade, was appointed division agent and had charge of the station the first year. He had been transferred from the North Platte route, where he was known and recognized as the most efficient division agent on the entire line. It is said of him that he never failed to get the United States mails through on time on his division, and that stage robbers and road agents had a hearty fear of him.

Virginia Dale station was located on a small mountain stream, about forty miles northwest of Fort Collins. It remained a division point on the Overland stage route until the Union Pacific railroad was completed to Cheyenne in the fall of 1867, and was then abandoned.

The station house, stage stables, bunk houses and warehouses were built of logs by Slade, and the old station house, its walls scarred by bullet holes, is still standing. All the other buildings have been torn down and moved away. Slade had the reputation of being a gambler and desperado, but he never neglected his duty as division and station agent. He was a strict disciplinarian and ruled his drivers with an arbitrary hand. At times he drank heavily, and when under the influence of liquor was a terror to his associates. Two graves on the side of the hill west of the station house testify to his methods of enforcing his commands. It is claimed that stage robbers and road agents, as they were called, made their headquarters at Slade's place in Dale creek.

Slade named the station Virginia Dale, in honor of his wife's maiden name. He was discharged in 1863, and was succeeded by Willian S. Taylor. Slade went to Montana and was hanged by vigilantes in the fall of 1864. Mr. and Mrs. Taylor kept the station until 1866, when they were given the Laporte station, which they kept until the Overland stage was discontinued in 1868.

Historic Log Stage Station, Now Used as Grange Hall

In 1864-5-6 Virginia Dale was a favorite camping place for emigrant trains. By order of General Connor, commander of the Department of the Plains, the route from Julesburg to Denver and thence on west through Laporte and Virginia Dale to Fort Steele, where it joined the old Oregon trail, was the only route that emigrants were permitted to travel during those years, owing to the hostility of the northern Indians who infested the old North Platte route and raided and harrassed all who went and came that way. It was not an unusual sight to see fifty or a hundred emigrant wagons, with their loads of human freight and merchandise, in camp array at the Dale. Caravans frequently stopped there for days to rest their stock.

NOTE:—This historic building is still being used as a Grange hall and general meeting place for the ranchmen in the Virginia Dale neighborhood.

Planting Trees on the Plains

I have been trying for some time to write my little piece about trees in eastern Colorado. I feel very much interested in Mr. W. J. Morrill's talk in Western Farm Life of November 15th as to the cause of treeless plains, etc. I agree with him where he refers to the range country where little effort has been made to plant trees. That is one thing about the free range cattleman. He don't want to leave a mark behind him, and in most cases wishes to obstruct the settler and discourage him all he can. But getting down to my experience.

I located on Sec. 13, T. 6 N., R. 47 W., in June, 1886. I have been in Colorado ever since and now live on Sec. 1, T. 4 N., R. 45 W., in the sand hills of Yuma county. My first location was on the hard land, now Philips county, then Weld county. In 1908 I put down a well on this place, 122 feet to unlimited supply of the best water. I noticed in the well I went 81 feet before I struck dry dirt or a little native lime rock. It was mostly a porous gravel, but no reason why trees could not grow in it. In 1909 I got some hundreds of seedling trees one year old, mostly catalpa and black locust. I didn't have my ground properly laid out and tried doing all the work on them by hand, which was too much labor. I should have had them so as to run a cultivator for the first two years, for they must be kept clean. Anyway I saved a nice little grove. I put most every other one catalpa and locust. A few catalpa are still alive but no good. The locusts ran over them and the pocket gophers ate the roots of some. In fact, every black locust I set out tried to grow. Of course I got them from the nursery that sells the kind that grows, Sonderegger, Beatrice, Nebraska. Up to last year the locust looked fine and made a splendid growth, but last year the locust borer found them, so I suppose I will lose them. In 1910 I set out about 100 Carolina poplars, 3 and 4 feet whips. For six years they made a splendid growth. Of course, I had to fight the caterpillar every summer. Two years ago they began to die, a tree at a time. Now they are about all gone. In the meantime I kept putting in some kind every year as best I could. I can't give dates on everything. I have some white elm doing fine. I tried wild black cherry, but it winterkills bad. It is no good here. All this time I had been putting out a few fruit trees. I have some peach trees, six years old. They are still alive, but owing to late frosts and hail I never get much fruit, but it is not the tree's fault. I also have a splendid windbreak of wild plums growing as healthy as I ever saw anywhere.

Seven or eight years ago I went to Wellfleet, Nebraska, to see a cousin. On his place in Medicine creek were all kinds of native trees. I pulled a few red cedar, hackberry, wild grapes and wild black currants. I didn't have much time and took no pains to pack them. I just rolled them in a bundle. Out of the lot I have two cedars doing fine, all kinds of currants, one hackberry, which is the healthiest tree on the place, and several grape vines. One in particular made such a growth the first year that I set a post at each end of it in the row and strung a barb wire on the posts. It has hung on that wire for five years now without any attention and still grows and has some grapes every year. These were all I saved out of the first lot. Two years ago this next spring a bad hail storm struck me and I can say that there is only one tree on the place that does not show the effects now. That is the hackberry. It doesn't grow quite as fast as the white elm. In regard to groves extending themselves I will say that in the sand anywhere plums will go as far as you give them cultivation and make the finest chicken yard possible. No hawks can get through, besides being a perfect windbreak for their height.

I have a few honey locust started. I can't tell much about them as yet. I find it a great deal harder to start than the black locust. It has winterkilled the last two winters. But almost any tree will winterkill in Eastern Colorado under some conditions, that is, when the tree gets a fair start in spring which is mostly the case here, then in the latter part of June and early part of July it hangs between life and death. I have saved several with a drink the first year about that time. Not what my dear friend from Missouri, T. J., drinks—just water for the trees. Then we generally get a real soaker the latter part of July which starts the tree fresh again. That is what in most cases kills it in winter according to my idea.

If you will go through your trees about the first of September and with your knife and fingers just nip the bud off the top of most of the soft shoots, you will find that they will not winterkill near so bad.—James Brophy, McPherrin Ranch, Holyoke, Colo.

Cheap Squirrel Poisoning

According to County Agent Earle G. Reed of Laramie county, a farmer who attended one of his demonstration meetings in a rodent control campaign was given a quart of poisoned oats prepared by the government specialists, the total cost of the package being a little less than twelve cents. He put out the bait according to directions and counted two hundred dead squirrels as a result during the next week. Can you beat this record? Six cents a hundred for poisoning squirrels.—Wyoming Farm Bulletin.

There's an Oliver Dealer Near You

Think what that means in service to every farm owner! The knowledge that you can drive to town today—any day—and get an Oliver Plow or an Oliver part, and how important such a service is this Spring when the ownership of a tractor and of a plow, even at the last moment, will insure the planting and harvesting of a crop from acres that otherwise would be unproductive.

"Oliver Plowed Fields Bring Greatest Yields"

From the very beginning the Oliver effort has been to make the Oliver Institution something more than a distant and impersonal factory. The Oliver conception of its purpose is frankly this: First—To build a product that will stand up under the hardest usage, rendering honest service; and that will fit the seed bed best. Second—To place within immediate reach of every farm, a competent dealer. The duty of that dealer is not simply to sell Oliver tools. He must co-operate with the farm owner to the fullest extent.

Oliver dealers help to bring to the farm owners in their territory a more complete knowledge of the tillage required by the different soil conditions, of plow designs, of the proper plow hitches, of tractor construction and operation—information that the Oliver Chilled Plow Works has gained from over sixty years' experience in the manufacture and study of farm implements.

For Oliver is selling, not just plows, but results—not just farm implements, but more bushels.

The Oliver dealer wants you to be satisfied. He realizes that it is just as much to his interest as it is to yours that you receive the fullest service of which Oliver Implements are capable, and he is ready to co-operate with you to the limit in making sure that you receive that service.

This Spring, therefore, when you are buying a tractor, choose your plow and tractor tools carefully.

Remember—that plow service and dealer service in all their phases mean more bushels.

There's an Oliver Dealer near you.

Oliver Chilled Plow Works
South Bend, Indiana

The San Luis Valley Stock Show

FINE DISPLAY OF ALL CLASSES OF LIVESTOCK

FIVE thousand persons passed through the gate at the San Luis Valley stock show, held during the last week of February at Monte Vista. The valley has had a severe winter and the week of the show witnessed some stormy weather. This did not seem to interfere materially with the attendance and the line of exhibits, which were of better class than at any previous show. The show is staged annually under the auspices of the High Order of Grunts, an association of hog producers now nationally famous for an unsurpassed record of community action in virtually abolishing hog diseases and putting the business on a revenue producing basis. While hogs have been paramount in the valley, there is a constant increase in the purebred herds of other classes of stock, and beef and sheep are pressing the porkers for recognition at the show.

The annual banquet of the H. O. G. was one of the big events of the week. As usual, Dr. George H. Glover, head of the Veterinary department of Colorado Agricultural college, who is credited with having saved the hog industry for the valley, was one of the chief speakers. Lack of space prevents giving the show more adequate mention at this time. The awards follow:

Hereford Cattle

Registered bull, 2 yr. or over: no first; W. L. Starbuck, second.
Registered bull calf: Roy Hocker, first; Ed Gets, second.
Grade bull, 1 yr. old: no first; Peter Wasilchen, second.
Registered cow: Ed Gets, first.
Registered heifer calf: A. E. Headlee, first.
Grade cow: W. L. Starbuck, first.
Special bull: Roy Hocker, first.
(No grand championship award.)

Shorthorn Cattle

Registered bull, 2 years or over: J. H. Neal, first and second.
Registered bull calf: Oscar Good, first.
Registered cow: J. H. Neal, first.
Registered heifer, 1 year: Hyatt & Sons, first; Oscar Anderson, second and third.
Grand champion bull: J. H. Neal.

Aberdeen Angus

Registered bull: 2 yr. or over; Registered bull, 1 yr. old, Grade cow: Mark Franklin, first on all classes.

Jersey Cattle

Registered cow: Ed Akers, first.
Grade cow: no first; C. H. Nelson, second.

Guernsey Cattle

Registered bull, 2 yrs. or over: Samuel Riggenbach, first.

Holstein Cattle

Registered bull calf: J. F. Zinser, first.
Grade heifer, 1 yr. old: J. F. Zinser, first and second.

Duroc Jersey

Registered boar, 1 yr. or over: J. F. Goff, first.
Registered boar pig: American Guarantee Co., first; Grace Bahr, second.
Registered sow, 1 yr. or over: R. Kistler, first.
Registered sow; gilt: American Guarantee, first; Jess Stephenson, second.
Registered pen, 3 or more: American Guarantee Co., first; R. B. Wheeler, second.

Large Type Poland China

Registered boar, 1 yr. or over: Wm. Robertson, first; W. H. Gingers, second.
Registered boar pig: Robert Bradshaw, first; W. J. Sanderson, second.
Registered sow, 1 yr. or over: Wm. Robertson, first; E. D. Akers, second.
Registered gilt: Wm. Robertson, first; E. D. Akers, second.
Registered pen, 3 or more: Wm. Robertson, first; E. D. Akers, second.

Hampshire

Registered boar, 1 yr. or over; Registered boar pig; Registered sow, 1 yr. or over; Registered gilt: J. F. Goff, first on all.

Registered pen, 3 or more: J. F. Goff, first and second.

Berkshire

Registered boar, 1 yr. or over: Gooding & Schriet, first.
Registered gilt: E. E. Gooding, first; Theo. Phye, second.

Medium Type Poland China

Registered boar pig: Clarence Gets, first.
Registered sow, 1 yr. or over: P. Rawlings, first; Ed Martin, second.
Registered gilt: J. W. Gets, first; Joe Riggenbach, second.
Registered pen, 3 or more: Clarence Gets, first.
Boar, any breed or age: Wm. Robertson, first; American Guarantee Co., second.
Sow, any breed or age: American Guarantee Co., first; Wm. Robertson, second.
Sow and pigs, any breed, litter to bave six pigs or more: Barley & Wilcox, first.
Sweepstakes on pen of 3 or more, any breed: Wm. Robertson, first; American Guarantee Co., second.

Special Prizes Pig Club Members Rio Grande County

Poland China bred gilt: Cbarles Mathias, first.
Poland China boar or gilt farrowed after March 1, 1918: John T. Babr, first; Joe Riggenbach, second and tbird.
Duroc Jersey bred gilt: Ralph Kistler, first; Arthur Hubbard, second.
Duroc Jersey boar or gilt, farrowed after Marcb 1, 1918: R. B. Wheeler, first; Grace Babr, second; Stott Bros., tbird.
Following special pig club prizes offered by First National Bank of Monte Vista:
Registered sow any breed: Paul Rawlings, first; Jack Wright, second.
Litter unweaned pigs: R. B. Wheeler, first; Ted Barber, second.
Registered gilt, 6 mos. or under: Guy Burch, first; Charles Mathias, second.
Registered boar, 6 mos. or under; John T. Bahr, first; Clarence Gets, second.

Corriedale Sheep

Ram: Blood & Sylvester, first; Ed King, second.
Ewe: Gilbreath & Son, first; Blood & Sylvester, second.

Hampshire

Ram: P. H. Gets, first and second.
Ewe: P. H. Gets, first and second.

Rambouillet

Ram: Gilbreath & Son, first and second.
Ewe: Gilbreath & Son, first and second.

Grade Sheep

Ram: L. A. Beacraft, first; Gilbreath & Sons., second.
Ewe: Gilbreath & Sons, first; Ralph Black, second.
Pen registered sheep, any breed, 3 or more: Gilbreath & Son, first; H. P. Blood, second.
Pen grade sheep, 3 or more: Ed Gets, first; Gilbreath & Son, second.
Grade cbampion ram: H. T. Blood.

Horses and Mules

Registered percheron stallion, 3 yr. old or over: Coy Wright, first; Mr. Getts, second.
Grade stallion, 3 yrs. old or over: P. Wasilchen, second.
Stallion, 3 yrs. old: Christ Ebel, first.
Colt, 1 yr. or under: Coy Wright, first; A. E. Headlee, second.
Colt, 2 yrs. old, mare or gelding: L. E. Wrigbt, first.
Mare, 3 yrs. old or over: P. Wasilchen, first and second.
Team of mares: P. Wasilchen, first; A. E. Headlee, second.
Team of geldings: H. Mathias, first and second.
Saddle borse: Colorado Valley Land Co., first.
Mule, 3 yrs. or over: O. L. Sanderson, first; W. J. Sanderson, second.
Mule, 2 yrs. old: Mr. Bond, first: Geo. Wright, second.
Mule, 1 yr. old or under: Geo. Wright, first; Cbester Wright, second.
Draft stallion, any age or breed: Chris Ebel, first; Coy Wright, second.
Gelding: H. Mathias, first and second.
Mule sweepstake, any age: O. L. Sanderson, first.

Farmers Tournouts

Six horse team: H. Matbias, first; J. Shown, second.
Six mule team: O. L. Sanderson, first; W. J. Sanderson, second.
Four horses: H. Mathias, first; Joe Shown, second.
Two horse team: P. Wasilchen, first; H. Matbias, second.
Team of mares: P. Wasilcben, first; A. E. Headlee, second.
Four mule team: W. J. Sanderson, first; O. L. Sanderson, second.
Mule team: O. L. Sanderson, first; W. J. Sanderson, second.

Poultry

Buff Leghorn pen: Mrs. Adams, first.
White Leghorn pen: D. Carroll, first.
Black Minorcas pen: H. Rolfsmere, first.
Barred Rock pen: H. Asay, first; W. W. Wright, second.
Barred Rock cockerel: H. Asay, first and second.
S. C. Rhode Island Red pen: E. D. Akers, first.
S. C. Rhode Island Pullet: C. H. Nelson, first, second and third.
S. C. Rhode Island Hen: C. H. Nelson, first.
S. C. Rhode Island display: C. H. Nelson.
R. C. Cockerels Rhode Island Red: S. Holland, second.
Rhode Island Red pen: Mrs. Adams, first.
W. Wyandottes pullets: G. Godfrey, first, second and third.
W. Wyandottes cockerel: Godfrey, first.
W. Wyandottes, hen: G. Godfrey, first and second.
Buff Wyandottes, pen: J. Zinser, first.
Rhode Island Reds, cock: C. Conant, first.
Rbode Island Reds, pullet: Mrs. Adams, first and second.
Rhode Island Reds, cockerel: Mrs. Adams, first.
Buff Orpingtons, cock: no first; E. Matzen, second.
Buff Orpingtons, cockerel: Dr. Wadleigh, first.
Buff Orpingtons, pullet: Dr. Wadleigh, first, second and third.
Japanese Silkies: R. C. Long, first.
Turkey: Mrs. Robert Williams, first.
Ducks: Mrs. Robert Williams, first.

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E. E. CLARK, Nurseryman, Ridgedale, Idaho

Forest Service Policies

There seems to be a widely prevalent feeling among homesteaders on National Forests that their entries are subject to too much paternal supervision on the part of the Forest Service and that the attitude of that bureau is one of antagonism toward all settlers. We have received a number of specific complaints from such settlers. Recently we took up the matter with the authorities at Washington and are now in receipt of a letter from Acting Forester E. A. Sherman, who writes in the absence of Colonel Graves, as the latter is on military service. Mr. Sherman's explanation of the policies of the forest service is as follows:

"Your letter of January 13 has been received in Colonel Graves' absence from Washington. I am very glad to reply to your inquiry as to the policies of the Forest Service in relation to homesteaders now located within the National Forests. At the outset, a word of explanation as to how it happens that the Forest Service reports on these cases seems desirable. The practice has arisen merely as a matter of good governmental administration and economy. The field officers of this service, by reason of their intimate knowledge of local conditions, are in position to report for the information of the Department of the Interior the facts with respect to any entry in a National Forest in a much easier and economical way than could be done by the officers of that Department. Hence the practice has grown up of securing from the Forest Service reports on all entries within the National Forests.

"Instructions have been given to our officers that it is not the purpose or intent of the Forest Service to initiate contests on trivial grounds against claimants who have entered lands in the National Forests in good faith to secure a home or for some other purposes recognized by law, and therefore, no contest should be brought on slight technical grounds of non-comliance with the law. The officers are expected to look to the spirit and intent of the law under which the land has been entered and where a claimant shows that he has done substantially the things which Congress undoubtedly intended should be done, the claim is always approved for patent. The best evidence that I can offer to show that our officers are observing this instruction and carrying out its purpose is the fact that over 90 per cent of the homestead claims within the National Forests are approved for patent as soon as the entryman gives notice of his intention to make final proof.

"From your acquaintance with public-land matters you, of course, know that in some instances lands are entered as homesteads and thereafter the entryman does practically nothing to meet the requirements of that law. Some entries are abandoned absolutely, while in other cases a mere pretense at meeting the residence and cultivation requirements of the law takes place. It is our understanding that in enacting the homestead law it was the purpose of Congress to get agricultural settlers on the public lands; settlers who would convert the raw lands into farms. The three-year homestead law laid great strees upon the importance of cultivation. Notwithstanding this positive requirement a number of homestead entries have been made within the National Forests and the entryman has not only failed to cultivate the required 20 acres but, in some instances, has not cultivated at all. The excuse has been presented that the land was too far from market, or that it was so rough that it was unsuited to cultivation, or that the entryman could not afford to stay on the land and make a farm of it but was obliged to go elsewhere to earn a living. It is significant in connection with most of these cases that the entryman is not a farmer at all, but usually resides in some town or city and makes his living there. In cases of this character the Forest Service has felt that the entryman has not earned the right to a patent, and, therefore, it has protested the claim and urged that the entry should be cancelled in order that the land may be restored to such a status that title to it may be acquired by a real farmer.

"I wish to thank you for the interest you have taken in this matter and your evident spirit of helpful co-operation. The Forest Service invites suggestions and constructive criticism. It wishes to get the views of the users of the National Forests and in so far as it can, taking into consideration the clear purposes for which the National Forests were established and good administration, to comply with their desires.—E. A. SHERMAN, Acting Forester."

Denver Automotive Show

The Automobile Trades Association of Denver will put on a show to be held at the stock yards stadium building April 1 to 5. There will be exhibited automobiles, trucks, tractors, trailers and accessories.

Additional space in the stadium has been arranged for and the exhibition in the arena and building will occupy over 56,500 square feet.

The arena will be used for the exhibition of passenger automobiles exclusively. To date a total of 266 applications for space in the arena and buildings have been received by the show directors. The trucks and tractors will be shown in buildings adjoining the arena. It is conservatively estimated that there will be at least 250 automobiles in the arena, occupying 28,000 square feet. The total value of exhibits so far accounted for is approximately $2,500,000.

Plans for decorative and special entertainment features are being worked out on a vastly more elaborate scale than ever before. The gigantic dirigible balloon that will be suspended above the arena is in course of construction. It will be eighty-five feet long and eighteen feet in diameter. The original plan of placing the jazz band in the basket of the dirigible has been abandoned. Instead, it is now planned to install an electrical apparatus in the basket and to wire the vault of the arena for electrical displays of unique character. One of these displays is to be a "flower storm," utilizing appropriate music and electrical effects to carry out the idea of lightning and storm and a literal rain of flowers from traps in the roof into the arena.

A special stage will be erected on the edge of the arena—forty-two feet long and twenty feet wide—like any theatrical stage, where a number of entertainment features will be presented.

This show will be a most opportune time for those who contemplate purchasing an automobile truck or tractor to personally inspect practically every make that is on the market this season. In addition to the automobiles which will be on display in the stadium, models of the following may be seen at the distributors' place of business.

Apperson, the Carter Motor Co., 1200 Broadway.
Auburn, Jackson Motor Co., 1235 Broadway.
Allen, Miller Ray Motor Co., Colfax and Lincoln.

(Turn to Page 16)

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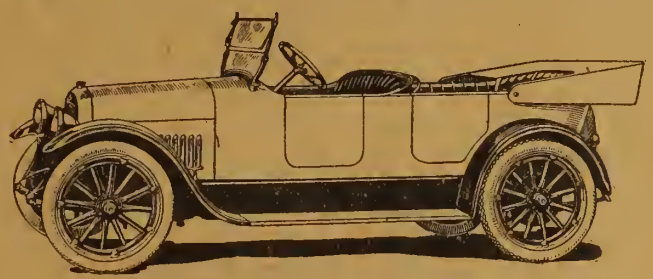

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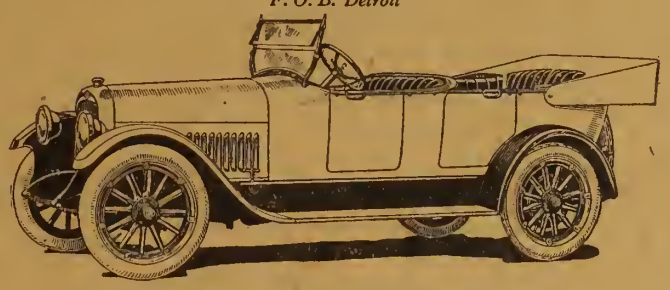

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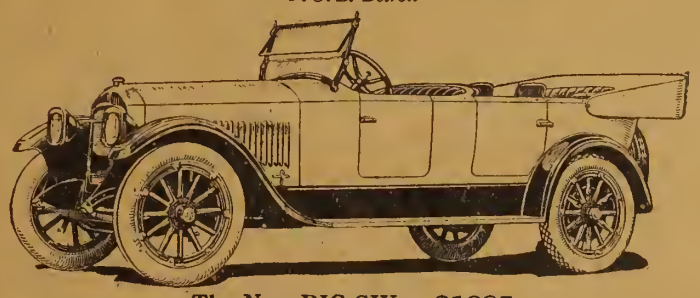

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Our Cover Cut

The title of the cover picture, "On Virginia Lynn Farm, Weld County, Colo.," tells only a part of the story. Virginia Lynn farm is one of the many prosperous dairy farms in the Johnstown district. It is owned by J. W. Whowell, an old time resident of the district, who was for many years in the beef cattle business, but changed to dairying when the condensery was established. A fine herd of Holsteins makes its home on Virginia Lynn farm, flourishing on alfalfa and corn ensilage, the milk-making feeds of the district.

✦ ✦ ✦

Personal Loans for Farmers

Time and again during the last two years the editor in his correspondence with farmers, in personal conversation with them, or in committee work in various agricultural war activities has encountered an obstacle to greater production that proved, for the time being, immovable. It is that of lack of credit facilities for the farmer. The limiting factor in grain or livestock expansion is money; and that in a country where money has been plentiful for all other legitimate business purposes. What is the reason? Has the federal farm loan system failed of its purpose? Decidedly not, but we must keep in mind that the Federal Land banks were organized to provide long time loans for land owning farmers. The land banks are doing a splendid service and the system is being extended just as fast as wisdom and financial safety dictate.

However, nothing is being done to provide the general farmer with capital for current business expansion, in money, the demand for its use and the necessary collateral. What we lack is a way to bring the lender and borrower together on fair terms for short time loans.

Several reasons are given for failure to accommodate farm borrowers on short time loans—lack of lending capacity of country banks, or desire to overcharge for accommodations, and in a few cases, hostility on the part of country banks to general farming development. Some may question the latter statement. We know whereof we speak because we have specific instances in mind. Last August the Secretary of the United States Treasury, in response to appeals from the rural districts for funds that would allow agricultural expansion, issued a statement, which was widely published by the farm press—our magazine among others—urging the War Finance Corporation to make loans to national and state banks on farmers' paper, for the spite of the fact that we have the purpose of expanding the production of wheat, corn, livestock and other foods.

Attempts by farmers to take advantage of that opportunity were futile. We know because applications were made by farmers and turned down by Colorado country banks on the plea that they knew nothing about the plan of the War Finance Corporation and had no funds for the purpose. Possibly the excuse would be that the money was used for agricultural expansion in the older sections, but why some of it should not have reached the country most capable of increasing its livestock and grain output remains a secret. However, it is too late for regrets in that line. Many farmers who took the Secretary's statement at its face value went to their bankers for money and were turned down.

If the war emergency, with a constant demand for foodstuffs at the highest prices ever known, failed to bring a flow of cash for agricultural expansion can we look for relief when normal conditions are restored? What is the farmer to do for personal credit in buying dairy cows, tractors and other equipment? Naturally the country buyer needs cash advances; it takes credit to finance the movement of grain, beans and livestock and then there seems to be nothing left at the bank to take care of the credit needs of the farmer, unless he is willing to pay two prices for the use of the money.

Secretary Houston, in his annual report, called attention to the need for personal credit for the small farmer and mentioned the organization of Personal Credit Unions under state supervision in North Carolina, as possibly a feasible plan. We hope to get further information along this line. Here in Colorado we have a state school fund that is not serving the people as it should. An attempt has been made to give the farmers the benefit of the school money on five year loans, but these are land mortgage loans, thus providing poor competition for federal farm loans, but not meeting the demand for short time money for current farm expansion.

In one or two communities far-seeing business men have worked out a safe system of loans for dairy cattle purchases, as for instance the Las Animas County Dairy Development plan and the El Paso county rural credit fund. In this way homesteaders and others whose entire capital is tied up in the land have been able to get money at a reasonable interest rate, to buy livestock and machinery without which they were practically at a standstill. The question is one that cannot be lightly dismissed by the statement that when a man is worthy and has the assets he can get credit at the bank. The writer happens to know that this is not always the case, especially with our newer settlers. Our prosperity depends upon the farmer. We should not encourage the inexperienced, unworthy, or indigent, but there are thousands of thrifty and intelligent small farmers on the plains, and in the mountains, who, if they knew where to go for a thousand or fifteen hundred dollars at a reasonable rate of interest, would get beyond the hand to mouth stage in one or two crop seasons. If the banking system is not organized to furnish them this needed capital let us examine the plan of co-operative credit unions, so successfully in operation in many European countries and now being tried in some of our own states.

✦ ✦ ✦

As to Implement Prices

"Buy only what you need, but buy it now" is a slogan adopted by the Council of National Defense. This is wholesome advice. Farmers are interested, as much as any other class of citizens, in a speedy restoration of normal conditions of trade. The present is not a time for plunging in crop speculation, nor is it a time for curtailing farming operations. There is every incentive for normal production and a resumption of a normal farming plan. The farm labor shortage is a thing of the past. The demand for food products from our own people and the nations of Europe is still urgent. There is no cause for uncertainty if we stick to the staples that go into the production of bread and meat.

Buying what we need and buying it now, to carry on agriculture on the usual acreage, under as nearly normal conditions as before the war, with a certainty of good prices, naturally means that we must have implements. Recently the press carried an announcement of a reduction of $4 a ton in steel. This gave rise to the belief that implement prices would come down at once. There is no reduction in sight for the present season, because the announced drop did not apply to steel for implements, for the reason that the implement manufacturers had been enjoying a preferential rate of $5 a ton below the general market during the war. This preferential rate was withdrawn simultaneously with the announcement of the new price, so that announcement really means that implement makers must buy in the open market, which is $1 per ton higher than the rate they had been enjoying under war regulations.

There has been no reduction in labor charges, the big item in implement manufacture, and labor is fighting to maintain war wages. Present stocks were manufactured under war conditions. So it is quite apparent that there is no immediate prospect of lower costs. The farmer who needs machinery and implements, and whose revenue must suffer if he fails to put in his crops right, or to get in the acreage of the crops that will pay best—wheat and sugar beets for instance—is safe in making his purchases now. It is a matter of dollars and cents. If the revenue from the crop justifies the outlay, follow the advice of the National Council of Defense—"Buy only what you need, but buy it now."

✦ ✦ ✦

Labor Is Passing the Buck

The United States Department of Labor is addressing an appeal to the farmer, advising him to lead the way in a revival of building. All of which is good as far as it goes. When, however, the Department of Labor assumes that the following is true, the Department errs:

"As a matter of fact, if the farmer will forget about dollars and think in terms of farm products, he will discover that, of all persons in the country today, he alone can build a new house, silo, or barn, for less of the wealth he produces than he could before the war."

We quote further: "The Department of Labor's survey shows clearly there has been a marked increase in the purchasing power of farm produce and a real farmer knows the foundation of his purchasing power is farm products rather than dollars."

This is fallacious and misleading. If the farmer could eat his wheat or corn crop, or all of his hogs and beef; if he could shut himself off from "the other fellow" and produce only to feed and clothe himself from the products of his own farm, he would literally measure his wealth in farm products and not in dollars. But he does not live that way. If he did, there would be no need for a Department of Labor and the statistical experts responsible for fallacious figures would have nothing to eat.

The farmer produces for the world's markets, accepts the price someone else dictates, and enters the markets to buy livestock, machinery, implements, clothing and table necessities at the other fellow's prices, which always include the cost of labor. He has been better off during the era of war prices only in regard to that small proportion of his own table necessities which he grows. All else has had to go through the hopper, either coming or going. No small part of his increasing costs has been labor, the very commodity that is responsible for the existence of a United States Department of Labor. This appeal sent out by the department may or may not represent the attitude of labor. What it does is to try to shift the burden of reconstruction and revival of business on agriculture, just as if the farmer had not been carrying his full share. We wish to ask the Department of Labor:

How many farmer's strikes were there during the war? How many times did the farmers threaten to "tie up the country" if they did not receive more for their products, or have to pay less for their supplies? Was there ever a whimper out of the farmer, when his boys were called away to war and he was urged and urged again to produce more? How many "eight hour days, with time and a half for over time," did the farmer put in during the war?

How much is he getting for his own labor now? What are his working hours? How many holidays does he insist on? How many holidays does his neighbor doesn't belong to the same Grange and refuse to let him put in a crop for that reason? Suppose he adopted that attitude, how would the people be fed?

Quit trying to "pass the buck" to the patient farmer and put your own house in order. The farmer does not begrudge the laborer his high wages; neither his short hours. "Get all you can while the getting is good," but remember this, in the long run the man who wins, be he farmer, laborer, business man or professional man, is he who labors because he loves his work. The tiller of the soil, of all classes, comes nearest that ideal. There has never been one in the history of the world who became a millionaire at farming. How many have gone broke? The farmer has no statistician to tell him that. It does hurt him just a little to hear that "if he will forget about dollars," etc., he can take the initiative in a revival of building, so as to furnish a better market for labor. He will do it of course, because it has been characteristic of the American farmer all through the war, to spend the high dollars in crop expansion. If he had not done so, who would have fed the men in France? Certainly not our statistical experts of the Department of Labor.

The Branding Iron

Applied by Elias M. Ammons

The horsebreeding experiment at Fort Collins was intended to develop an American type of carriage horse. When the work began there was great demand for carriage horses. This situation no longer obtains. The automobile has superseded the carriage. The need for horses is as great as ever but for other purposes. The demand for carriage horses is nearly gone. There is no practical way of turning the experiment in a different direction without beginning anew. The problem with the State Board of Agriculture is whether to continue at great public expense a long drawn-out scheme to produce something that is not wanted. It is contended there are more pressing problems than producing a fine type of carriage horse. For instance, there is no type of American draft horse. We have many imported breeds and each of them has good points. It would require years of selection and trial to determine which of the breeds now used would suit our conditions best. It might be advisable to develop a breed of our own. Experience has shown that establishing a new breed or even a type is a long and laborious task. If attempted at all it should be under well considered plans to be carried out at public expense and not be subject to frequent changes through personal whims or motives.

* * *

In 1908 John E. Painter purchased three yearling heifers from an eastern Hereford breeder for $150 a head. A few days ago he sold these three animals for $1500, notwithstanding the fact they had reached the age of eleven years.

* * *

The Secretary of Agriculture in his speech at Omaha, said the government at Washington was not reaching out for more power, but that the people were forcing more power upon the government. He modestly refrained from declaring that "Barks' is willin.'"

* * *

During the two years we were in the war the crop area of the country increased forty million acres.

* * *

The growth of manufacturing in the South has been so great in recent years that it is now claimed there are more cotton factories in that section than exist in the New England states.

* * *

The Readjustment Congress at Omaha declared that the Western states had the same rights in developing their resources as were enjoyed by the Eastern states. Fair, isn't it? Then let all western members of Congress vote for this principle.

Comment by Farmer Putnam

OUR MISSOURI FRIEND MAKES SOME TIMELY OBSERVATIONS ON THE SUBJECT OF SILOS AND SILAGE

A silo is a hole, entirely surrounded by a wall, fur storin' cow feed. Sometimes the hole is in the ground; sometimes it is up in the air. To build a silo, first select a nice spot fur the hole, then build a wall outside of the hole, if you build up, or inside of the hole if you want a pit silo. Either kind is good, but you got to go about it different. If you cain't put up a silo, put one down, but don't put it off.

All kinds of material is good fur silo buildin' exceptin' hot air. Good ones is made outen cement, concrete, cement staves, or slabs, holler tile, brick, stone, wooden staves, steel, or two-by-fours. We has 2,000 silos in Colorado made of them above materials and about 20,000 outen hot air. Most of the farmers has got the spot fur the hole picked out, but they hain't never begun to commence to build yet, fur some reasons or others. Some hain't got the money, some cain't decide on the kind of silo, some sez it's too much work to haul the crop in and cut it up, some sez it makes the cow's teeth fall out, some sez it gives 'em holler horn and holler tail, some sez it makes the milk turn green, some sez the butter from silage milk won't churn, some sez it makes steers scour, hawgs howl and lambs limp. Anything to put off silo buildin'. I'm a tellin' you folks better git busy and look into this silo business; it'll mean money fur farmers that wants to make beef, mutton, or milk, and I know of some that feeds it to hawgs and lots of it is fed to hosses and mules. I wouldn't starve on it myself if I had to eat some good corn silage.

It don't make much difference what kind of a silo you put up—or down—just so it's built right. First you got to have a spot fur the hole. If you hain't got no hole you cain't fill it with silage. It's like the hole in the doughnut; they wouldn't be no doughnuts without the hole in the middle, but where you got only the hole you ain't got the doughnut. You cain't eat the hole of the doughnut; you eat what's around it; and your cattle cain't eat the hole in the silo; they eat what's in it. Wall up that hole and fill it and you'll never be sorry.

Now about them different kinds of silos: I cain't help but feel kind-a tender toward them pit silos, because they has so many uses. Back in Oklahomy, where they has twisters, why a pit silo cain't only not blow offen the place, but she makes a good cyclone cellar. Out here on the plains in Colorado we don't have twisters, but they is a tolerable high wind now and then, but it cain't hurt a pit silo, but it would dry out a wooden one, if it warn't filled. I heard in the early days of a Kansas cyclone that pulled up a dug well and turned it inside out, leavin' all the water drop out; but it fell on the wheat and the farmer got enough offen his crop that year to have a bored well put down which couldn't slip up on him.

They is lots of uses fur pit silos, besides just keepin' feed in 'em. I allus recommends two of 'em, one to save fur winter and the other fur summer feedin'. In summer fill up the empty one with water and use it fur a swimmin' pool.

We ought to have more pit silos and we could git 'em cheap by reversin' some of the useless holes that now stands up in the air, such as the inside of the dome of the state capitol. It would make a fine pit silo if it was turned upside down and sunk in the ground, and be a lot more useful, because all it's good fur now is to store the hot air that comes up outen the legislater and seeks a outlet toward the roof.

Pit silos cain't be struck by lightnin'; they won't burn down; the silage don't freeze in 'em; they is easy filled and they don't cost so much as a high silo. But they ain't so pretty on the place as a high silo and not so popular with the hired men, because silage is easier to fork down then to pull up.

When I get my ranch all fixed up I'm goin' to have high silos, because I got a new invention goin' through my brain that'll be a dandy when it's worked out. I'm workin' on a self-feedin' silo. The silo is set up on stilts, or on a open foundation, about six feet offen the ground, and they is a slidin' door, air-tight, in the bottom. The feed racks is in the space under the silo and all you have to do it to pull a lever that opens the slidin' door, let out enough feed fur the day, close her up ag'in, and go to town to talk farm bureau organization with the county agent.

If this don't work then I'll bit busy on another ideer I got of doin' away with silos altogether, and producin' a corn with a natural ferment in it that turns it into silage as soon as it's ripe. That way it will keep in the shock or stack and all you got to do is to cut your corn in fall, bring it under cover and feed as needed in the bundle.

I'm experimentin' now with some kernels of corn outen the silo to see if they'll grow after they been fermented, and in that way I reckon I kin find the seed fur my self ensilin' corn.

I was readin' in a Washington report not long ago about the "ufa of rice due to Tylenchus angustus, tokra of Solanaceae due to Orobanche cernua and of Cruciferae due to O. indica and several species of Phytophthora," and I thought if them scientific cusses down in Washington kin do all that in so many words, why I kin make a little contribution to science myself in a practical line like silage corn breedin'. Burbank bred the stickers offen the cactus in California, Jardine is feedin' soapweed silage in Arizona, our farmers is recognizin' Russian thistles as a friend in need, sunflowers is comin' to be known as a high protein feed, so

(Turn to Page 16)

Building a Pit Silo in Las Animas County, Colo.

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A Cow Tester Explains His Work

WHAT TESTING DOES FOR THE DAIRY HERD

ROY M. CURTIS, Tester, Johnstown Assn.

THE tester arrives at the farm before milking time in the evening. Each individual cow's milk is weighed and sampled and the next morning it is again weighed, giving the total for the day, and another sample is again taken in proportion to the amount of milk given at the milking. Samples are taken both morning and evening, because cows vary from one milking to another, depending how long between milking periods. The longer the time between milking periods the less the milk will test. The cow has the power of shifting her butterfat from one milking period to another. If there is enough difference in the milking period she may vary as much as one per cent.

After breakfast the milk is tested and the cow's records for the month are figured and put in a record book that is furnished by the Department of Agriculture. There are columns in the following order: for the date of record taken, pounds of milk daily, pounds of milk in month, test, pounds of fat, price of milk, value of product, amounts of feed, cost of roughage and grain, profit or loss, etc. The record of milk for the day is used as an average for the month

A man might say, "How can this be accurate; my cows vary in quantity of milk from day to day?" This is very true, but he has forgotten that she might vary in test also. The cow does vary in test from day to day and her test is usually higher when the quantity of milk is less. When cold spells come cows usually go down in their milk but are up in test and their butterfat really does not vary from day to day. Experiments show that cow testing records are very accurate and that there is such a big difference in cows that we can't help but get a good idea of what a cow will do for the year.

After the records are figured, the tester figures a ration for each cow according to her record, taking into consideration the price of milk and whether the price is on the increase or decrease, how long the cow has been milking, and many other things. The men that fed their fresh cows last summer when the price of milk was only 48 cents per pound butterfat are getting milk now and have been getting 85 cents per pound butterfat. The tester is making rations for cows every day and has a chance to think of many things that other dairymen don't have time to think of. He is studying records every day and results of different feeding.

I don't believe in using set rules in doing anything and they sure can't be used in feeding. Many dairymen will tell you to feed one pound of grain to each four pounds of milk. If you had a cow weighing 1,600 pounds and another weighing 800 pounds, and both giving the same amount of milk, and had access to all the hay they could eat, would not the 800 pound cow be giving twice as much milk in proportion to her size, or working twice as hard as the 1,600 pound cow? The big cow might also be a cow that would test 3 per cent and the little cow might be testing 6 per cent. In this case she would be working four times as hard. Would we still go by the set rule of feeding one pound of grain to every four pounds of milk? The little cow might also be one that is growing, and in this case would be working still harder. I believe in feeding the cow according to how she is working and the profit she is making, and a record must be taken each month before we can do this.

TWO JOHNSTOWN HOLSTEINS

Ruth Battels Pietertje 3d., 306,067, and Madrigal Korndyke Prinoess, 314,269, Two Three-year-old Holstein Heifers Belonging to Lohry & Walles, of the Johnstown District. Types of Good Milk Producers for Whioh That District Is Famous.

Each cow should be fed the more concentrated grain ration according to how she is working, or feeding bran, dried beet pulp and such bulky things in about the same amounts to everything, adding the corn, linseed meal and more concentrated feed to the ration according to how the cow is working. We also try to have the cow fat before she comes fresh, for we find that if she is not fat enough she won't do any good when she freshens. In one case a cow owned by S. A. Gray freshened a year ago in rather poor condition and only produced 40 pounds of fat. About a month before she freshened this year she wasn't in very good condition, but by feeding her 6 pounds of corn per day until she freshened (which amounted to $6) we got her in very good condition and I was surprised to find her so fat. I weighed her milk and sampled it 10 days after she freshened. She wasn't to her milk yet and was giving 56 pounds of milk per day and testing 4 per cent, or making 70 pounds of fat per month, instead of 40 pounds as she did the year before. Since then she has increased to 64 pounds of milk per day. This 70 pounds of fat for one month sold at the condensery for $59.50. This is only one case where cows have done much better by grain feeding before freshening, but we have many that I could mention.

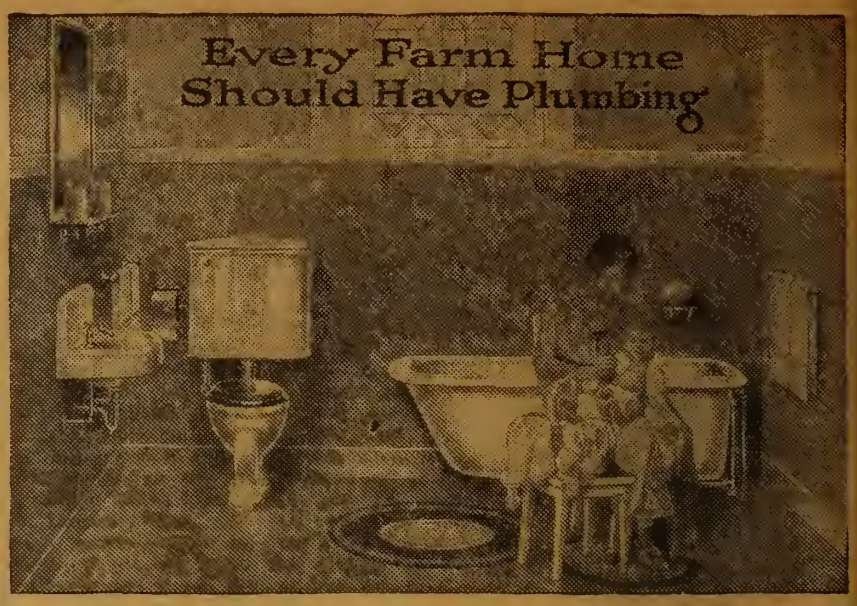
There are many benefits in being in a cow testing association that the association doesn't get credit for.

1. It furnishes an official record to use in selling cows. Dr. O. E. Webb's herd of 12 cows were sold by their records and brought an average of $165 per head.

2. The tester carries ideas from one dairyman to another and does not try to tell the members what he himself knows, but what somebody else knows.

3. The tester in going from place to place makes it a business to see how everything is getting along and has a chance to notice many things that a man wouldn't notice that stayed on the one place all the time.

4. The tester tries to help the dairyman in every way that he can, whether the dairyman wants him to or not, or whether he gets any credit for it. A suggestion never hurts any man. I have noticed many feed racks that are very wasteful and many feed mangers that were so narrow that cows slobbered the grain into the litter in front of the manger. Profit



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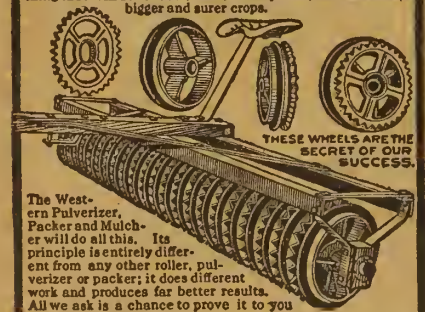

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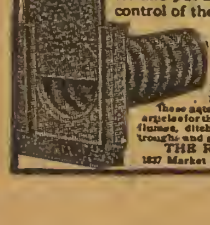

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is a small part of gross returns of any products, and when things are wasted the profit is gone. It is the tester's duty to see that these leaks are stopped at once.

5. The tester figures out a balanced ration for each cow.

6. The monthly record gives a basis by which to feed the cow.

7. The testing of the cows helps to keep the dairyman interested and optimistic, which really means a lot. A man that is not interested in his business can't make a success.

8. Each member has a chance to learn more about his business and better ways of feeding.

9. The testing association is an advertisement for the herd and the country in which they are tested.

10. The tester helps the members in buying and selling cows and usually knows who wants to buy a cow or who has one to sell. He also tries to help in selecting the bulls and many times knows where he can get a good bull for the member's herd in his own neighborhood.

11. At the end of the year we have a year's record on each cow, and cows that don't come up to a certain standard are usually sold out of the herd.

12 Cow testing association records can be put on pedigrees of registered cows and are worth more than the seven-day record.

Lars Carlson Talks On Baby Chicks and Brooders

(Continued from Page 5)

dairyman keeps his heifers from freshening too early so I think maturity and growth should precede laying. Hatching before May gives my pullets time to develop good bone and frame and get to laying in November. The hens do quite well until the pullets get busy."

"Is it possible to hatch too early?"

"I can not answer that question, I can only tell you why I do not hatch earlier. In the first place, eggs are too high to use for hatching until the last of February or early March; we are not catering to the broiler market; if we were we might try earlier to get broilers ready when the prices are highest; earlier hatching requires more house room than we have as chicks would have to be kept in more closely; mortality is heavier under such conditions; fertility of eggs is not so good as a general thing; it is harder to keep eggs from getting chilled in the nests; not all the older hens are doing business in January and we want their eggs for hatching; and above all, we do not need to hatch earlier as we want our pullets to mature just before real winter sets in. To get all the hatching done in a very short time, makes the business ever so much more pleasant. The reason why some people hate the chick season is because they have to string the work along from the time the first hen wants to set until they think they have enough chicks and this is because of lack of equipment, usually. They never get quite enough because of the loss all along the way. I am satisfied that many farmers would more than pay for an incubator and brooder in one season by the saving in chicks, let alone the saving in time, energy and religion."

"You said something about wanting eggs from the older hens for hatching; do you find the chicks better than those from year-old hens?"

"I have never been able to satisfy myself on that point, but think there is no difference. The reason I prefer the eggs from older hens is because I have proved those hens from November when they laid their first egg until the following October or November. I know their performance for a full year, and I only know what these yearlings have done for four months. Undoubtedly, some of these yearlings will molt early and quit laying early; perhaps 60% may lay as long as these older hens did, until October and November. Consequently, in using eggs from the yearling hens I shall set some eggs from hens that are not as prolific as I like, while in the case of the two-year old hens, I know that they were consistent layers for eleven or twelve months. Then, too, they have done this work without a breakdown; their health and stamina are 100% while I do not know how well these younger hens will stand up. Do you know of anyone driving an automobile continuously for twelve months without going into the shop for repairs? These old hens then can do better than an automobile as they have been driving their machinery for twelve months without requiring a single adjustment. They have proven perfect machines and so I value them highly as breeders. Their chicks may or may not be stronger than those of the younger hens, but I believe their pullets will be better layers, on the average."

The telephone called Mr. Carlson away to the city on business and so the interview had to end. I was disappointed in not being able to question him about his feeding methods but have his promise to see me again. From this interview I gather that he considers an abundance of heat absolutely essential to success in brooding; cleanliness is next in importance and feeding next. Generally breeders emphasize feeding most strongly but Mr. Carlson said, "Warmth, comfort and sanitation and most any kind of feed makes a better program than perfectly balanced rations, filth and chilling."

Very truly yours,
W. E. VAPLON.

Russian Sunflowers and Rye Good in Rotation

(Continued from Page 5)

The better class of men are feeding a ration of concentrates every day, amounting to about one pound of the concentrates to every three or four pounds of milk produced, depending upon the butterfat content of the milk.

In putting stover in the silo, lots of water must be used. Some say as much water must be used as weight in stover is put in the silo. In our dry climate here where the stover looses all its moisture, I do not believe this is enough even. I believe two pounds of water for every pound of stover will come nearer being correct.

Running short of ensilage this season, we procured some corn fodder and have just finished putting it in the silo. We used about two tons of water to every ton of the stover. But of course the fodder was a great deal dryer now than it was late in the fall when the silo is usually filled, and all the evaporated moisture had to be replaced in order to be sure of a perfect ferment.

One man back east with whom we are acquainted claims he can husk the corn, cut the stover and blow it into his silo as cheaply as he can husk and crib the corn in the usual way. He has a combined husker and filler which he uses. And he also claims his cows do as well on the stover silage as they used to on the whole corn silage. I know there is a big waste to feeding whole corn ensilage unless you have hogs running after the cattle, and too, we are told that this corn in the droppings does not have much food value for hogs. Anyway the cows do not digest it.

Divide Seed Potatoes

Potato growers who have been unable to get disease free seed, grown under high altitude dry land conditions, will be interested in knowing that there is a good supply to be had among the farmers in the Divide country, around Eastonville. Mr. W. H. Paul of the Paul-Murphin Ranch, Eastonville, states that he and other farmers have a supply of Russet Burbanks, Ohios, Pearls and a few Early Six Weeks, which they can sort up according to buyers' needs, or ship storage run, as desired.

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LEARN the truth about all pipeless furnaces. Learn how to keep your house warm and your cellar cool in coldest winter weather.

Read how we build the famous UNIVERSAL Asbestos-Insulated Pipeless Furnace, widely known as "The Perfect Pipeless Furnace."

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We tell you secrets of pipeless furnace construction that everyone should know before buying a pipeless furnace.

For more than half a century UNIVERSAL stoves have been leaders all over America.

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The UNIVERSAL Asbestos-Insulated Pipeless Furnace was designed by engineers who know the secrets of good home heating. They have put their best knowledge into this successful pipeless furnace.

So we are absolutely certain there is none other so good. None that will give you so much home comfort at such small fuel cost.

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Air circulation is the heart of the pipeless furnace. And air circulation is guaranteed by our asbestos insulation between warm air and cool air passages.

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8 Advantages of the UNIVERSAL

1—Asbestos and unit air insulation.
2—Over-size air passages.
3—Designed by famous heat expert.
4—Patented "Shell Bar" grates.
5—Only NEW iron used.
6—Guaranteed perfect fuel combustion.
7—Height adjustable to any basement.
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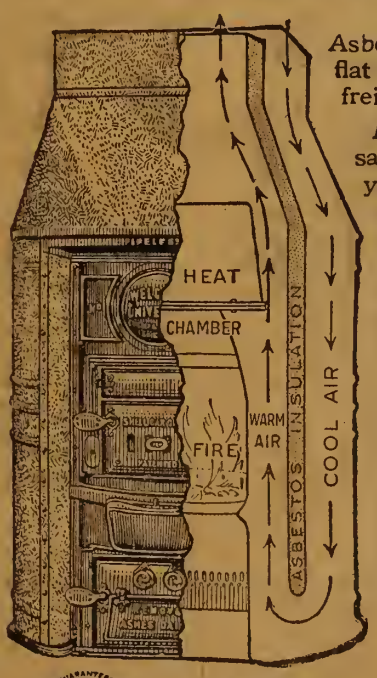
UNIVERSAL Asbestos-Insulated Pipeless Furnace



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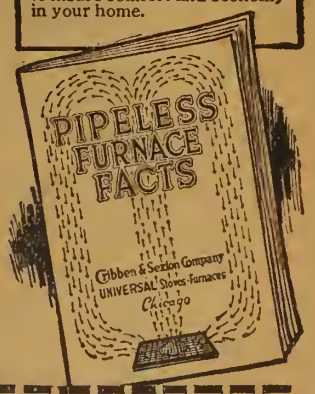
Learn the truth about the pipeless furnace. Prove every statement made to you. This book costs you nothing and tells how to insure comfort and economy in your home.



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Send me without obligation on my part, your booklet "Pipeless Furnace Facts." I will be interested in reading it.

Name.....

Town.....

R. F. D...... *State*.....

House has.....*rooms.*

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU. WESTERN FARM LIFE. Denver, Colorado.

Pit Silo Questions

Answering pit silo questions of J. H. F., West Texas:

1. Are pit silos cemented to the earth?

Ans. Yes. The earth walls of a pit silo are covered with cement plaster applied directly to the earth. This answers your first and second questions.

3 and 4. What cover have they?

Ans. Most farmers do not cover their pit silos. It is well, however, to provide a cover such, for example, as a shed roof built high enough so that it will not interfere with the hoisting apparatus. Of course, there must be some protection to keep stock from falling into the pit and that is usually provided by a fence around the silo.

5. How much water should be used.

Ans. We do not know whether you mean the amount of water used in mixing the cement, or the water added in making silage. If the latter, it depends upon whether the crop put in is green or ripe. Grown under droughty conditions corn or grain sorghums are usually quite dry when mature and it is necessary to add lots of water. Often the water added is about half the bulk of the silage and it is put in through the blower as the silo is filled.

6. Will sorghums make silage?

Ans. Sweet sorghums or cane, if put in green, make an acid silage which is not very desirable. If the sorghum is allowed to ripen, the quality of the silage is usually good but not as high in feeding value as silage made from grain sorghums or corn. Kafir, milo and feterita make practically as good silage as corn. These crops should be cut when the grain is in the hard dough stage, just so the seed can yet be mashed between the fingers. In this stage these crops make excellent silage. This answers also your question No. 7.

8. How much to feed 800 lb. milk cow?

Ans. This depends upon the cow. If she is a good producer, usually 30 to 35 pounds a day of silage will be eaten. Some people feed less than that, but an ordinary Holstein needs 30 lbs. or more, along with a protein feed to keep up production.

9. Is there danger of bloat or prussic acid in the cane?

Ans. If you mean in cane that is siloed, the answer is no. The only danger from prussic acid poisoning in cane occurs in pasturing a stunted second growth, or a frosted field in the fall.

10. Your question No. 10 about maize and kafir has been answered in a previous paragraph.

11. Will silage injure horses?

Ans. Silage may be fed to horses in small quantities if it is in first class condition. There must be no mold or decay, as this is often fatal to horses, as well as causing serious digestive disturbances in sheep and cows to which it may be fed. If your silo is not air tight, or the silage has not been evenly and thoroughly tramped in filling, moldy spots are apt to occur.

12. Will it pay in dry west Texas to put in a silo?

Ans. Any country subject to periodical drouths where forage crops can be grown, must have silos if livestock farming is to be successful. And no other class of farming can be made permanent in a country of that kind.

13. Will peanut tops make good silage?

Ans. They will not if put into a silo alone. If mixed with maize or corn the result will be a very good grade of ensilage. For use alone peanut tops had best be utilized as hay and fed in combination with ensilage. Alfalfa hay is used as feed in Colorado with ensilage and good peanut hay is in every way the equal of alfalfa.

Curbs For Pit Silos

D. W., Kit Carson county, Colo., writes that pit silos in his neighborhood show much crumbling at the top. He wants to know the proper mixture for the cement plaster and the remedy for the crumbling.

The pit silo is provided with a concrete curb 8 inches in thickness, extending down 24 or 30 inches below ground level, and carried 12 or 18 inches above ground level. The inside diameter of this curb is the size desired for the finished pit. Concrete for the curb is mixed in the proportion of 1 part Portland cement to 2 parts sand, to 4 parts gravel or crushed rock. It is well to reinforce the curb with rods or fence wire to prevent any possible cracks.

When the curb is finished, the pit is excavated inside, taking care that the walls are kept plumb and follow the lines of the inside of the curb. The pit is dug to a depth of about 5 feet; the walls plastered; the digging then proceeds for an additional 5 feet, and this height of wall is plastered. These operations are continued until the desired depth is reached. A floor is considered unnecessary for a pit silo. Plaster for the walls is proportioned 1 part Portland cement to 2½ parts clean sand and 10 per cent of slaked or hydrated lime.

In some cases it is found that there is some difficulty in causing the plaster to adhere to the earth walls. In this case stakes about 1 inch square and 18 inches long should be driven horizontally into the earth until only ¾ or 1 inch of the head protrudes. To these stakes is nailed wire cloth or expanded metal, and the plaster is applied to the metal exercising care that the mortar is pressed through the meshes and against the earth walls. The plaster coat is usually 1 inch to 1½ inches in thickness. A roof or heavy board platform should be installed to cover the pit. This prevents snow and dirt from accumulating on top of the silage, besides guarding against the danger of children and stock falling into the silo.—Portland Cement Co.

Sweet Clover Seed Production

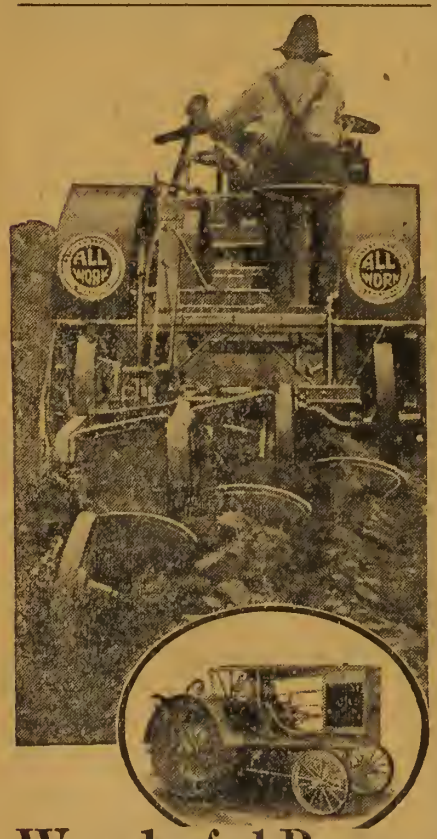
Ans. to W. H. W., Idaho:

White sweet clover is a biennial plant and produces its seed the second year. In regions where there is plenty of moisture the practice in seed production the second year is to cut it once for hay and then let it stand for seed. Under your climatic conditions, however, it would be advisable not to cut the second year, but let it ripen for seed. It ripens very irregularly and the seed shatters badly. Special equipment is needed for harvesting the seed. All of this is quite fully described in Farmers' Bulletin No. 836 of the U. S. Department of Agriculture, copy of which is being mailed to you.

Making Homestead Proof

Answer to W. K., Gilpin county, Colorado:

Any person desiring to make homestead proof should first forward a written notice of his desire to the register and receiver of the land office, giving his postoffice address, the number of his entry, the name and official title of the officer before whom he desires to make proof, and the place at which proof is to be made, and the name and address of at least four of his neighbors who can testify from their own knowledge as to facts which will show that he has in good faith complied with all the requirements of the law. The register will issue a notice naming the time and place for submission of proof and cause same to be published at entryman's expense 30 days preceding submission of proof in the newspaper designated by the register. The first day of publication must be at least thirty days before the date set for proof, and a copy of the notice must be posted in a conspicuous place in the office of the register for at least thirty days before said date.



Wonderful Power
Built Into a Light Tractor

THE ALLWORK is a practical, light-weight, high-powered tractor *guaranteed* to burn kerosene successfully. Possesses a surplus of inbuilt power for pulling 3 plows through any kind or condition of soil.

Equipped with a large 4-cylinder motor (5-inch bore and 6-inch stroke)—the type and size of engine usually employed to pull 4 *plows*. This engine is set crosswise on the frame, thus giving *direct* spur-gear drive. No bevel gears. This *assures 10 to 15 per cent more power at the drawbar.*

Does all kinds of belt work, too. Will run separator, corn sheller, feed grinder, or do any kind of belt work. It is an all-year-'round tractor; gives economical and efficient *service* Spring, Summer, Autumn and Winter.

Write for Catalog.

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Allwork
Kerosene Tractor
"Backed By 12 Years of Tractor Experience"

Keep Cornfields Clean

INTERNATIONAL Corn Cultivators keep the surface soil in good lively tilth and free from weeds.

International No. 1 is built for deep early cultivation, shallow late cultivation, and for laying by. It is a high-arched, pivot pole cultivator of unusual strength and light draft, is easily handled, and has the parallel gang movement so necessary for good clean work close to the corn. Gang equipment consists of 4, 6, and 8-shovel gangs, pin break or spring trip, with round or heavy slotted shanks.

International No. 4 is built for use in fields with crooked rows, on hillsides and for narrow-row crops like peas and beans. No. 4 has a pivot axle and frame that makes quick dodging easy, while keeping the gangs parallel and the shovels facing squarely to the front. It handles easily, does clean close work, and can be adjusted to meet practically every condition of soil, surface, and planting irregularity.

The **International** line includes two-row cultivators, motor and horse; walking, and combined riding and walking cultivators. The list below shows our complete line of farm machines. See the local dealer or write us for catalogues.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders Push Binders
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Grain Drills
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Other Farm Equipment
Cream Separators
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In Western Canada Grain Growing is a profit maker. Raising Cattle, Sheep and Hogs brings certain success. It's easy to prosper where you can raise 20 to 45 bu. of wheat to the acre and buy on easy terms,

Land at $15 to $30 Per Acre
—Good Grazing Land at Much Less.

Railway and Land Co's. are offering **unusual inducements to homeseekers to settle in Western Canada** and enjoy her prosperity. Loans made for the purchase of stock or other farming requirements can be had at low interest.

The Governments of the Dominion and Provinces of **Manitoba, Saskatchewan and Alberta** extend every **encouragement to the farmer and ranchman.**

You can obtain excellent land at low prices on easy terms, and get **high prices** for your **grain, cattle, sheep and hogs**—low taxes (none on improvements), good markets and shipping facilities, free schools, churches, splendid climate and sure crops.

For illustrated literature, maps, description of lands for sale in Manitoba, Saskatchewan and Alberta, reduced railroad rates, etc., apply to Superintendent of Immigration, Ottawa, Canada, or

K. HADDELAND, Dunn Block, Great Falls, Montana
Canadian Government Agent

WESTERN CANADA Farm Lands Low Prices The Wheat Belt of America

U. S. SHEARING TESTS

Tests conducted by the U. S. Bureau of Animal Industry at Laramie, Wyoming demonstrated that sheep sheared with a machine not only produce more wool the first season, but grow more wool every successive year. Wool commands high prices. Get a Stewart No. 9 Ball Bearing Shearing Machine and make more money. Price, $14. Send $2—pay balance on arrival. Write for catalog.

CHICAGO FLEXIBLE SHAFT CO.
Dept. B 104, 12th St., and Central Ave., Chicago, Ill.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Probably Calf Diphtheria

I would like to know what was the matter with my calves. They took sick suddenly, seemed to have an appetite, but could not swallow the feed. It seemed as if the trouble was in their throats. They also had a white discharge from their nostrils. Five of the calves took sick with it. Four died and one got well. I feed them meadow bay and they had all the salt they wanted.—S. L., Custer county, Colo.

It appears that the disease in question must have been necrobacillosis or what is commonly called "calf diphtheria." This is a specific germ disease, infectious and probably contagious. As soon as the first calf became sick the others should have been taken away and placed by themselves. Yellowish deposits of croupous membranes will be found in the mouth cavity and the tongue somewhat swollen. There is usually a cough and a discharge from the nose. The animal becomes greatly emaciated and will take but little if any food. The mouths of the calves that are healthy and have been isolated should be washed frequently with a five per cent solution of boric acid. It will do no harm if some of the solution is swallowed. Many of the sick calves can be saved with appropriate treatment. The pseudo-membranes in the mouth should be painted twice daily with a paste consisting of water and salicylic acid. Tincture of iodine, or 5% solution of potassium permanganate, may be used if more convenient. Attempts should be made to keep them in good strength by supplying them with nutritious food. Attention should be given to ventilation and disinfection of the stables to prevent the spread of the disease.—G. H. G.

What Killed This Cow?

Can you tell me what ailed this cow? She was 6 years old, red polled cow in good condition. Fed and sheltered. Had calf January 20 early in morning. I gave hot bran mash and she cleaned that afternoon. Seemed all right for few days, but did not give milk as usual. About 25th seemed to be hard for her to breathe and made a low moaning noise while lying down. Had good appetite and moved around all right. About February 6 seemed to lose appetite and a swelling came under her jaws about size of quart cup; also her brisket swelled some. I lanced the places and a clear water ran freely. I gave for several days a drench of soda and salts. She seemed to be hungry until yesterday. Would only take water and bran. Died today. Her tongue didn't show any spots and the swelling had entirely gone. She got up a few hours before she died. Everyone seems puzzled over her and I would like to know what was wrong with her. The calf is hearty and well.—W. E. H., N. Mex.

A postmortem examination would possibly have revealed the cause of the cow's death; and a description of the same would have come nearer making it possible for me to assist you in a diagnosis. The best I could do under the circumstances would be to make a guess and if I were unwise enough to take such an unnecessary chance, I should probably guess it to be "foreign body." The term relates to a condition, which is surprisingly common, where a piece of wire, nail, or other sharp metallic body passes through the wall of the stomach, the diaphragm and into the heart sac. The difficult breathing, moaning and swelling of the brisket, rather indicates this condition.—G. H. H.

Horses Have Moon Blindness

I have four horses that have gone blind. One horse is blind in both eyes, the other three just in the right eye. Two of the horses have been blind for over a year. A white scum comes over the eye which disappears a little at times but comes back. One horse went blind a year ago in both eyes, but his eyes cleared up in about a month and was all right until two months ago, when a scum formed over the right eye, which has never cleared up yet. My neighbor has one horse affected. These horses are in good condition. Two horses are mares in foal. They are fed alfalfa hay and some oats. Is there a cure for this disease, and what is it?—O. L. M., Prowers county, Colo.

The disease affecting your horses is probably periodic opthalmia, (moon blindness). The cause of this disease is not known. It was quite prevalent among eastern horses twenty and thirty years ago but in the west has been practically unknown, until this year a few cases have been reported. It received its name "moon blindness" from a general belief that it was caused by changes of the moon. Mares afflicted with it should not be bred since there is apparently a hereditary predisposition and the disease is incurable. There is an unaccountable inflammation of the eyes which disappears after a week or two and recurs periodically at periods of a few weeks or a few months. Total and permanent blindness always results in a year or two regardless of treatment.—G. H. G.

Refuses to Condemn Mare

I have an old mare about twenty. Swelling began about ten days ago on the lower part of her ribs clear across from one side to the other. It is now about two feet in length and is still increasing. The swelling is from one to two inches in thickness, is hard and very warm and seems to be very painful. The old mare still has good appetite, but is getting poorer every day; has not done any work for three months. Can you tell me if anything can be done to cure her or is it best to put her out of misery?—A. D., Las Animas county, Colo

The swelling indicated being hot and painful supports the assumption that it is an abscess formation and not dropsical. If this assumption proves to be correct, and if the old mare has teeth to masticate her food, she may be worth saving. Few horses render a service after they are twenty that warrant feeding them. We usually feed them, however, as long as they can do any work, but we do this not as a business proposition, but for reasons of sentiment. It is up to you.—G. H. G.

Probably Contagious Abortion.

Answer to F. C., Baca county, Colo.: Your herd is probably affected with contagious abortion. In Routt county last week there was much complaint of abortion in cattle and at one place examination of the native hay revealed the presence of ergot in the hay in large quantities. There was ergot enough in the hay to fully acount for all of the abortions. The ergot can be easily recognized as black kernels, which have apparently taken the place of the seeds, in the heads of the various grasses, especially bluestem, wild rye, wheat grass, etc. These kernels are about one fourth inch long and have the appearance somewhat, of the lead in a leadpencil. Corn and other smuts will not cause abortion, and should not be confused with ergot. The ergot is mentioned in this connection because it must be looked upon as an important factor in abortion. The notion of contagious abortion should not absorb our interest to the exclusion of everything else that may cause it. However, judging from the nature of the feed in this instance, and the symptoms given, there is little doubt but that the disease is contagious abortion. A bulletin treating of the disease in detail will be sent to you upon application.—G. H. G.

Jarosa Ranch Horse Sale

The sixth annual horse sale of the Jarosa ranch at Longmont brought together some five hundred farmers and resulted in the dispersal of a choice lot of purebred Percheron, Belgian and Shire horses and mares, which went mainly to buyers from Northern Colorado. Show stock brought good figures, one stallion selling up to $1,500, but there was a very evident disposition on the part of buyers to get pulling power for the farm, along with quality and blood, which gives the colts a value on which the farmer can realize a big profit. As always, Howard M. Jay, manager of the ranch, announced that every animal offered was as catalogued and that every buyer must leave the sale ring a satisfied customer. This policy has established the Jarosa sale as the one big horse event of the mountain region, and it continues to attract more buyers every year.

Percheron mares sold very well, but other classes also were in demand, although prices received were below expectations on many of the outstanding individuals.

One of the features of this sale, which makes it more and more attractive, is the arrangements for taking care of the crowds. The sales are held in the pavilion at the Longmont fair grounds, within a few blocks of the center of town. The sale ring was inside the barns, on account of the snow that covered the ground. A gallery provides room for spectators, while buyers found plenty of space on the ground floor, in front of the auctioneer's stand. The auctioneers were Alpheus Bashor, the Longmont veteran with a long record of successful sales, C. W. Snook, Joe Hayes, both well known all over Colorado, and W. A. Fisher, a newcomer who did his full share in bringing out the money.

Following is a list of representative sales:

Percheron Mares

Idee 87845, W. A. Smith, Boulder, $575.
Jacqueline 89192, W. A. Smith, Boulder $520.
Lady Pink 138387, James Walker, Mead, $525.
Rose 135704, Harry Peters, Platteville, $500.
Jointure 84235, L. D. Law, Fort Collins, $505.
Finette 126699, Johnson Evans, Fort Collins, $435.
Mare out of imported sire and dam, C. L. Walker, $450.
Mare out of imported sire and dam, Johnson Evans, Fort Collins, $425.
Lot 69, J. H. Trostel, Brighton, $402.50.
Cecil II, C. L. Dowell, Longmont, $395.
Tulipe Joyeuse 135705, C. V. Owens, Greeley, $365.
Jessie 55767, C. L. Walker, $357.50.
Colt 9 months, W. A. Smith, Boulder, $315.
Colt 9 months, W. A. Dickens, Longmont, $295.
Two year old, Middlesworth Bros., Wiggins, $250.
Kitty, a yearling, Geo. E. Brown, Johnstown, $235.
Lot 90, colt, W. A. Dickens, Longmont, $150.

Percheron Stallions

Lot — 3 year old, G. Hall, Lafayette, $1085.
Idee's Actionnaire 135706, Middlesworth Bros., Wiggins, $970.
Lot — 3 year old, Middlesworth Bros., $890.

(Turn to Page 16)

EVERY one needs a weatherproof coat. On the farm, as well as in the city, it is necessary protection for health and clothing. Get a Raynster. Then you are sure of a coat that will give full service and is worth every cent you pay for it.

The Raynster Label marks the most complete line of weatherproof clothing made. There are heavy rubber-surfaced Raynsters for outdoor work in the fields or driving, storm-defying ulsters, light slip-ons and slickers, fine cloth Raynsters that make the best kind of overcoats as well as being weatherproof.

There are Raynsters for women, girls and boys. Ask for your Raynster in any good clothing store. Be sure to look for the Raynster Label in the collar.

Write for the Raynster Style Book

United States Rubber Company

Clothing Division **New York and Boston**

Look for this Label in your Raynster

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UNITED STATES RUBBER COMPANY US RUBBER SYSTEM AND ASSOCIATED COMPANIES

Carl Hixson's Acre of Corn

A remarkable showing was made by Carl Hixson of Boulder county, the 14-year-old champion boy corn grower of Colorado. His championship is based on record of his acre, the story he wrote about it and his ten ear exhibit, each counting one-third in the state contest. He made a profit of $78.82 on his acre of Minnesota No. 13, the crop alone considered, and in addition, his receipts amounted to $38 from the sale of a half bushel crate of seed corn at $14 and his ten ear exhibit, which sold for $24 at the Boulder county corn show. He had a yield of 65 bushels, the crop being grown under irrigation.

Cost of growing the crop and other details are given by the young man as follows:

Plowing and harrowing—7 hours for self and team, $4.20.
Planting—3 hours self, $0.45.
Cultivating and hoeing—12 hours for self and team, $3.60.

Half Bushel Crate Minnesota No. 13 Seed Corn, Grown by Frank Hartnaughl, Boulder County, Colo. This Corn Tests 98 Per Cent.

Harvesting and husking—17 hours self, 1 hour team, $2.70.
Rent of land, $10.00.
Cost of seed, $1.00.
Other expense—Arsenate of lead and barnyard manure, $12.35.
Total cost of crop, $34.30.

Value of Crop (Estimated)

Seed corn @$5.60, $5.60.
Marketable corn, 3584 lbs., @3c per lb., $107.52.
Total value of crop, $113.12.
Less cost of crop, $34.30.
Profit on 1 acre, $78.82.
No value given for fodder. Rent of land was fixed for all club members at $10 for irrigated land and $2 for unirrigated land; labor at 15 cents per hour; and 15 cents per hour for each horse used.

Winnings at Fairs

Exhibit of 10 ears won 1st at Boulder County fair.
Exhibit of 10 ears won 2nd at Pueblo State fair.
One-half bushel crate of seed corn won 1st at Denver Stock show.
Won 1st place in state and county as corn member where exhibit, story and record counted one-third.
His one-half bushel crate of Minnesota No. 13 seed sold at Boulder County Corn show for $14.00.
His 10 ear exhibit sold at Boulder County Corn show for $24.00.

Comment by Farmer Putnam

(Continued from Page 11)

nuthin' is wonderful or impossible any more.

I reckon it's about time us farmers was quittin' cultivatin', because them scientific fellers is discoverin' so many new things that we kin do with weeds. Some feller named Adam—I guess he must-a been from Adams county—brought all this trouble on us by takin' a bite outen a apple which his Josephine offered him, and he was condemned to till the ground and eat of it in sorrow. The scriptures sez it should bring forth thorns and thistles and "thou"—meanin' this feller Adams—"shalt eat the herb of the field." That was all right in the old days, but this here world is bein' made over. Nowadays we put them thorns and thistles in the silos, let the cows eat the dandelions if they like the herb of the field, we eat pie and Golden Belt farm sausage, and fried chicken, so why should we have to foller that feller Parsons and keep on tillin' the ground? If he didn't ask us to till it so all-fired deep we'd ruther lissen to him. They ain't practically no limit to what agriculture science kin do nowadays—most everything I reckon except to make a county agent git his monthly report in on time.

THOMAS JEFFERSON PUTNAM

Jarosa Ranch Horse Sale

(Continued from Page 15)

Khedive 55766, Geo. Ross, Loveland, $335.
Lot 86 colt, Geo. Ross, Loveland, $125.
Lot — colt, Clay Stewart, $95.
Lot 78, 3 year old, J. Gordon, Evans, $230.
Lot — 4 year old, P. Button, Longmont, $125.
Lot 80, 3 year old, Fred Ballard, $140.
Lot 79, coming 2 year old, G. S. Middlesworth, $175.

French Draft Mares

Lot 99 colt, W. B. Patrick, $130.
Millie 29865, Geo. Ross, Loveland, $500.
Pair, Irene 28010 and Olive 27985, Middlesworth Bros., $840.
Flora 28072, C. L. Walker, Longmont, $285.
Dorothy, W. B. Patrick, Longmont, $460.
Mabel 30514, C. L. Walker, $335.

French Draft Stallion

Two year old, Richard Carroll, Eaton, $117.50.

Belgian Stallions

Reuben 9843, A. Duffield, Loveland, $700.
Lot — 8 year old stallion, W. W. Naylor, Eastlake, $1,500.

Belgian Mares

Pair 5 year old, W. W. Naylor, Eastlake, $1275.

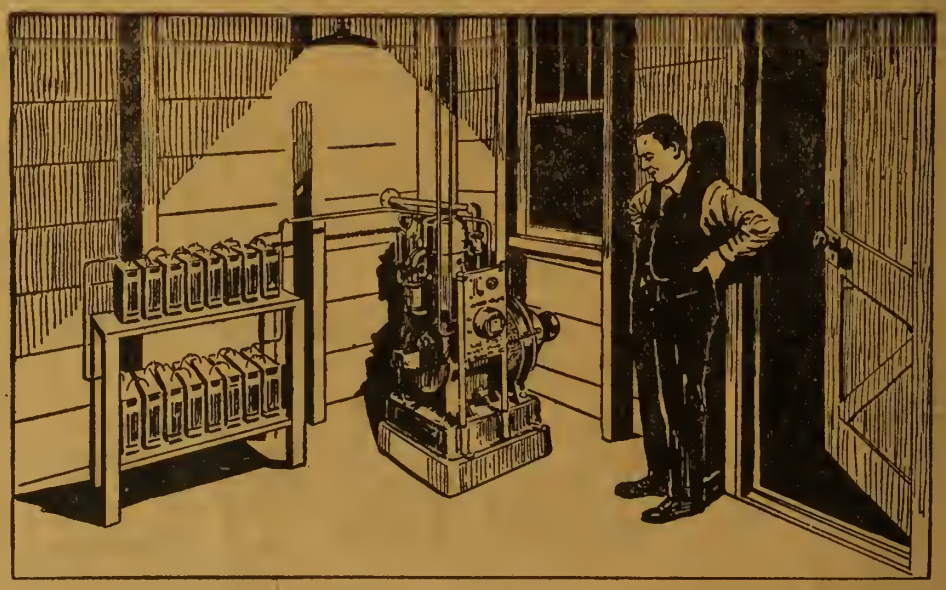
Denver Automotive Show

(Continued from Page 9)

Buick, Norton-Buick Auto Co., 25 Colfax.
Briscoe, Geo. H. Estabrook, 1700 Broadway.
Cadillac, Cadillac Motor Co., 1376 Broadway.
Chandler, Warriner & Cochran, 1248 Broadway.
Chalmers, E. J. Johnson, 1437 Cleveland pl.
Cole, the Cole Motor Sales Co., 1225 Broadway.
Case, Spinney Motor Co., 1135 Broadway.
Dort, the Carter Motor Co., 1200 Broadway.
Dodge, Tom Botterill, Inc., 1278 Broadway.
Essex, Tom Botterill, Inc., 1278 Broadway.
Elgin 6, the National Motor Co., 1624 Broadway.
Franklin, Auto Sales Corp., 1520 Broadway.
Ford, Ford Motor Co., 920 South Broadway.
Grant, Exchange Auto Co., 1216 Broadway.
Hollier, Geo. H. Estabrook, 1700 Broadway.
Harronn, Haugh-McRae Norton Co., 1341 Broadway.
Holmes, the Mountain Motor Co., 131 Speer Blvd.
Hudson, Tom Botterill, Inc., 1278 Broadway.
Hupmobile, S. B. I. Motor Co., 1260 Broadway.
Haynes, Kelton Motor Co., 1622 Broadway.
Interstate, McCormick & Vertrees, 1636 Broadway.
Jordan, Spinney Motor Co., 1135 Broadway.
Kissel Kar, the Miller Ray Motor Co., Colfax and Lincoln.
King, the Carter Motor Co., 1200 Broadway.
Locomobile, Dan B. Southard, 1699 Court Pl.
Liberty, the Carter Motor Co., 1200 Broadway.
Lexington, Lexington Colo. Auto Co., 1304 Broadway.
MacFarlane, Geo. H. Estabrook, 1700 Broadway.
Moon, Walker-Plath, 1734 Broadway.
Maxwell, E. J. Johnson, 1437 Cleveland Pl.
Marion, Merrick Motor Co., 1551 Broadway.
Mitchell, Linger-Goff Co, 1268 Broadway.
Mercer, Dan B. Southard, 1699 Court Pl.
Nash, the Nash Motor Co., 1134 Broadway.
Overland, Willys Overland Inc., 1509 Cheyenne Pl.
Oldsmobile, W. W. Barnett, 1308 Lincoln St.
Owen, J. L. Armstrong, 1340 Acoma.
Olympia, Dan B. Southard, 1699 Court Pl.
Packard, Mountain Motors Co., 131 Speer
Paige, Platt-Faucett Motor Co., 1249 Broadway.
Premier, E. J. Johnson, 1437 Cleveland Pl.
Pilot, Elmore Auto Co., 1916 Broadway.
Peerless, the Maxwell-Chamberton Motor Co., 1271 Broadway.
Pierce-Arrow, the Kumpf Motor Car Co., 439 Broadway.
Reo, Colorado Motor Co., 1115 Broadway.
Roamer, Spinney Motor Co., 1135 Broadway.
Scripps-Booth, the Mt. Motor Co., 131 Speer Blvd.
Saxon, Broadway Motor Sales Co., 1242 Broadway.
Stephens, Hardy Motor Co., 1718 Broadway.
Studebaker, Auto Sales Corp., 1520 Broadway.
Velie, H. H. Heiser Co., 700 Broadway.

Readers of Western Farm Life that are interested in any of the above automobiles and do not find it convenient to attend the show next month can communicate with the distributor and full description and prices will be sent by mail and the location of the nearest retail dealer will be supplied.

Western Electric POWER and LIGHT



For every power use, this direct-connected set will furnish the electricity at low cost

The Western Electric Company believes that electric power will do for farming what it has done for other industries. It believes that every business farmer will consider the purchase of a sturdy, dependable power plant when offered by a manufacturer with unlimited resources for making good every promise. It backs up this belief by offering the Western Electric Power and Light plant in one neat, compact unit—the result of many years of experimenting.

The entire plant stands about 4½ feet high. The engine burns kerosene or gasoline; is throttle governed and air cooled.

The plant automatically starts itself at the touch of the starting lever; oils itself automatically; feeds its own fuel automatically by a vacuum feed system; automatically gives a tapering charge to the battery; stops itself when the battery is fully charged. Every automatic feature that can add to simplicity and reliability is found on this Western Electric Plant.

Small motors for pumps, cream separator, fanning mill, etc., can be operated directly from the generator thereby saving the battery for use at night. Many farmers are already using the Western Electric Utility Motor, a ⅙ horse power motor which can be carried to the work.

The Western Electric man near you will demonstrate this plant to you—and tell you about the many Western Electric labor savers for farm and home: all have been proved practical on farms everywhere.

Write for booklet No. 14-WFL and we will tell the Western Electric man to get in touch with you.

THE WESTERN ELECTRIC CO., Inc.

1425-1429 Curtis St., Denver, Colo.
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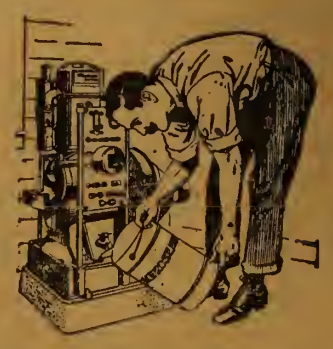


The fuel is poured into the base of the engine which burns kerosene as well as it does gasoline.

Twenty-five per cent more farmers in the United States treated seed to prevent cereal smuts in the 1918 spring and fall seeding seasons than during the previous year, according to an estimate recently made by the United States Department of Agriculture, based on surveys and on increased demand for formaldehyde and copper sulphate, which are used in making the treatment. The estimated national loss due to smuts in the 1918 crop was 25,500,000 bushels of wheat; 110,000,000 bushels of oats; and 6,000,000 bushels of barley.

Dig Out Common Barberry Now

This is the time to locate barberry bushes, dig them out, and thereby protect the wheat crop of the entire neighborhood from black rust. That is the advice of workers in the United States Department of Agriculture who are directing the campaign to destroy the common barberry. At present about 60 field men are at work in 14 northern and central states locating barberry bushes; but this force will be very materially increased before the height of the open season for barberry digging—when the frost begins to come out of the ground. At present the spores of the black stem rust, in which stage the rust passes the winter, are lying on stubble and grasses waiting for spring to come so they can begin their destructive work. The black spore stage can not spread to grains and grasses, but only to the common barberry, on which it forms the spring or clustercup stage. These spores then cause rust on grains and grasses. If there are no common barberry bushes, therefore the rust can not get started in the spring.

Ragdoll Tester for Corn

Take a piece of muslin eighteen inches wide and of any desired length, depending on the number of ears to be tested. If the tester is to accommodate twenty ears of corn, a piece of cloth eighteen inches wide and four feet long will be ample. The cloth should be marked off in 2½ or 3 inch squares. These squares may be smaller or larger as occasion demands, but in general the 3-inch square is large enough to accommodate as many kernels as will be used—usually not more than ten. At least six inches of cloth should be allowed on each end of the tester beyond the squares.

After the kernels have been removed from the ear and placed in the numbered squares, the sides of the cloth may be folded over and the "doll" may then be rolled up without fear of disturbing the kernels. The cloth which was left at either end permits starting and finishing the roll without losing the kernels. The rag doll should be thoroughly moistened either by sprinkling with warm water or by immersing in a bucket of warm (not hot) water for two or three hours. After the cloth has been thoroughly saturated it can be put away in a warm place. The rag doll must not be allowed to dry, as moisture is essential. A good method of maintaining the moisture in the rag doll tester is to put it in a shoe box or small wooden box and cover it with moist sawdust. As with other testers, the sprouting kernels must not become chilled, as this will not only retard but may actually prevent the germination of the grain.

Prof. Robbins of Colorado Agricultural College advises keeping the ragdoll at a temperature of 80 to 90 degrees F. during the day and 50 to 60 degrees F. at night. Count the sprouts at the end of five days

Write to the Agricultural College at Fort Collins for bulletin on "Seed Testing in the Home and School."

Silos Essential to Success in Western Stock Farming

(Continued from Page 3)

and feeds dairy cattle and some to beef cattle. Means more milk and a saving of hay. Has never been able to put up enough ensilage.

H. G. Meredith, Huerfano: Pit silo. Feeds corn ensilage to dairy cattle. Great saving of storage space and care and handling feed. Will put down another silo this year.

T. D. Harris, Brush: Stone silo. Uses corn, alfalfa and cane. Feeds horses and sheep and a little to dairy cattle. Excellent feed. Lambs are five pounds heavier when finished with silage than same grade fed on hay. Prefers silage to good alfalfa hay at the same price.

L. B. Burnham, Redmesa: Two pit silos; cost $90 and $75; capacity 40 tons each. Uses corn to fill. Feeds dairy cattle, beef cattle and horses. Colts and horses doing fine on 80 per cent silage ration. Silos paid for themselves twice the first year.

Frank G. Bloom, Trinidad: Dickey silo; cost $1,000. Capacity 200 tons. Uses corn and cane and finds cane equally as good as corn, if cut when headed out.

Bert E. Sterret, Bristol: Glazed tile silo. Uses corn and feterita to fill. Other crops not quite so good as corn. Feeds dairy and beef cattle. Works great economy in saving crops; feed is relished at all seasons; silo has paid for itself.

F. B. Breniman, Fort Collins: Tile silo; cost $850. Capacity 245 tons. Feeds beef cattle; finds corn silage very satisfactory; silo is paying for itself.

E. W. Newland, Bayfield: Concrete silo; cost $500; capacity, 100 tons. Corn silage fine for dairy cattle; cheapest feed that farm can produce.

B. H. Lacy, Bayfield: Stave silo; corn silage for beef, dairy cattle, horses and hogs. Preserves the corn and is easy to feed.

D. A. Leel, Durango: Concrete silo. Feeds corn silage to dairy cattle and finds it satisfactory. Saves feed and is much cheaper than other feeds, and stock do better on it. Silo cost $500 and paid for itself half in first year of use.

J. Mitchell, Allison: Stave silo; cost $325. Feeds corn silage to sheep and hogs. Finds it much cheaper than other feeds. Silo has paid for itself.

R. A. Jarboe, Lamar: Pit silo; cost $7.50, exclusive of labor; capacity 50 tons. Fills with corn, milo, feterita, broomcorn, thistles, sunflowers, and says: "Anything you can put in green is good for silage, but other crops are not quite as good as corn." He feeds dairy cows.

F. A. Veverka, Sterling: Two pit silos. Feeds corn silage to beef cattle and hogs and finds it very satisfactory, as silage is "a cheap succulent feed, and is eaten with relish, and makes good gains."

Charles Crabill, Carr: Forty ton pit silo; cost $18. Feeds dairy cattle, horses, sheep and hogs. Silage takes the place of alfalfa and other feeds that cannot be grown to advantage on dry lands.

Earl W. Reicke, Padroni: Two pit silos. Uses corn and a little cane to top off the silage. Feeds to calves; very satisfactory; no waste in feeding.

Albert C. Fox, Lamar: Pit silo, but did not plaster walls; cost him $3 for cement to build the collar. Fills with corn, milo, cane and broomcorn. Feeds to dairy cattle. Satisfactory, economical and convenient.

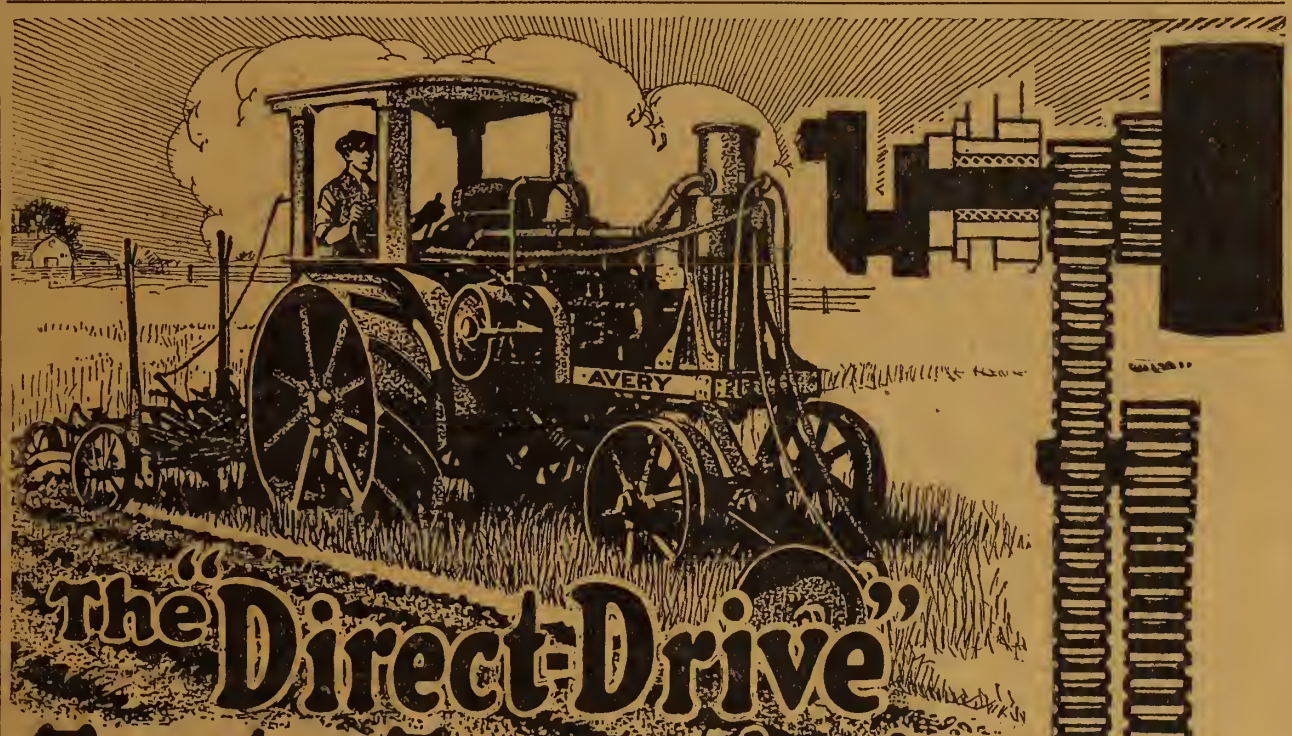
A. L. Candee, Golden: Pit silo; capacity 150 tons; cost $70 in 1916. Uses corn silage. Silo enables him to keep more dairy cows. Has paid for itself "many times over," he says.

J. M. Rodgers, Wellington: Pit silo. Uses corn for ensilage. Feeds dairy cattle, hogs and has fed some to horses. Satisfactory feed. Conserves natural juices and keeps the feed for a long time when there is no green feed to be had. Eliminates practically all waste in corn and is an appetizing feed.

H. F. Lombard, Concrete: Has wood stave silo. Fills with corn and fall rye. Found rye poor feed because he let it get too ripe. Likes silage; keeps cows in healthy condition and increases efficiency of other feeds.

A. C. Gibson, Bennett: Wood silo; cost $300; capacity 175 tons. Built in 1914. Fills with corn. Feeds beef cattle only, with one or two dairy cows. Fed some to horses; they like it. Best you can give sheep and finds it good for hogs, turkeys and geese. Silo keeps the feed where it can't dry up, blow away or rot and it makes a much better feed than dry forage. Silo has paid for itself.

Test, clean, treat all farm seeds before planting.



The "Direct-Drive" Tractor Transmission

THERE are just two things you want a tractor to do for you—to furnish you with traction and belt power. How much of the power of the motor you get at the drawbar and the belt pulley depends upon the efficiency of the transmission.

The Patented Sliding Frame Transmission in Avery Tractors gives you a "*Direct-Drive*" in either high, low, reverse or in the belt.

The Most Efficient Transmission System

The Avery "Direct-Drive" Transmission gives you the greatest amount of power at the drawbar because: It has only three shafts, only three gear contacts, and only six gears between the motor and the drawbar. All intermediate gears, shafts and bearings are eliminated. Furthermore, all Avery gears are straight spur gears; all are located outside of the frame, easily accessible and yet well protected; all are made of steel and semi-steel, which means that they are able to stand up under the hard strains of tractor work.

The Avery "Direct-Drive" Transmission gives you all the power of the motor at the belt. The belt pulley is located right on the end of the crankshaft. No power is lost through extra bearings or by turning corners through bevel gears. Because the motor runs at low speed, we are able to use a larger belt pulley, which grips the belt better.

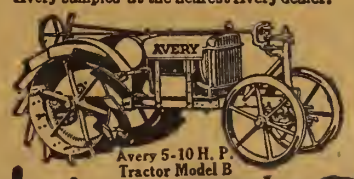
The Tractor with the "Draft-Horse" Motor

Avery's are also the tractors with the "Draft-Horse" Motor—the Perfected Opposed Motor that is designed *especially* for tractor work and *only* for Avery Tractors, the motor with exclusive and protected features, such as the Renewable Inner Cylinder Walls, Adjustable Crankshaft Boxes, Duplex Kerosene and Distillate Gasifiers.

Avery Tractors are successfully used by farmers in all 48 States and 61 Foreign Countries. They are built complete in Avery Factories and are backed by branch houses and distributors covering every State in the Union.

Write for the New 1919 Avery Catalog

showing Avery Tractors built in sizes for every size farm, with the smallest size tractor selling at only *$550.00 f. o. b. Peoria*; the Avery Motor Cultivator, which cultivates corn, cotton, etc.; and Avery Grain-Saving Threshers and Plows for every size tractor. Also ask for FREE Avery Tractor Correspondence Course and "100 Questions and Answers to Tractor Troubles." See Avery samples at the nearest Avery dealer.



Avery 5-10 H. P. Tractor Model B

$550

F.O.B. Peoria, Ill.

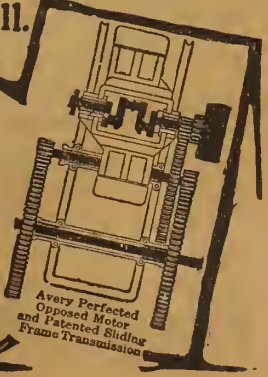
AVERY COMPANY, 4125 Iowa St., Peoria, Ill.

AVERY

Motor Farming, Threshing and Road Building Machinery

There's a Size Avery Tractor for Every Size Farm

Five Sizes—the Same Design. Standardized



This CONCRETE Manure Pit *will cost you nothing*

The horses and cows will pay for it.

Unless stable manure is kept so that the valuable liquid contents are saved, 50 per cent of the fertilizing value of the manure is lost. An average horse or cow produces annually manure worth $35. The liquid portion is worth nearly half of this. ***A concrete manure pit will save it all.*** So you see how the horses and cows can present you with a concrete manure pit free of charge.

Build one now and get the profits from this form of saving.

Ask for our free booklet telling how to build Concrete Manure Pits. Write our nearest district office.

PORTLAND CEMENT ASSOCIATION

Offices at

Atlanta, Chicago, Dallas, Denver, Detroit, Helena, Indianapolis, Kansas City, Milwaukee, Minneapolis, New York, Parkersburg, Pittsburgh, Salt Lake City, Seattle, Washington

Concrete for Permanence

Sheep on the Dry Lands

Can sheep raising be made to pay on the dry land farm?

Here and there in eastern Colorado may be found dry land farmers who are making it pay. There is the case of L. Dalziel of Cope, a young man who has made a somewhat remarkable record with a small bunch of sheep handled under plains conditions.

He started with twenty-eight Cotswold-Merino ewes in the spring of 1917. At the first lambing they delivered thirty-five head. The ewes and lambs were run on dry land pasture, the ewes having been fed a small amount of grain at lambing and up to the time the lambs were weaned.

In the fall the lambs that had been dropped singly weighed 90 pounds at six months of age, while twin lambs weighed about 85 pounds. A lamb that had been petted, and is shown in the accompanying illustration, weighed 103 pounds at five months.

L. Dalziel, and His Lamb

Fifty acres fenced with net wire furnished pasture for the bunch, and they were kept in the corral at night. The ewes were given pinto bean hay which was found to be an excellent feed.

Account kept by the young man shows the total cost of feed and care for the ewes for the year to have been $5.00 per head, or $1.40. The ewes sheared 13½ pounds of wool each, which at 60 cents a pound brought $226.80. The lambs were sold at $14 per hundred, which brought $421.40 for the mutton. Totaling up these figures we have a gross revenue of $648.20. Deducting cost of fed and care, $140, leaves a profit of $528.20 with the entire bunch of ewes still on hand.

Mr. Dalziel furnished these figures to J. T. Tingle, pig club specialist for the department of agriculture, who is also organizing sheep clubs where there is interest in the subject. The present example indicates what can be done with cheap feeds produced on the plains when sheep are given proper care and attention.

Order Implement Repairs Now

The Department of Agriculture reommends that a careful and systematic inspection of each implement be made for the purpose of making or ordering repairs. Plows, listers, harrows, rollers, drags, seeders, drills, planters, cultivators, mowers, binders, headers, hay rakes, hay loaders, stackers, wagons, racks, engines and horsepower or belt-driven machines such as separators, silo cutters and feed grinders are the implements that need inspection. It is suggested that each implement be examined for badly worn or broken parts to determine what parts should be repaired and those that must be replaced with new ones.

As a reminder for ordering new parts and in overhauling the machine, make a list for each implement, of the parts to be repaired, oh the new parts to be bought; also any special tools necessary in making these repairs. Put down the name of manufacturer, year bought, and the number of the machine if it is known. If orders are sent to the factory be sure to specify the catalogue, pattern, or casting number of the part. Order repair parts early, as the dealer may not have them in stock. Overhaul your equipment and have it all in good shape before the season opens.

Moline Mower

"I have about two acres of soggy land. The sweet clover on this land was as high as the horses, and with the old stalks from last year still on the land. The Moline Mower is the only mower that I was able to cut this clover with, and I have tried them all. I consider the Moline Mower the best that is built. The mower is the lightest draft machine I ever hitched a team to, and certainly do recommend the Moline Mower to any one considering the purchase of a mower."—*A. C. Maneman, Payette, Idaho.*

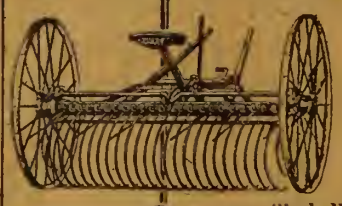
This letter shows what service you can expect from a Moline Mower. The Moline gives such satisfaction wherever used and will give you better service than you ever obtained from a mower before.

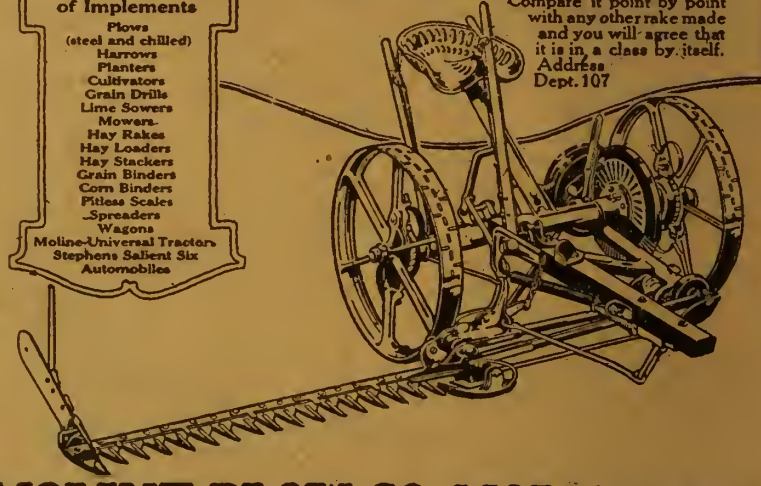
It will cut any kind of grass; it is unusually light in draft, and it will give you from 25 to 40 years of satisfactory service—many Moline Mowers have been used longer than this.

And remember, the Moline Mower is not a new mower, but has been in use in all parts of the world for the last 60 years.

Space does not permit us to tell you all about the good points of the Moline Mower. Send for Folder R. F. 22, which we will gladly send you, and you will readily see why the Moline Mower gives such splendid satisfaction, year after year, cutting all kinds of grass.

The Moline Rake is also described in folder R. F. 22. Compare it point by point with any other rake made and you will agree that it is in a class by itself. Address Dept. 107





The Moline Line of Implements

Plows (steel and chilled), Harrows, Planters, Cultivators, Grain Drills, Lime Sowers, Mowers, Hay Rakes, Hay Loaders, Hay Stackers, Grain Binders, Corn Binders, Pitless Scales, Spreaders, Wagons, Moline-Universal Tractors, Stephens Salient Six Automobiles

MOLINE PLOW CO., MOLINE, ILL.

MANUFACTURERS OF QUALITY FARM IMPLEMENTS SINCE 1865

Get the *ORIGINAL*

"An Imitation—be it Ever so Good—is Still an Imitation."

We have found your Spreader to be most satisfactory. The light team, weighing only about 2000, handles it on practically all the farms.

The evenness and strength of the growth after top-dressing with your machine shows it is a tool no farmer can afford to be without if he wants results. J. H. McCLUER.

Two years ago I bought one of your spreaders, last year I got a second one.

A good Manure Spreader is one of the best paying tools a man can have on a farm. We spread lime as well as manure with your "NISCO" Spreaders. Would not think of running my farms without them. A. S. WELCH

I have used your "NISCO" Spreader for five years. Am so well pleased with the work it does, that I would not have any other. Has cost me only 30c for repairs and that was caused by my own neglect. P. I. WORTHINGTON

Original letters on file. Addresses upon request.

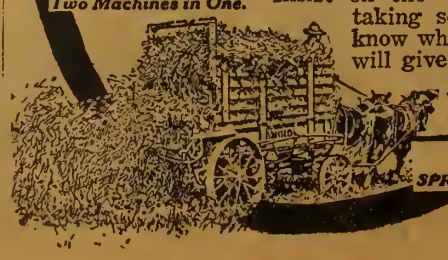
When you invest in a manure spreader you are buying an implement that will be the most profitable machine on your farm, if you profit by the experience of others and choose the machine that has stood the test of time. Buy the original, the machine which revolutionized old-fashioned methods, which has always been the leader in quality, in sales and in improvements. This machine is the

NISCO Reg. U.S. Pat. Off. **The New Idea**

Lowdown, light draft. Loads and pulls without undue strain on man or team. Has solid bottom with chain conveyors. Pulverizes thoroughly and spreads evenly. 5 to 7 ft. wide. Spreads from 3 to 15 loads per acre, at your option, by merely shifting a lever. Drives with heavy sprocket chain—no gears.

See the "Nisco" at your dealer's. Don't wait for him to see you as he is probably short of help. Insist on the "Nisco," and don't buy regrets by taking some other machine. If you don't know who sells the "Nisco," write us and we will give you his name.

The "NISCO" One-Man Straw Spreader Attachment—Gives you Two Machines in One.



Get our Book—"Helping Mother Nature," which gives much new information about manure and soil fertility.

NEW IDEA Spreader Co.

SPREADER SPECIALISTS. COLDWATER, OHIO

(10)

STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "Cowardice," "The Bondboy," "The Crucible of Courage," Etc.

(Copyrigbt by the Frank A. Munsey Company)

PRECEDING CHAPTERS BRIEFLY RETOLD

John Randolph, son of Captain Walt Randolph, on the Missouri River steamboat Morning Star, which was snagged and sunk in 1864, learned from his father that, unknown to any one but himself and one other, there was one hundred thousand dollars in gold in the steamboat's safe. As soon as his duties as mining engineer would permit, John started west to the town of New Bend, near which the Morning Star—due to a shift in the river channel—lay buried under many feet of silt. There he met first, Captain Mosa Gregg, his father's pilot at the time of the sinking; Gregg's daughter, Mystery, and his son, Arkansaw; also a strange character, a sort of a lawyer and once-seeker of tbe neighborhood, Joel Langworthy by name.

From Gregg John learned that four men in the last twenty-five years had come to get the treaaure of the Morning Star—which Gregg and everyone else in the neighborhood supposed to he the nine bundred barrels of whisky in the steamer's hold, since they knew nothing of the gold—but one of them had been found dead and badly clawed, and the other three simply disappeared without a trace. He also learned that Caleb Moore, an old atorekeeper who had been almost ruined by tbe shifting of the channel, which left his big store a mile or more from the river, now owned the land where the Morning Star lay, and had always refused permission to excavate.

Nevertheless, John went to see him. Moore's objection, he found, was because of his hatred of whisky, which he would not allow to he turned loose on the world; but when he heard of the gold he was inclined to relent, though strongly advising against touching the stuff, which was stained witb blood and crime.

John Randolph is fascinated by Juliet, Caleb Moore'a granddaughter. He spends an eventful night as a guest of Moore, during which a spectral visitor attempts to choke him. In the morning Captain Gregg's son, Arkansaw, tells him a strange story. It is the story of the snapping ghost that almost clawed Arkansaw to death one night on the river road, but whether it was a man or beast the victim of the encounter could not say. Hugb Atchison, the schoolmaster, now appears, returning from a stay in the city, and the opening of the present installment finds him in a philosophical discusaion witb John Randolph.

"But the winning of it makes a man worthy, in a way, a limited way perhaps, doesn't it?"

"It opens the door to a man where he could not have passed on his merits without it; success translates the plebeian, apotheosizes the scoundrel. It is the world's gold-plating which elevated the base to the standard of excellency. No, success alone never made an unfit man worthy—it never can."

"I suppose you are right about it, Mr. Atchison; I never have gone into a philosophical contemplation of it—I've been too absorbed trying to get on the wagon myself."

"You have looked at the note only, without investigating the security. But I am not discounting success; success is every true man's ambition and end. I am an older man than you, Mr. Randolph."

"Not much older," said Randolph, feeling that experience counted for a good deal.

"Several years. And I have not put down the shuttle yet; I am still weaving."

"And there is Joel Langworthy, he is still weaving, but his pattern does not seem to come right. Gregg told me he had been running for office ever since he was able to vote."

"He is an ambitious man—one of the kind to gather the fruits of the earth in excess of his desserts."

The schoolmaster's face darkened when he spoke of Joel Langworthy in these terms. He was freer now in Randolph's company than he had been on the way over, due perhaps to having admitted him to the fellowship of his art. Randolph believed that Atchison could illuminate the strange character of Joel Langworthy if he would loose his tongue.

"He impresses me as a man who keeps part of his mind in shadow, like he does his face," Randolph said.

Atchison nodded and walked on with his chin high, his hungry eyes far away from the road that his feet were following. They were almost at the well. As they drew up to it the teacher stopped, his hand on the rope.

"When a man lives a lie," said he, with grave look into Randolph's eyes, "he must set all the sentinels of his wit to guard that lie like he would watch a jewel. Even at that, in spite of his best care, the world will surprise the lie out of him one day. I have stayed on here in this country, Mr. Randolph, as I have said, out of tender considerations. But not from that reason alone—far from that alone. There is a piece of stern work for my hand here; there is a wolf that I have set out to strip of his lamb's skin. And I'll do it as sure—as sure as there's truth in mathematics, I'll do it!"

The schoolmaster's hand trembled on the rope as he finished. He said no more, but lowered the bucket and drew fresh water, drinking as if a fever had fallen on him.

After supper they sat again on Gregg's porch, Arkansaw with his pipe, Randolph in the relief of fresh white linen out of his trunk. The schoolmaster seemed to have picked up spirits. He had grown easy in his way, and voluble at times in his speech, inte which he contrived to bring many a sly joke, and light exploration as if for any sign of breach in Mystery's heart wall, which shut him out so completely of all in it that he desired to share.

Gregg had not come back, aitnough he was expected every hour; and while Mystery waited to serve him his supper on arrival, she brought out the schoolmaster's guitar and pressed him to sing. It did not require a world of persuasion to induce him to pitch his melody, for, removed from the blighting presence of Joel Langworthy, and over his first timidity in the presence of a stranger whom he had taken now on the full footing of a friend, the schoolmaster had become almost juvenile.

Caleb Moore came riding to the gate before the song was ended, and beckoned Randolph to him. The old man greeted him warmly. He was glowing with excitement, a look of animation almost as fresh as the vigor of youth in his face. Randolph felt his hand tremble as he leaned from the saddle, and did not know, indeed, whether to allow his own hope to jump forward again in its old strong way, or to prepare to put it out entirely under the damp leaves of disappointment.

It was plain that something had happened to move the old man as he had not been disturbed in many a year. He looked about in the thickening twilight to make sure that they were alone, and drew Randolph nearer, with a hand on his shoulder, leaning over to speak as close as possible to his ear.

"I had just about made up my mind to decide against you this morning, Randolph," he said, "but since then intelligence has reached me that puts a new face on my affairs. Randolph, the boats are coming back to the Missouri!"

"Commerce-carrying boats, sir?" asked Randolph, his heart sinking, a feeling of pity sweeping over him for the man who had followed a dream so long, he believed, that its fugacious lure had turned him mad at last.

"It's in the Kansas City paper that came today," said Moore; "you can see it at my house. A company has been organized to restore river commerce. The boats are coming back, sir, as I always have said they would. After all my years my hope is not wasted. I'll live to see them, Randolph; I shall be vindicated!"

"This is remarkable news!" said Randolph, strange emotions crowding upon him, strange thoughts.

"After talking it over with my granddaughter, I hastened up to see you," Moore continued. "If anything is to be done about the old wreck, Randolph, it must be done at once. The boats will be back on the river within a month, the paper announces; and when commerce returns to the Missouri, the Missouri will come back to the Narris—as sure as the judgment of God!"

"It will have to hurry if it beats me to it," Randolph declared.

"I have considered it all, Jonathan—weighed it up and down—and I have concluded that an old man on the verge of the grave has no right to stand between you and your chance. Only you must shoulder the risk, and absolve me beforehand of all responsibility for anything that may happen to you in your search for this guilty treasure of the Morning star."

"Whatever danger there is, sir, I assume freely and willingly, and free you of all responsibility for anything that may overtake me. You have warned me, you have advised me against the exploration of the wreck, sir; the danger that's in it only seems to sharpen my appetite for it."

"It's that way when a man goes after money anywhere, lad. But you will remember that at least one life that we know of, and three others as we believe, have been lost in this grim business, Randolph."

"I haven't forgotten it, sir."

"You assume the same risk that they took when you go ahead, for you are going farther than any man, living or dead, has gone. I am powerless to turn any threatened danger, and I want you to believe that I shall be innocent of any disaster that may overtake you in this, Randolph, even to the loss of life itself."

"I release you, fully and freely, from all responsibility, Mr. Moore."

"I'd like you to set it forth in writing, Jonathan."

"I'll do so, sir."

"And hand it to me in the morning, before you begin your work of locating the wreck."

"I'll have it ready, sir."

"You might also specify the terms on which this exploration is undertaken, Jonathan. That I will leave to you, only looking to you to be fair and square in the interest of her who will be the last of my blood and kin when I am gone to my long rest."

"I would propose equal terms, the expense of the work to be shared out of anything that may be found; and if nothing is found, then the expense to be borne solely by me."

"I think you are overliberal in that, Jonathan," the old man said, shaking his head. But through the gloom Randolph could see that his face brightened, and he drew himself up a little stiffer, as if with satisfaction or pride.

"I'd feel like a plunderer on any other terms."

The old man laid his hand gently on Randolph's shoulder with that familiarity of usage that told he had been accustomed to such paternal caress in days past, and there was something in the manner of it that started a pang in the young man's heart. How much had come

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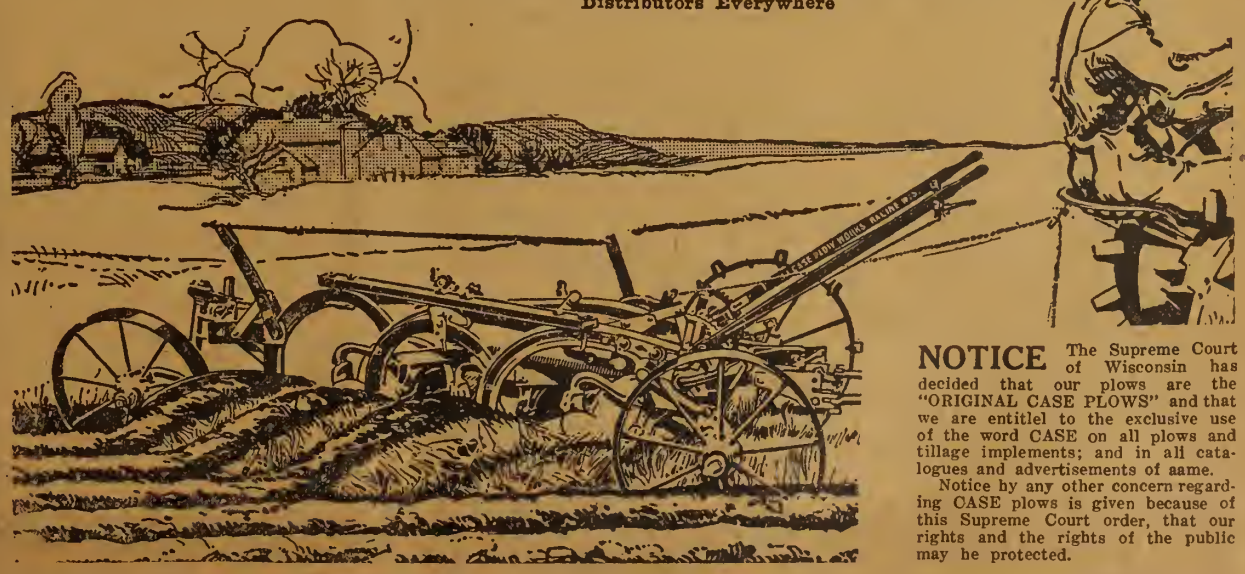

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and gone in that old man's life; how he had defied the blasting stroke of bereavement and sorrow, the loss of consequence and wealth! Strong as an old gray oak he stood yet, a monument of a man among the faulty clay works around his feet.

"Randolph, you're not a business man; you'll never be a business man, as the world interprets that appellation, thank God!" Moore said. "Keep your feet out of that muck, lad; walk in the high places, even if you walk hungry and absolutely alone."

He turned his horse and rode away along the river road, his proud old head carried high, his strong old back as straight as a cathedral wall that carries the weight of centuries without a groan. Randolph stood watching after him as the dusk blended him into the shadows of the trees, and looked after him still when only the faint puff of his horse's feet on the sandy road came back.

"What a man!" said he. And again, as he put his hand to his forehead, where the sweat had sprung in heavy drops, he repeated: "What a man!"

CHAPTER XII
MYSTERY MAKES AN APPEAL

The place where the Morning Star had gone down, almost in front of Caleb Moore's warehouse, was about a mile from the head of the Narris. The site had long been sown over by Moore, as if in contempt of the thing which men desired with such destructive passion, and at the time when Randolph came on his quest the corn stood tall and green above the wreck. Moore had given him permission to clear this crop away, and now the brown corn shocks stood like Indian teepees where the work of exploration was going forward.

Moss Gregg had put his fears behind him and had joined Randolph; and Hugh Atchison, having two months ahead of him before his school term began, moved by the romance of the search, had taken hold with able and willing hand. With the added assistance of Arkansaw, Randolph had been able to proceed without drawing on the Narris people, who came in large numbers and stood around, finding no discomfort in the sun when curiosity was to be fed, but pleading either a tenderness in that particular or a press of work at home when anybody suggested a job.

More than a week the sounding had proceeded now without result. Gregg had pitched on the spot, with certainty in his own mind, where the boat went down, guided alone by its position in relation to Moore's old store.

But it was no light thing to walk into that dry river-bed after a lapse of fifty years and say positively that in such particular spot the bones of the Morning Star lay waiting their resurrection, and Randolph had no censure for him because his certainty had turned out only a guess. In fact, Randolph did not believe that Gregg had missed his bearings. It was his opinion that the timbers of the vessel had rotted, and offered no longer any solid obstacle to their sounding-rods. Gregg discounted this belief.

Moore had borne Gregg out in his location of the wreck. That was the spot, he said, and no other. So, foot by foot they were covering the ground slowly, striking now and then a solid substance which made their hearts quicken and drew the circle of watching loafers pressing nearer, and only swinging into it with renewed determination when investigation proved the obstacle to be a log.

There would be no mistaking the wreck when they struck it, said Gregg.

"Them whisky barrels stood thick all over the b'iler deck, we couldn't miss one of 'em 'less we struck the b'iiers, and if we hit iron we'll know we've got her."

To make sure that no scent of the wreck should escape them, Gregg had insisted on driving pump-casing from the first. He had a small pump at hand ready to attach the moment that he felt the pipe pierce a whisky barrel. No matter whether Moore wanted the whisky salvaged or not, he contended, they'd have to draw up a few gallons of it, for it was evidence that could not be disputed.

No shadow of foreboding evil had fallen upon the enterprise; no hint of danger had come to anybody engaged on the work. Randolph wondered if the long watch over the wreck had at last wearied and worn out, or passed for want of a sentinel to whom the trust could be handed down.

Moore's interest in the project of exploration seemed only secondary in valuation to that of the new boat line soon to begin operation on the Missouri. Boats would be carrying commerce on the river again in a few weeks, the papers reported, and in this hope the old man lived, rejuvenated.

Years seemed to have lifted from his body and mind, carrying their dust and opacity with them, leaving him in a new sprightliness which gladdened him like a gay, fresh garment. Not that he expected to benefit materially by the return of commerce to the river, for he often said that his days of activity were past; but he had a measureless satisfaction in the vindication of his long and stubborn stand.

He seldom spoke of the river returning to its old bed in the Narris any more, content, perhaps, in the certainty of the fulfilment of part of his prophecy without hazarding his reputation on another that he might not live to see come round. It appeared a shrewd and sensible revision to Randolph, who had visited the head of the Narris to satisfy himself on the probability of a flood setting the river back into its former channel.

The river had labored for years to repair the old scar, and hide it as a man works to obliterate the memory of a shameful deed. It had heaped driftwood into it, and sifted earth over the logs and limbs, building in that manner with each successive flood. Trees had sprung up and tied the slow-built levee with their roots, and now they stood thick and strong, fat sycamores, tough elms, brittle cottonwoods, towering the equal of a century's growth in less than half that time. It appeared to him that the river never again could break this strong, green barrier.

So, placidly, the sounding for the wreck went on under many eyes, a few of them friendly, all of them suspicious, nothing, nothing happening to break the sameness of the hot days and close, stifling nights. If there was a ghost on guard over the treasure of the Morning Star, surely it had wearied of its years' long watch and gone to sleep.

The only ghost present was Caleb Moore's old storehouse looking on at the work from its waiting the return of commerce beside its rotting wharf upon the empty shore. It was a large, square building, with a long shed running out from it beside the old wharf. It had been built of native hardwood lumber which had warped after its way and drawn the nails in many places from the weatherboards, and all was softened with a brown hue now, as if it had been stained with walnut juice, a fit color for the ripeness of its owner, itself, and its somber traditions. Here and there the roof showed new shingles, and the graded tint of the patches told plainly that it had been renewed from time to time by Moore, who guarded from damp with watchful eye his dusty treasures beneath its rafters.

The doors of the old store were padlocked, the windows boarded up solidly half-way on the ground story. But padlock and plank could not protect against dust and decay, and the sad shredding of time. It must have been a melancholy display within the brown storehouse, locked up under the old man's mad vow so long ago.

Moore had kept the weeds mown around the premises, and they were neat in their sorry abandonment by the trade that once had made them important. Vines had climbed the great stone chimney and walls, and were clinging to the eaves in tapering cascades, like the drip of some green deluge.

Half-way across the old river-bed Moore's land ended and old Sam Langworthy's began. There the foul green waters of Skillet Lake lay drying in the sun, and on the boundary of the two farms a dense growth of trees, brushwood, and bramble had matted into a formidable hedge, tall and gloomy.

Morning and evening, Randolph and his small but efficient crew made the three-mile drive between the work and Gregg's home. In defiance of his seventy-six years, Gregg was as eager in the work as the youngest of them, even if not entirely so mighty as his big talk would have made him out.

The old pilot was keen on the scent of that buried whisky as a bee after the first clover bloom. All other considerations and discoveries appeared to have dimmed in his estimation of their importance compared to that. He seemed to have lost sight of the treasure in the steamer's safe, or to have gone back and confirmed his first suspicion into a certainty that Randolph and Moore were going to salvage the liquid cargo and nothing else.

On account of his bunions and his slitted shoes, Captain Gregg's feet looked lumpy and short, like a camel's. But he danced around and pranced and hopped all day, coupling a pipe here, lending a hand with tackle there, advising, directing, putting his nose to the driven pump-casing every few minutes after they had reached a depth of twenty-five feet.

Somewhere along between twenty-five and forty feet they would strike her, he contended; she was there, he knew she was there, and that rich cargo of liquor lying ready to gladden the tongue of a dusty old pilot who felt that he, above any man on earth, was entitled to the first smell and the first taste that should come above ground.

"That whisky's as thick as maple sirup on a cold mornin' by now, John," he said one day when he and Randolph were working together.

"What would make it any thicker than any other whisky?" asked Randolph, sweating, red-faced, a little out of patience with the old man's constant harping on the theme of the liquor.

"Time," Gregg nodded. "Thirty-year-old whisky's like sweet oil, and that's the oldest I ever put in my mouth. Let it lay twenty years longer, air-tight and cool, and what 'd it be like? Huh, you could eat it on your bread like honey!"

The old man drew his eager breath in with a little liquid sucking sound, such as many people make when eating juicy fruit; his eyes grew lively in anticipation; he buckled himself up three inches on a side. Randolph shook his head in discount of the old man's eagerness, but said nothing, for he knew that it was useless to deny again that whisky was the objective.

"Revenue's all paid on it, too—I bet you them barrels 'll show the brands as plain as they did the day them inspectors socked the irons on 'em. We'll hit 'em; I'll bet you money we'll hit 'em inside of a week."

"Well, if they're anywhere in the Narris covered by our permit, you can even bet your life we'll hit them," Randolph assured him.

"It'll pay for any amount of work and expense," Gregg said, "even if we salvage half of it—yes, a fourth of— Hell! If we save ten gallons, it 'll pay!"

Gregg pulled at his long-dangling suspenders, but they would buckle no higher. Already he looked as if he had been shaken down in his trousers like wheat in a sack, the waistband almost under his arms, three or four inches of lean, bare leg showing between the bottoms and his shoes. He pranced around as if he moved to the music of a hornpipe, his beard pointing out perkily like a jaybird's tail. He chewed at his tobacco with rapid short strokes, for he had only two teeth which hit, as he said, and thanked God for them.

The fear that Gregg had held of meddling with the wreck at the beginning seemed to have been forgotten. He spoke no more of the past tragedies, and nobody else seemed to trouble over the old

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mystery that consumed men in their quest of the Morning Star. Randolph himself never was far away from the thought of the cloud that had darkened over that spot for so many years and cast its mildew into Caleb Moore's life. The old man's reluctance at the beginning, his solemn adjurations, his troubled bearing, and the unexplained dread under which he lived, all pursued the treasure-hunter in unceasing harassment.

He wished at times that the unseen force would move its mysterious machinery against him. One way or another, it would relieve the disturbing perplexities. So he was thinking on a certain evening as they drove home, and with that thought came the conclusion that he would go to Moore's that night and report on the work, and hear Juliet's satisfying voice, and rest a little while in her placid presence. He had not seen her for days; the thought of her came to him pleasantly now, like rest after toil.

They were drawing up to the gate, and Mystery was on the porch waiting for them, fresh in white apron and dress, her great coil of brown hair on top of her sensible head. Randolph gladdened at sight of her wholesome freshness, and thought how pretty she was, and what an unassuming jewel to carry so much worth.

He believed that he read trouble in Mystery's face as he went up the path, his hat in his hand, his collar open at his brown throat. Hugh had leaped from the wagon at the well to take the rough off at the horse trough, and Arkansaw had gone on with his father to put away the team. It seemed to Randolph that the girl had something on her mind, for her smile was not so ready as customary, nor her eyes solively in their welcome.

A woman's eyes might well have gladdened at his coming, too; handsome in his rugged way, glowing in youth and health as he appeared on the steps before her, one foot pausing at the top, a look of concern in his face.

"Is there anything wrong, Miss Gregg?" he inquired with the interest of one belonging to the household.

Mystery's smile grew a little broader, and the little wrinkles at the corners of her eyes seemed to make them laugh. She had a warmth in her heart for this adventurous stranger with the light of unread desires in his eyes.

"There's nothing wrong—only the hawks have been after my little chickens again today," she answered, looking past him to the well where Hugh Atchison was sloshing in the horse trough, snorting as if absolution and strangulation were underwater perils which hid side by side.

"Too bad!" said he. He stood smiling at her with the appreciation of youth, knowing very well that it called for more than hawks and chickens to trouble the depths of Mystery's eyes that way.

Hugh was coming up the path, shaking the water from his long red hair, like a spaniel. Randolph believed that she waited to be alone with the schoolmaster. He went in, and sought basin and soap in the middle hallway, where the supper table was already spread. Mystery followed, and busied herself with the dishes of food. So the cloud in her face had nothing to do with Hugh.

It was very pleasant at supper that evening, for the day had tapered off on a cool northerly breeze which came sweeping around the bend of the river. It seemed a baptism in the waters of life after the heat of that long, white day.

It was the way of that house for each to go about his business as soon as he had finished his meal, none waiting the other, nor offering any excuse for his going. Hugh was the first that evening. The habits of the family had taken hold of him so firmly that he thought no more of breaking the circle than Arkansaw or Gregg.

He pushed back without a word, his face gloomy, his air downcast, and left them. Randolph heard him tramping about in his room upstairs presently. Gregg jerked his head toward the schoolmaster's empty place.

"I don't know what's comin' over that boy," he said. "He used to have a joke for every hour of the day, but he's gittin' to be as crabbed as a bear with a sore head."

"He shaves too much," Arkansaw declared. "No man can't shave every day without it weakenin' him—unless he started when he was mighty young and kep' it up," he amended, looking across at Randolph.

"Oh, shucks!" his father scoffed. "I used to scrape m' chin every mornin' when I was a young feller till I was as smooth as a gal. Never hurt me, Arkansaw; you've got the wrong the-ory on whiskers."

Arkansaw let it go at that. He withdrew, satisfied with his supper, satisfied with his caterpillar whiskers, pleased with life as it came to him in his narrow track. Soon the sharp smoke of his pipe came around to them from the front of the house, and Gregg was drawn away by it to light his own.

Randolph had lingered, for he believed that Mystery had asked him with her eyes to stay. Before supper he had found time, as he always did, to get into white duck and hitch on a necktie, and he was cool and clean and soldierly as he sat there across from Mystery. And she was as fair and sweet as a man could desire, flanked by her nickeled coffee-pot on one hand, a vase of homely flowers from her kitchen garden on the other.

A little while they sat talking of various things, for Mystery was educated beyond the horizon of her daily life. She had been a teacher in the country schools before her mother's death fastened her down to the care of the household, but her outlook upon life was larger and clearer than the female school-teacher's usually is, and these after-supper chats were not uncommon, although Hugh Atchison usually made them three-cornered, and was welcome always.

Suddenly she leaned forward, her eyes eloquent of her intense feeling, her hand outstretched appealingly.

"Give it up!" said she earnestly, with abrupt irrelevance, breaking the chain of their discourse. "I beg of you, Mr. Randolph—give it up and go away!"

"You mean the work on the wreck—you want me to give that up and go away?" he asked, unable to believe that he understood her, the surprise of her unexpected appeal was so great.

"Something terrible will happen if you keep on—if you—"

Mystery's voice faltered away on a shuddering sigh; her eyes stared at him with the disturbance of fright in them, as if she beheld already the desolation of her prophecy.

Randolph took her appealing hand and held it tight. Her fingers were cold, she trembled; her face was colorless.

"Tell me what you know," he said, speaking with severe insistence. "I don't like this skirmishing and mysterious dodging—it doesn't become you. Tell me what you know."

"I don't know anything; I only feel it, like I'd feel ice around me."

She colored a little when she seemed to discover that he was holding her hand, and withdrew it, even hiding it in her lap beneath the cloth, as if denying him a dainty that belonged to another.

"Has somebody told you to warn me, to advise me in this business?"

"Nobody has told me," she said, shaking her head, the strength of her vision, or the chill of her apprehension, whichever it may have been, seeming to pass, leaving her unwilling to say more. She got up and began to collect the dishes hastily. Randolph went to her side of the table, not to be put off in so weighty a matter with such unsatisfying words.

"Has something happened?" he asked, frowning in his determination to get the truth of the thing from her. "I saw it in your face when I came in; it's been troubling you. Be frank with me — what do you know?"

Mystery refused to lift her head from her work and meet his eyes.

"I only felt it; nobody has anything to do with it as far as I know. Mr. Randolph, I have told you because I don't want anything to happen to you. All along I have prayed for your safety."

"Thank you," he said perfunctorily, his eyes following the movement of her quick hands as if he sought the reading of the riddle there. He was out of humor with this half-revealed knowledge, and not at all disposed to believe that Mystery's warning was the outgrowth of her own broodings and fears. Somebody had spoken to her; there was a very material and human agency back of that warning, but why had she been chosen as the intermediary? He turned to her, his face set and hard, only to meet her eyes with the smile back in them.

"Maybe I was just nervous, and there's nothing to it at all," she said. "You can think that way of it if you want to, Mr. Randolph. I was foolish to speak to you. You'll never give up the work; you'll never go away till you have found what you started out to find—if it's to be found at all."

Mystery trembling and chill with fear was a book that he might have read; but Mystery warm and smiling, confident, quick, was inscrutable. She had put her

(Turn to Page 27)

How Much Does It Cost to Plow an Acre?

Do you want to know how much it will cost you an acre to plow with a Case 10-18?

Here are the facts. You can figure the cost exactly in your community, based on the current price of kerosene.

A Case 10-18, under official tests, required 1 3-5 gallons of kerosene per acre, pulling two 14-inch plows 5 1-3 inches deep. The water used amounted to ¼ gallon. The soil was hard gumbo stubble, loose on the surface. The average drawbar pull was 1,015 pounds.

The plowing was done at the rate of 1 1-10 acres per hour.

These figures are authorized and certified by the official Board of Tests of the National Tractor Show. It is also interesting to know that in this test the average drawbar horsepower required was 9.14. The Case 10-18 is capable of delivering as high as 14 horsepower on the drawbar, which proves that it has ample reserve for the most difficult jobs. In fact, we consider it the most practical and durable two-plow tractor built. Its belt power also exceeds its rating. It will deliver as high as 24 horsepower for belt work.

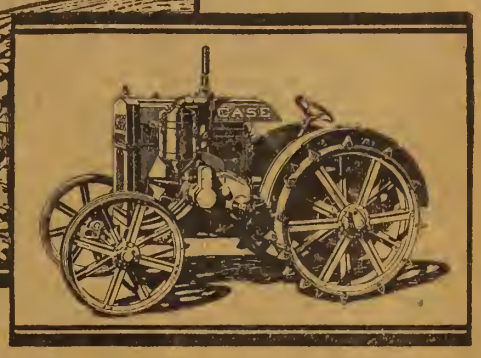
Note all the superiorities of this super-tractor, shown at the right. They represent the latest and best, and all of them can be obtained only in this Case 10-18.

Write for detailed specifications and illustrations, so that you may use this tractor as a guide in making comparisons. For it sets the standards.

J. I. Case Threshing Machine Company, Inc.
(Founded 1842)
1643 Erie Street, Racine, Wis., U. S. A.

CASE
KEROSENE TRACTORS

(819)



Features of the Case 10-18

1 Weighs only 3,400 pounds, little more than a team of horses. Low and compact with short wheelbase. Turns in 22 ft. circle. Stays on all fours.

2 Rated 10 horsepower on drawbar, but develops nearly 14 horsepower. Rated 18 horsepower on the belt but delivers about 24 horsepower. This insures abundant reserve power.

3 Four-cylinder Case valve-in-head motor. Removable head. Motor is set crosswise on frame, affording use of all straight spur gears. This conserves power.

4 One-piece cast main frame, forming dustproof housing for rear axle, bull pinion shaft, transmission and the bearings for these parts. Also a base for motor. This construction brings rigidity and prevents disalignment.

5 Belt pulley mounted on the engine crank shaft. No gears used to drive it. Pulley is part of the tractor, not an extra-cost accessory.

6 All traction gears are cut steel, enclosed and running in oil. No bevel gears, chain, worm or friction drive parts.

7 Case Sylphon Thermostat controls cooling system and insures complete combustion of kerosene in the motor. Prevents raw fuel from passing by pistons and diluting oil in crank case.

8 Case air washer delivers clean air to carburetor. No grit nor dust gets into cylinders to minimize their efficiency and shorten their life.

9 All interior motor parts lubricated by a combination pump and splash system. Speed governor, fan drive and magneto are dustproof and well oiled.

10 Complete accessibility. No dismantling necessary. Removable covers permit you to get at parts quickly.

11 Hyatt roller bearings in rear axle, bull pinion shaft and transmission case. Kingston Ignition and carburetor. Five-piece radiator with a cast frame. Core, fin and copper tube, non-clogging type.

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are the only guarantee against bruised, galled and chafed shoulders. They are better than other kinds, being soft, springy and absorbent. They also make possible the continued use of a horse collar long after its worn condition would otherwise compel its discontinuance.

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(3)

Pat. In U.S. Dec. 1, 1914
Pat. In Can. Dec. 1, 1915

Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

The general movement for more silos on the farms of Colorado and neighboring mountain states naturally brings up the question of methods of feeding ensilage and suggestive rations for dairy and beef cattle, as well as other classes of stock. The following are suitable for both the irrigated and non-irrigated farms and are on a basis of 1,000 pounds of live weight:

Dairy cows when alfalfa is available: Alfalfa hay at will; corn silage, 40 pounds; oats or corn, preferably ground, 1 pound for each 4 pounds of milk given daily, on the average. Give more or less grain according to yield of milk and response to grain. Some barley or beet syrup may replace part of the oats or corn. Two or three pounds of bran per day may be used in the grain mixture.

Dairy cows on dry lands, when alfalfa is not available: Corn or cane fodder at will; corn silage, 40 pounds; grain mixture, 1 pound to 5 pounds of milk. Mixture to consist of the following feeds: bran, 200 pounds; cottonseed meal or cake, 100 pounds; corn, 100 pounds.

Beef cattle, for fattening (short fed): Alfalfa at will; corn silage, 25 pounds; corn or barley, ground, 8 pounds. Or, alfalfa at will; corn silage, 40 pounds; cottonseed cake, 3 pounds.

Beef cattle, for fattening: Alfalfa at will; corn silage, 25 pounds; corn or barley, 4 pounds; beet syrup, 4 pounds; cotton cake, 3 pounds. Or, alfalfa at will; corn silage, 25 pounds; dried beet pulp, 6 pounds; cotton cake, 4 pounds.

Breeding cattle: Alfalfa at will; corn silage, 25 pounds. Use grain only to bring cows to milk after calving, feeding oats preferably.

Silage for hogs: Silage may be fed with alfalfa hay to stock hogs, or brood sows up to within sir weeks of farrowing. It cannot constitute a main part of the ration for fattening hogs—not over about one-fifth the weight of the total ration. Some grain should be fed to pregnant sows.—G. E. M.

Spotted Poland Chinas

Answer to J. E. C., Kit Carson county.

I saw the first spotted Poland Chinas in Colorado the other day at the winter stock show at Monte Vista, Colorado. If you will write Mr. C. D. Hyatt, County Agent, Monte Vista, he will be able to tell you who owned them. Personally I can see little benefit to be gained from separating out strains of Poland Chinas that have white spots on them and making a separate breed of them. A strain of spotted Polands could be developed from most any herd, as it is not at all uncommon to have some white on the body of Poland Chinas. The spotted Poland Chinas came into prominence about the same time that Peter Mouw started breeding big type Polands. The best Poland China types are just as large as the spotted Polands and show more quality.—G. E. M.

Protein Is Lacking

Answer to J. S. S., El Paso county:

The reason that cane hay and corn grain is not a good combination for colts or horses is that it has not enough lean meat constituents in it. Protein is lacking and one should feed oats and bran or oats and linseed meal with cane hay. If corn is the only grain available, or the cheapest available, buy linseed meal or cake, or alfalfa meal, to feed with the cane hay and corn. Cane hay that is planted thick and is fine stocked, with plenty of leaves, is good hay for stock cattle.—G. E. M.

For Caked Udder

W. R. R., Adams county, Colorado:

The best treatment that can be given a caked udder is to bathe it with water as hot as the hand can bear, and bathe and rub with the hand for at least two hours daily if not longer, one hour in the morning and one hour in the evening. One of the results of inflammation is the curdling of milk in the udder, and this curdled milk must be worked out as early as possible if the quarter is to be saved. A pound of Epsom salts given every other day as a drench will assist in a cure, but the main treatment must be the massaging with hot water. A good camphorated liniment to rub on the udder after bathing may be made up as follows: Alcohol, three fluid ounces; oil of turpentine, two fluid ounces; spirits of ammonia, one fluid ounce; gum camphor, four drams; water to make one pint. Rub this lightly into the quarter immediately after bathing to prevent the udder from chilling. Feed the cow lightly until the udder is cured, or at least until the inflammation is gone. The quarter may be of no further use for this lactation period at least.—C. I. Bray.

Starting with Hogs

Answer to S. E. W., Arizona:

I would advise pasturing your hogs on alfalfa rather than cutting alfalfa and feeding it to them. Labor is high here in the west, and alfalfa will stand pasturing if you allow it to get a top growth before turning in on it, taking the hogs off when it is eaten down, and water, and then allow it to get another top growth of six inches or so. Or if you have a large field fenced with woven wire, you can run the hogs in this and cut hay off it just as if it had not been pastured.

I have never run across the crop "Hegeria," but you will find that corn is probably more valuable than milo maize for feeding. With corn and other grain where they are in price at present, I believe it advisable to grow your stock as cheaply as possible, even though corn feeding is preferable.

Right after the pigs are weaned I would feed grain, to the extent of about 2% of their live weight each day, until they are upon alfalfa pasture; then as they run up in weight between 75 and 100 pounds, I would reduce that amount per weight to 1% of their live weight and hold it at this until you have them at about 175 pounds weight; when you should feed them a full ration of grain which will amount to about 4% of their live weight. This will finish them at about 225 pounds.—G. E. M.

Hints on Hog Butchering

Butcher hogs at home.

Give them water but no feed for a day before killing.

Bleed the hog with an eight-inch, straight-bladed knife.

Be sure bleeding is done before scalding, or the skin may be left too red.

A heavy blow with an axe between the eyes will stun the animal before sticking.

The meat may spoil if the animal is excited before killing, or the weather is warm afterward.

Scrape as quickly and rapidly as possible after scalding. The cold carcass is hard to scrape well.

Bleeding will be finished more quickly if the animal lies on a steep slope with its head down hill.

Keep the hog moving in the barrel. If the animal is left pressed against the barrel the hot water cannot get at that part of the carcass.

Scraping is easier if a shovelful of hardwood ashes, a lump of lime, some concentrated lye, or a handful of soft soap has been added to the water.

Use a thermometer. Do not attempt to scald with the water at above 150 degrees. A good scald can be obtained at 140 degrees, but it takes longer.

In opening the carcass, split the pelvic bone between the hams with a knife by cutting exactly in the center. To open the breastbone with a knife, cut a little to one side of the center, but do not let the point of the knife get behind a rib.

These methods are used at the Missouri College of Agriculture, where students are taught the principles and practice of home butchering and curing.

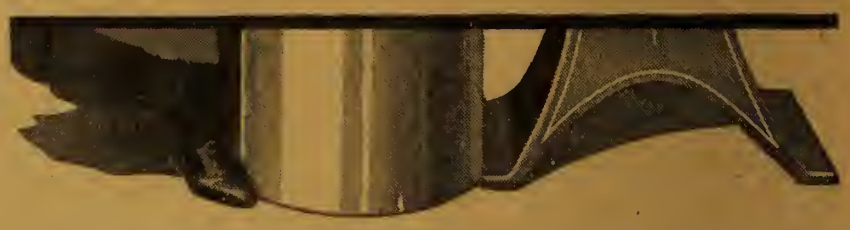
Silage From Corn Stalks

Last winter many silos stood empty because of the high price of corn. Men figured that corn worth $50 to $100 an acre husked was too valuable to convert into silage. To an extent they were correct. Others went a step further in figuring on the problem and concluded to remove the ears and put only the stalks in the silo. For example, one farmer went through his field and snapped three rows, throwing the corn on the ground just beyond the third row. Then he took three rows back, throwing that corn on the wind-row first made. After the field was snapped in this way the stalks were cut by hand, the silo filled and afterward the corn hauled and fed as needed to a carload of hogs.

The entire operation was successful and the silage was considered very efficient as feed, although requiring a greater quantity per day than of ordinary silage. Tests by the Illinois Experiment Station proved that silage made from husked shock fodder, with water added as the silo was filled, gave just

Eight Good Reasons Why You Should Buy a

DE LAVAL



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SERVICE WHEN YOU NEED IT: The worldwide De Laval organization, with agents and representatives ready to serve users in almost every locality where cows are milked, insures the buyer of a De Laval quick and efficient service whenever he needs it.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or, if you don't know him, write to the nearest De Laval office as below.

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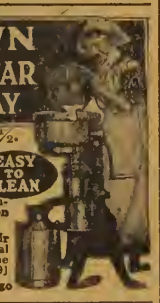

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NEW BUTTERFLY

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and on a plan whereby they earn their own cost and more by what they save. Postal brings Free Catalog Folder. Buy from the manufacturer and save money. [9]

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On Trial. Easy running, easily cleaned. Skims warm or cold milk. Whether dairy is large or small, get handsome catalogue and easy monthly payment offer. Address

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as good results as the ordinary silage for wintering bred cows of beef blood, but about 50 per cent more silage per day was required. However, this husked silage ration was very much cheaper daily per cow. The plan proved very profitable. For cattle which would require much grain, such as dairy cattle or fattening steers, nothing would likely be made by removing the ears and feeding them dry to the same cattle.—Breeders' Gazette.

Linseed or Cottonseed Meal?

In making up a ration for dairy cows the University of Missouri College of Agriculture usually recommends that the cows be fed all the alfalfa or clover hay they will readily consume, and to feed corn silage when available. To this should be added a grain mixture if good results are to follow. A grain mixture often recommended is four parts, by weight, of corn chops, two parts wheat bran, and one part either cottonseed or linseed meal. This mixture is to be fed according to the quantity of milk produced. One pound of the mixture is sufficient for every four pounds of milk produced by a Holstein cow or for every three pounds produced by a Jersey.

A question often asked, whether linseed or cottonseed meal is preferable, is answered by W. W. Swett. At the present time, linseed meal is retailing at $70 a ton, while cottonseed meal is $68. The linseed meal contains a somewhat lower percentage of protein, but a higher percentage of carbohydrates or energy. In total digestible nutrients they are almost identical, so that at the foregoing prices each pound of total digestible nutrients costs 4.5 cents in linseed and 4.34 cents in cottonseed meal. The linseed meal is slightly laxative and cooling and even in small quantities acts as a conditioner or tonic to farm animals. It is of special value to a dairy cow in preparing for her calving. It tends to produce a soft butter and is a useful addition to the ration when butter is hard or tallowy. The relatively higher carbohydrate content of the linseed meal makes it useful when a ration is not particularly low in protein but lacks carbohydrates. It is particularly valuable when alfalfa is fed without silage.

Cottonseed meal is valuable because it can be added to a ration containing a very low percentage of protein to bring the protein content up to requirements. It is the cheapest source of protein obtainable. In contrast to linseed meal, it is constipating and must be fed with laxative feeds. Butter made from cows receiving large quantities of cottonseed meal, is hard and tallowy, and pale in color with poor flavor, except when the cottonseed meal is fed with corn silage. In addition, large quantities cause a poisoning to the animals receiving it. Such small quantities as are fed in the mixture recommended will do no harm whatever. The dairyman feeding a good mixed ration will do no harm in feeding small quantities of either one. It is not a bad plan to mix the two feeds half and half and feed the mixture. In general it may be said that linseed meal, when fed in quantities up to a pound a day, is slightly preferable to cottonseed meal, although it is slightly more expensive from the standpoint of protein furnished.

Barley and Peas for Hogs

The Animal Husbandry department of the University of Idaho recently completed a hog-feeding test. The hogs used in this experiment were a mixed lot of spring shoats averaging 132 pounds, divided into lots of four, fed in dry lots, twice daily. These shoats were fed for a period of thirty-five days (beginning November 2nd and ending December 7th).

The plans of the experiment were as follows:

Lot 1 received one part barley, one part peas.
Lot 2 received one part barley, one part peas, plus tankage.
Lot 3 received one part barley, three parts peas.
Lot 4 received one part barley, three parts peas, plus tankage.
Lot 5 received three parts barley, one part peas.
Lot 6 received three parts barley, one part peas, plus tankage.
Lot 7 received barley.
Lot 8 received peas.

The rations were mixed according to the above proportions, and fed wet. Lots numbered 2, 4 and 6 were fed one pound tankage per day the second week, and two pounds tankage per day thereafter to the close of the experiment.

The purpose of this test was two-fold: first, to determine the most economical combinations of barley and peas for fattening hogs; second, to determine the advisability of feeding tankage with various combinations of barley and peas.

Comparing Lots 1 and 2, Lot 1 gained 1.31 pounds per hog daily, requiring 474 pounds of grain to produce 100 pounds gain. Lot 2 made a gain of 1.57 pounds per hog daily, requiring 447 pounds grain per 100 pounds gain. A difference of .26 pounds daily gains per hog and 27 pounds less grain to produce 100 pounds gain in favor of Lot 2 receiving tankage.

Comparing Lots 3 and 4, Lot 3 gained 1.34 pounds per hog daily, requiring 464 pounds grain per 100 pounds gain. Lot 4 making a gain of 1.37 pounds per head daily, requiring 597 pounds of grain for 100 pounds gain. A difference of .03 pounds per head daily gain in favor of Lot 4, but requiring 133 pounds more grain to produce 100 pounds gain in Lot 4, receiving tankage.

Comparing Lots 5 and 6, Lot 5 made an average daily gain of 1.28 pounds per head, requiring 530 pounds grain per 100 pounds gain. While Lot 6 made an average daily gain of 1.62 pounds per hog, requiring 419 pounds grain per 100 pounds gain. A difference of 3.4 pounds average daily gain and 111 pounds less grain per 100 pounds gain in favor of Lot 6 receiving tankage.

Lot 7, receiving straight barley, made an average daily gain of 1.02 pounds per head, requiring 632 pounds of grain per 100 pounds gain.

Lot 8, receiving straight peas, made an average daily gain of 1.25 pounds per head, requiring 513 pounds of grain for 100 pounds gain.

In the summary statement, which is appended, we would say, considering the data of this experiment, that the most economical combination of barley and peas for fattening hogs is one part barley and one part peas. Any of the combinations are better than either barley or peas fed alone, and peas alone are more economical than barley when fed alone.

According to our data it is advisable to feed tankage in combination with barley and peas. The above statement proved true in Lots 1 and 2, also in Lots 5 and 6, Lot 6 making the most economical gains of the entire test.

In comparing Lots 3 and 4, the addition of tankage to Lot 4 was not justifiable. It seemed that the nigh protein content of the ration caused increased consumption of feed; and, at the same time not producing satisfac tory gains.—Idaho University News Letter.

SUMMARY OF TEST

RATION	1 Barley 1 Peas 1	2 Barley 1 Peas 1 Plus T'kage	3 Barley 1 Peas 3	4 Barley 1 Peas 3 Plus T'kage	5 Barley 3 Peas 1	6 Barley 3 Peas 1 Plus T'kage	7 Barley	8 Peas
Number of hogs per lot	4	4	4	4	4	4	4	4
Length of feeding period, days	35	35	35	35	35	35	35	35
Average weight (lbs.) initial	106	137	116	171	153	134	117	127
Final	152	192	163	219	198	191	153	171
Grain (lbs.) total	46	55	47	48	45	57	36	44
Average daily per head	1.31	1.57	1.34	1.37	1.28	1.62	1.02	1.25
Grain (lbs.) total	870	985	872	1,147	954	975	904	899
Average daily per head	6.21	7.03	6.22	8.19	6.81	6.96	6.45	6.42
Per 100 lbs. gain	474	447	464	597	530	419	632	513

Care During Calving

Article II From Iowa Circular No. 50

The most critical period in the calf's life occurs during calving. Careful and prompt attention at this time, especially when the cow exhibits difficulty in calving, will save the life of the calf as well as conserve the vitality of the mother. If the calf's respiratory sys-

"Would you step on a cockroach—or would you refrain from staining the floor?"—*Roosevelt*

THE "ethics" of business call for courtesy between competitors—and the "ethics" of advertising also demand "truth in advertising." After observing the former, we find it absolutely necessary to "step on" some of the false claims and untrue propaganda of several separator manufacturers in an attempt to preserve a semblance of "truth" in their advertising.

We owe it to the dairy people of this country to present the real facts regarding cream separators. Propaganda based on the falsest of claims has been spread in an attempt to mislead American farmers. In presenting these facts, we stand ready to prove every assertion; they are based on actual records of dairy history.

Official records show that the first cream separator was invented by the French, and that patent No. 105,716 was granted to the company of Fives-Lille, of France, November 19, 1874, for a "system of continuous centrifugal separation." A little later the Danes developed the cream separator and were the first to introduce cream separators into America. Four years later, in 1878, a Swedish concern took advantage of the French invention and built a cream separator.

Looking for American business, this concern contracted with Mr. P. M. Sharples, an inventive genius of West Chester, Pa., to manufacture, install, and repair their machines in America. The first machines were decidedly impractical and unfitted for efficient use in American dairies and creameries.

Mr. Sharples attempted for a few years to make of this foreign machine a satisfactory separator, and during this time invented all the great improvements that have since been used by this type of machine. Among his invented improvements were the discs in the bowl, the splash oiling system, the detached spindle, the lowering of the supply can, and the concave bottom bowl, which permitted a *part* of the weight of the bowl to be suspended below the bearing. The complication of the machine, however, soon caused him to give up this manufacturing contract entirely, and, with true American ingenuity, he built a real American separator, adapted to American dairy needs and entirely different in that it was a most simple and efficient machine.

The Sharples factories are the oldest and largest separator factories in America. They have always been entirely American-owned. During the thirty-eight years of its existence, The Sharples Separator Company has manufactured more separators than any other factory in America, and the output of the Sharples factory today exceeds that of any other separator factory in the world. More Sharples machines are being sold than any other, and a much larger percentage of those sold are today in actual use.

Every American dairyman should know these facts, and has the right to, and should, on buying a machine, ask the following questions of any separator manufacturer:

"*Will your separator skim clean and deliver a cream of even density at any speed at which it may be turned? Is the bowl free from troublesome discs or blades? Has the separator an entirely automatic oiling system and do you guarantee your separator for durability to the extent that you guarantee a repair expense not to exceed $2.00 per year?*

"*Is your separator built in American factories, by American manufacturers, by American labor, of American material, and entirely owned by Americans? Is it truly an American separator, encumbered by no suspicion of taint of Hun propaganda?*

It is due to Mr. Sharples' untiring efforts during the thirty-eight years of his separator manufacturing experience—not to any foreign makers or inventors—that the American farmer owes the modern efficient cream separator. The Sharples Suction-feed Separator is the perfected machine; all other separators are today where Sharples left off years ago—old style, bucket bowl, fixed feed machines.

We say, without fear of contradiction, that the modern Sharples Suction-feed Separator

—is the *only* separator in the world that skims clean and delivers a cream of even density at widely varying speeds;
—is the *only* separator in the world with a controlled varying capacity;
—is the *only* separator in the world with a knee-low supply can, easy to fill;
—is the *only* separator in the world with a perfect automatic splash oiling system, not a single oil cup;
—is the *only* separator in the world with a hollow tubular bowl—no discs to wash.

Write today for the complete Sharples catalog on cream separators. Address, Dept. 30.

The Sharples Separator Co., West Chester, Pa.

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tem does not begin functioning promptly when the circulation through the navel string is stopped, some means must be adopted to induce breathing. Cleaning the nostrils of obstructive membranes is helpful, while slapping the chest with the palm of the hand, or with a towel dipped in cold water, or alternate compression and relaxation of the chest may be effective in extreme cases.

To prevent navel infection and subsequent complications, the calf's umbilical cord should be thoroughly disinfected immediately after birth. For this purpose an iodine solution or a lotion of carbolic acid may be used, after which the navel should be dusted with alum powder. This also prevents white scours, a highly contagious and usually fatal disease of newborn calves.

It is the practice at the college dairy farm to allow calves to remain with their dams for two or three days. This permits the calf to nurse the dam and thus secure the colostrum or new milk which is high in albumen and ash and is so essential to stimulate the action of the digestive tract. This practice also permits the calf to feed as often as desired and has a beneficial effect upon the condition of the udder. For these reasons it appears advantageous for the calf and the dam to remain together for this period, so critically important in the lives of both.

One of the decisive periods in the calf's life is when it is being taught to drink. If the calf is taken from its dam soon after it is dropped it will, as a rule, quickly learn to drink, but as it is not usually advisable to practice such early weaning, difficulty is sometimes experienced in getting calves to take to the bucket. When the calf is to receive its first lesson in drinking it should be hungry, as it is then a more apt pupil. Only a little warm milk in a clean bucket should be offered, and often a few minutes' coaxing will be all that is required to get the calf to drink. Even if it drinks well, however, only a little milk should be given at each meal so that it will be hungry, and ready to drink at the next feed. When the calf is backward at drinking, a good method is to get it in a corner so that it cannot back away, and put one or two fingers in its mouth. It will suck the fingers, and while it is doing this, lower its head gradually until the hand is in the milk. The calf will then suck up some of the milk and when it has done this for a little while, gradually remove the fingers. As a rule, the calf will, after a few such trials, learn to drink alone. If neither of these methods is successful the feeder should back the calf up in a corner, get its neck between his legs and put its head down into the bucket and hold it there to force the calf to drink. In addition to keeping it hungry and ready for meals, the main aids to success in teaching a calf to drink are patience, perseverance and practice.

Success in feeding young calves is based on a few fundamentals. The milk, whether whole or separated, should be fed as soon after milking as possible, so that it will still be warm. The buckets used must always be washed and rinsed out after each feeding, scalded regularly and aired in a sunlit place, not thrown unwashed into a corner of the calf pen. Cleanliness is as essential in the calf's feed pail as it is in the milk bucket. The feeding should be regular in time and amounts; feeding at irregular hours, or in undetermined or irregular quantities, always tends to create digestive troubles and unthrifty calves. Feeding should always be guided by the milk scales or quart measure and increases in the ration should be brought about gradually. The calf should be kept hungry rather than overfed, as overfeeding causes digestive troubles, while calves that are ready for their meals are as a rule thrifty.

When the calf is two or three days old he can be taken away from the dam and fed fresh, warm whole milk at the rate of six to twelve pounds per day, depending on the size and vigor of the calf. The feeding should be done three times a day until the calf is about three weeks old. At that time the number of feeds can be reduced to two per day, and the substituting of skim milk for whole milk may begin.

This substitution must take place slowly and may be completed when the calf is about six weeks old. At this age the amount of skim milk required will vary from 12 to 16 pounds per day. When on full feed 16 to 18 pounds of skim milk per day will, as a rule, be sufficient for a calf. While skim milk feeding sould continue until the calf is seven or eight months of age, many calves are successfully reared though entirely weaned when four months of age. The additional allowance of skim milk, however keeps the calf in a thriving condition, sustains rapid growth, and promotes true economy in the production of high class dairy stock.

A milk supplement is usually a concentrate allowance fed along with skim milk to replace the butter-fat of the milk, while a substitute is something fed in place of milk when the latter is unavailable. These are necessary because it is too expensive to raise calves on whole milk and in some market milk sections even skim milk is scarce.

Where skim milk is available no supplement other than some of the grain subsequently outlined are needed, but where even skim milk is not available, some substitute must be found. There are many supplements and substitutes on the market in the form of proprietary calf meals, and though some of these are excellent feeds, others are not, and many of the good ones are too high priced to be adapted for the dairy farmer.

Where milk substitutes must be used it is probably best to wait until the calves are six or eight weeks old and then substitute them gradually. The gradual substitution occurs in a manner similar to that used in replacing whole milk with skim milk. The following substitutes give good results and can be made at home much more economically than substitutes can be purchased.

Recommended by Pennsylvania Experiment Station: Wheat flour, 30 lbs.; cocoanut meal, 25 lbs.; skim milk powder, 20 lbs.; oil meal, 10 lbs.; dried blood, 2 lbs.

Recommended by Indiana Experiment Station; Equal parts of oil meal, hominy feed, red-dog flour and dried blood.

It is recommended that the first mixture be fed as one pound in six pounds of water and at the rate of two pounds of the mixture per day for calves about six weeks old and increased gradually as the calves grow. The other mixture should be fed at the rate of one pound to eight pounds of water and one pound of the mixture per day for a calf six weeks old.

Perrine with Farmer's Life

Announcement has been made by the Farmer's Life Insurance company of Denver that it has secured as superintendent of insurance Mr. E. P. Perrine of New York City, one of the best known life insurance men in the West. Mr. Perrine was agency instructor and vice-chairman of the personnel committee of the Equitable Life Assurance Society of the United States before coming with the Farmer's Life. Before going to New York he was agency manager for the Equitable in Colorado and Wyoming and also at one time superintendent for the Capitol Life of Colorado. Mr. Walter Johnson, who has been superintendent of agents, assumes other duties in connection with the financial affairs of the company.

No Cash Premiums

The St. Louis poultry and pet stock show held during January was the first large American show to offer no cash premiums. Only ribbons were given the winners in various classes. In the poultry division there were 550 single birds entered and 54 breeding pens, a total of 820 fowls besides a number of display pens. Probably the largest sale made was that of Dr. Le Gear's first pen of White Rocks, which was bought by David Remley of St. Louis for $500.

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Guaranteed Capacity

Each is carefully constructed of highest grade steel and designed to give a *lasting* service regardless of the bumps and jolts of daily transportation. To make them easy to clean and keep perfectly sanitary all seams are soldered smooth and the can heavily tinned. The Sturges trademark on a can is a guarantee of accurate capacity and a long-lived, economical service.

Write for Catalog 32

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Chicago Illinois

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BLACKLEG

Your Veterinarian can stamp them out with **Cutter's** Anti-Calf Scour Serum and **Cutter's Germ Free** Blackleg Filtrate and Aggressin, or **Cutter's** Blackleg Pills.

Ask him about them. If he hasn't our literature, write to us for information on these products.

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Give Cows More Freedom They'll Give You More Milk

Long ago shrewd farmers and dairymen found out that cows cannot produce properly unless they are warmly housed, rightly fed and made comfortable. You know this and you know also that it means dollars and cents to you. Give your cows more freedom and comfort and they will produce more for you.

There's no denying the fact that cows are always more comfortable in STAR Stalls and Stanchions. The STAR Stanchion fits the cow's neck as though it was made to order. You can adjust it to just the right width by loosening two screws. The STAR Alignment Device keeps her in line at the gutter—lengthens or shortens her bed instantly. This means a clean cow bed and clean cows.

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Carey-ized Stock Tonic Brick or Block is sold by General Stores, Feed and Hardware Stores, Druggists and Grocers. If your dealer can not supply you write us his name and we will send him for you 12 bricks (35 lbs.) for $2.50 f.o.b. Hutchinson, or a 50-lb. block $3. Or if you prefer send us the amounts and we will ship you direct. *If you are not entirely satisfied with results in 60 days' feeding according to directions, we will refund all your money, including carrying charges both ways.* We are responsible.

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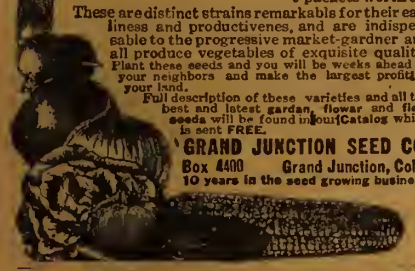

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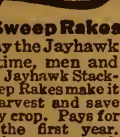

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World's Champion Jersey

Sophie's Agnes, a 6-year-old Jersey, owned by Ayredale Farms, Bangor, Me., has just surpassed the coveted mark of one thousand pounds of fat in a year. She is the first Jersey cow to reach this mark, and she surpassed

Sophie's Agnes, Champion Jersey

it by about the same fraction that her grand-dam, Sophie 19th of Hood Farm, fell short of it.

Besides being a remarkable record of itself, it shows that champions can be bred from champions, and that great cows are not necessarily freaks of nature. Sophie's Agnes is a line-bred Sophie Tormentor, and there is greatness on both sides of her family tree. She was bred by Hood Farm, Lowell, Mass., and was sold at public sale to her present owners for the record price of $10,099. She is thus the record-holder in two ways, and has justified the high price that was paid for her. She was left at Hood Farm to finish her record, and she will now carry her laurels to her new home.

Raising Motherless Pigs

We like your paper as it is for dry landers, too. I just had some experience of raising some young winter pigs without their mother. Wish I had some information before. I found you want to keep them warm like babies. They need artificial heat. Have them by the stove in day time and night put a jug of very hot water in the box. Wrap the jug heavy with paper and tie it on good. It keeps in the heat and the pig's won't burn themselves. They should be fed during the day about every two hours or so when they will let you know, about two parts of water and one part milk, about ten or twelve teaspoonfuls from a bottle with a nipple to it. About two or three times in the night for a few nights; then feed them from time of your getting up until bedtime. As they grow older they must be fed more. If the milk isn't too rich, feed them pure milk, about two weeks old and on. Best to give them boiled milk on the start diluted as I have said. I am just stating this as it might be a help to some one and it is my first trial, but have had luck so far. At night cover the box over with a heavy coat. The box must be fixed so they can't climb out or they will sure tumble out and wander about until they freeze. When they get a week or so old take a little pan you don't care for, put a hole in the center and run a little rag through. They will suck the rag and get to drinking nicely.—Mrs. Kennedy, Cheyenne Wells, Colo.

Send for Silo Bulletins

Farmers planning to build silos should write to their agricultural college for bulletins describing various types of silos and methods of building. Colorado Agricultural College has available for free distribution the following:

Extension Bulletin No. 107, "Silos and Silage."

Experiment Station Bulletin No. 200, "Silos and Silage."

These bulletins bear the same title, but they are distinct publications, either one being serviceable.

If you wish to ask specific questions about the construction of silos, the feeding of ensilage, or want information on any other phase of the silo proposition address a letter to Western Farm Life Service Bureau. We shall be glad to get the answer for you and to advise you fully about your particular problems.

The late winter is a propitious time for the building of new and the repairing of old fences. Worn-out posts and wire should be replaced where necessary to make the fields stock-tight.

The Great Opportunity For Stock Owners

During the immediate future the stock owners of America will enjoy the greatest money-making opportunity of a generation. *There is an acute world-shortage of animal products.* The investigators of the U. S. Food Administration report that the flocks and herds of Europe are so reduced that they must be kept for breeding purposes in order to make good these losses.

America must supply the hungry nations with animal foods. This insures a ready market and good prices until Europe's animal population is restored.

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The Everlasting Silo
Built with curved, hollow *Flint Tile* Blocks. *Flint Tile* cuts glass. Lasts forever. Special construction. Absolutely guaranteeed not to blow down. No expense of upkeep. Costs less than cement or wood. *Thousands in use.*

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Our Agency Plan offers an unusual opportunity. The American line is easy to sell. Widely advertised and merits of line known through many year's use by thousands of farmers. Some good territory still open.

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Order now and save money. Special low prices for immediate shipment
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Write Dept. 1611 at office nearest to you.
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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

A Home to Rest in

Sweet home! Dear home! on the northern heather,
On the sunniest southern plain;
The Lapland hut in its wintry weather,
The tent of the Indian main;
Be it gorgeous wealth that our temple is dressed in,
Be it poor and of little worth,
O home, OUR home—a home to rest in—
Is the dearest thing on earth.

—MORFORD.

Where Do You Live?

An old story is told of Macaulay who once in his precocious childhood had one of his carefully made "play farms" destroyed in the garden by a maid who was over zealous about straightening up. He came storming into the house, and running to his mother, who was entertaining a group of friends, said furiously: "Cursed be Sally! For it is written, 'Cursed is he that destroyeth his neighbor's landmarks!'"

Macaulay was right; it is so written; and the destruction of landmarks has been the cause of more than one lawsuit. On the same basis, however, it ought to be written, "Blessed is the man who erects a landmark, for thereby doth he assist his neighbors and the stranger traveling within his boundary." The landmarks we are talking about in this article refer to the farm name to which every respectable farm is entitled and which ought to be posted where people passing cannot mistake it.

A beautiful rolling farming country is a perfect Chinese puzzle to a stranger searching for someone, and who has received directions something like this: "Go down by Simm's place and then turn west. Go half a mile and then take the road that angles over toward Brown's. A little way beyond Brown's you'll see a white house on the left hand side of the road, and that's the place you're hunting." If Simm's and Brown's have names on their gates, all well and good. Otherwise it means a pretty indefinite search.

People of moderate means who are sentenced to dwell in cities must always designate their dwellings by street and number like all the rest of their neighbors. But people who live in the country have the perfect freedom of all the dictionaries and all the poets to choose a name for their bit of outdoors; or they can even build one that Webster and the American anthology wouldn't recognize. A good farm is a thing to be proud of, and as such it has a right to a name, placed conspicuously.

The helpfulness of installing a landmark for one's neighbors isn't the only reason for a farm name. There is a much more selfish one, but it's just as important. That is the fact that your farm name can become a very valuable trade name on the products you market. In talking to a wholesale grocery dealer the other day about why it is difficult to market butter and eggs through wholesale dealers, he said: "In the first place they aren't standardized, and in the second, even if they were, they aren't marked so you could ever tell them again."

"But," came the remonstrance, "you take so-and-so's butter."

"Exactly," said he, "but his butter is of uniform quality and comes in a marked pasteboard carton. If other farmers would only use the name of their place, or their own name, we could market their good butter in the same way."

The name of the farm appeals to most people more than the name of the individual, and one which is distinctive placed on an attractive wrapper would be the best advertising the farmer could wish.

Please note that it should be distinctive, however. "Mountain View" or "Fairview" taken just for their literal meaning might apply to seventy-five per cent of the farms in the western states. A particular variety of topography peculiar to your own farm, a name signifying a bit of history connected with your farm or with your own family name would make the best name.

"Well, but," you ask, "suppose my farm is named and I use it as a trademark, what is to prevent some other farmer in my county from adopting the same name?"

Aside from the fact that if you have one which is really distinctive he can't use it without giving himself away, there are systems of registration in other states which prevent such duplication. A state law was easily secured for this. That does not prevent your naming your farm now however, and if you have difficulty in finding a suitable one, Western Farm Life will be glad to send you a list upon receiving some particulars descriptive of your place. Your dwelling has a right to identity.—E. D.

What Mary Wants

Dear Sarah:

You were right, the dried beans won out. My garden is to be taken by the men folks as part and parcel of the rest of the spring plowing—for John said so. However much I may believe it, it isn't good for even the best of men to tell him how thoroughly I appreciate him at times. I am going to say right here and now that when John promises to do a thing for me, he goes and does it. Therefore the promise is the thing.

The wind is howling round the house and there is a hint of storm in the air; but even that can't take from me a certain mad joy at the little warm breaths that get in in spite of winter's best efforts, and I am wild to go and hunt for the first anemones. In this season when we're getting tired of the same old things to cook, and the ice on the north side of the house has lost all its pristine purity, and rubbers and overcoats bring a scowl to every youngster's face, anemones are my highest heaven of happiness.

You don't need to remind me, Sarah, I'm not waiting for spring just outside: there is some to be fixed indoors. Six weeks ago all my hideously unusable bowls came forth for paper narcissus and water hyacinths, and now we're a riot of fragrance and delicate color. Yesterday I played the "Spring Song" on the Victrola so many times that little Sam, who is developing a religious streak, said: "Mother, you're not forgetting what the prophets said about giving your soul to revelry, are you?" But it really needs revelry.

You said you were remodelling the old kitchen, Sarah, and I wish you'd tell me exactly what you are doing with it. There might be still more promises and possibilities, you know. You are accusing me of always having a crusade on hand, but this will be a Sarah crusade, not a Mary one.

Lovingly,

MARY.

What the Table Rock Club Did

For years we Table Rock people had talked over the advantages of a good school, longed for a mail route, wished for a way to get our cream marketed without spending so much time from the field, and "kicked" about our terrible roads. December 19, 1917, a number of Table Rockers met together to consider the advisability of forming a club. Mr. Lauck and Miss Collopy were with us to help with the organization which was completed January 2, 1918. By the third meeting things were being accomplished. A motor mail route was talked of and committees appointed, cream was solicited for a cream route. In February a Red Cross branch was organized and work started immediately. Knowing that good roads were necessary to our cream route and mail route and consolidated school, a petition was circulated for work in our vicinity and rewarded by many weeks of work by county teams and trucks. The Farmers' Club has been the organ through which all our war work has been accomplished, and that is saying much. Liberty loans, War Savings Stamps and Red Cross subscriptions have made people say, "Where is Table Rock?" Our women are on record as good sewers, hustlers and money-makers, as well as patriotic war cooks. Little has been accomplished in a social way or in raising money for our Farmers' Club. Our time has been needed for war work. But we do have:

1. A cream route.
2. A consolidated school.
3. Improved roads.
4. A motor route.
5. A feeling of fellowship which bids well for our plans for the coming year.

—Winnifred G. McBroom, in El Paso County Democrat.

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SCHROCK Kaffir-Sorghum has made a splendid record for drought resistance, heavy yield and freedom from midge. Unlike the other grain sorghums, the seed will germinate readily even when the ground is cold—an advantage in getting early forage and ensilage for silos.

60 to 70 Bushels to the Acre

Every farmer who has planted Schrock-Kaffir is surprised and delighted. Not an experimental crop—seeds do not shatter—does not heat in the stack, and makes fine leafy hay. Black birds will not bother it in the fields. Get the genuine "Sea-Gull Brand."

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Write at once for big free book, illustrating and describing field and garden seeds of all kinds. Tells the strange story of Schrock-Kaffir-Sorghum, which was brought to this country by sea-gulls.

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The Old Reliable Seed and Supply House That Saves You Money.

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And the savory fragrance of *real* home-cooking calls to him that *mother's in the kitchen.*

Her kitchen is every home-making woman's delight, and the woman who owns a modern Majestic range knows how wholly delightful a kitchen can be.

Nothing adds more to your success and pleasure in cooking, nothing is a source of greater pride and joyful satisfaction to you, than the appearances of your kitchen.

The Majestic is a *beautiful* range!

Picture a Majestic in your kitchen. See its gleaming, shimmering, sanitary trimmings of nickel, smooth as glass, almost mirror-like in polish. You'll never need to black the cooking top of your Majestic—for it is *burnished* a rich dark blue, a genuine permanent *deep-color burnish* as lasting as it is beautiful. The Majestic range-frame is *unbreakable*, made of *malleable iron*; the body is of rust-resisting 99% pure charcoal iron—*durable*, and with all the charm of high *natural* finish.

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Write us today for free illustrated booklet.

Majestic Mfg. Co., Dept. 231, St. Louis, Mo.

Great Majestic
The Range with a Reputation

The New Edison

"The Phonograph With a Soul"

The instrument that sings as a human sings—that plays as a human plays—the instrument that literally re-creates music—the instrument you will buy when you hear it.

Shipped Anywhere, Express Charges Paid

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Beautiful Book of Edison Phonographs, Pianos and Player Pianos Free

Make the Farmhouse Cheerful

Apart from the esthetic value to be derived from it, beautifying the farm dwelling, modernizing its equipment, is good business. It is an investment that brings profitable returns. The farmer and his family need wholesome relaxation just as much as any persons constantly employed. The home should be the place in which to obtain it.

An attractive dwelling with an inviting approach acts as a magnet on the tired toiler. The sight of flowers and a well-kept lawn is a relief from the drab clods of the plowed field, the brightness of the blossoms a change from the sameness in the color of growing crops. A cheery interior at once dispels care and bright rooms induce rest.

Every dollar judiciously spent for labor-saving devices and for sanitary conveniences is an investment and a necessity in these days of enlightenment. They save wear and tear on the human machine and prolong life.—U. S. D. A. Weekly News Letter.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2748—Suit for the Small Boy. For the blouse, one could use galatea, gingham, drill, or linen; for the trousers, these materials are suitable too, and likewise flannel, serge, velvet and corduroy. Cut in 4 sizes: 3, 4, 5 and 6 years. Size 4 requires 1¾ yards of 27-inch material for the waist, and 1⅛ yards for the trousers.

2596—Chick Style for Little Girl. Your little girl will be pleased with this style of dress. It is nice for gabardine, plaid suiting, serge, galatea, gingham, chambrey, percale, velvet or silk. The closing is effected at the left side. The sleeve may be in wrist or elbow length. Cut in sizes 4, 6, 8 and 10 years. Size 6 requires 2¼ yards of 36-inch material.

2740—A Smart Frock. Satin and serge, or satin and Georgette crepe, could be combined for this model. The vest could be of contrasting material, or of self material, braided or embroidered. Brown with sand color, blue with white, or green with tan, would be attractive. Cut in 3 sizes: 16, 18 and 20 years. Size 18 requires 5¼ yards of 40-inch material. With plaits extended, the skirt measures about 1¾ yards at the foot.

2762—A Stylish Gown. Here is a model that is suitable for satin, velvet, duvetyn, jersey cloth, silk, crepe, and combinations of these materials. The skirt is joined to an underwaist. The outer waist opens over a vest that may be of contrasting material. Width of skirt at lower edge is 1¾ yards. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5⅛ yards of 44 inch material.

PINK KAFFIR

Early and Sure to Mature

A NEW drouth forage crop — grows taller than white kaffir, with stalks more juicy and slender, giving just as much foliage. Ripens earlier than white or red by two or three weeks. Yield very heavy, 60 to 100 bushels to the acre. Send for free sample.

NEW SEED CATALOG FREE

with pink list giving lowest prices on quantities of field and garden seeds. Purest strain, highest germination. 62 years experience in seed business back every Bartelde shipment. Write today. Address house nearest you.

BARTELDES SEED COMPANY
(Oldest and Best Seed House West of Mississippi)
1332 Barteldes Building at
Lawrence, Kansas, Denver, Colorado,
or Oklahoma City, Oklahoma.

Steamboat Gold

(Continued from Page 21)

secrets away, and her very gentility stood as an impenetrable vacuum around them, through which the prying mind could not project an illuminating ray.

"All right, we'll say no more about it," he said.

Lightly enough spoken, but not so lightly put out of the thoughts. It followed him when he went to the porch to join Arkansaw and Gregg, and threw him into a clouded and silent reverie. His alert mind ran back among the happenings of the past days, lighting upon the most trivial things and turning them for evidence of a suspicion which had suddenly grown upon him. Yet he could lay hold of nothing, and the evening blended into dusk, and the intention of visiting Moore and Juliet passed quite out of his thoughts.

Mystery and Hugh came round from the kitchen presently and went to the well, the schoolmaster carrying the pail. They were a long time after the water, so long that Arkansaw fell asleep in his rocking-chair, and the full moon rose redly through the past day's ashes which still clung around the rim of the sky, mounted beyond the murk, and stood in friendly nearness behind the elm-tree.

"Why did you give her that name?" Randolph asked suddenly, breaking a long silence.

"Which?" said Gregg, starting from his thoughts.

"Mystery," said Randolph, waving his pipe toward the well.

"Well, I tell you." But before telling him Gregg readjusted himself and crossed his thin legs so, and struck a match on the carpet seat of his chair, which creaked when he moved with a cheerful little sound like a cricket. "Well, I tell you," said he again, and puffed at his pipe as if sparring for his reason, or maybe to contrive one, never having been called upon before to give it, "I named her that because I think it's the best-suited name to a woman that she can have."

"It's so unusual, I thought it might be handed down in your family," Randolph said.

"No, I never heard tell of any other woman named Mystery. Mystery she was borned after I'd been married long enough to begin to learn that the longer a man lives around a woman the less he knows about the inner workings of her mind. I lived with them children's mother forty-two years, and I never knew which way she was going to jump. She died six years ago this fall."

"She's well named," said Randolph reflectively.

"Folks kind of blamed me for givin' her such a peculiar name at first, but when they got used to it, they took a pride in it; and Mystery she does, too, even if she did change it to Maud when she was off at school."

"She understands the significance of it now," said Randolph, nodding to himself in the gloom of the porch.

The moon was peeping around the great dark plume of the elm-tree, as if it was more anxious than Moss Gregg, or anybody in that quiet house, to see what was going on at the well. Randolph wondered whether its cold wastes were silenter than the valley of the Missouri that night. What a lonely place for youth, he thought. Little wonder that sad shadows lay in clear eyes there, or that the heart of Juliet Moore was yearning to flee those dread silences, which were as spirits uprising from the morose, mud-poisoned stream.

How must it be this night in Moore's gloomy house, no kindred soul for youth to warm its lonesome heart against! This recurring thought of Juliet drew Randolph back to the resolution that had shaped in his intention the past hour

"If they're going to do anything about it, they'll be making a move pretty soon now, don't you think?" he said. The question was abrupt and disconnected, just as he had broken it off from what had gone before it in his own mind, but Gregg understood; in the moonlight that leaked through the vines the young man saw him nod.

"If they're goin' to act, they'll act purty soon," he agreed. "It puzzles me why we ain't heard nothing—they never let anybody go this far along on that business before."

"I've been thinking that it may be out of regard for innocent people whom I have drawn into the hunt with me, Captain Gregg."

"You mean if they got you alone—"

"Who knows?"

Captain Gregg sat nursing his whiskers in the palm of his hand. He sat that way a good while, and it was plain that he was troubled under his calm. Then: "Well, you ain't a goin' to give 'm a chance, anyhow, John."

"I've been considering the matter tonight, for all evening I've had a feeling that something is impending, and it has come to me that I'm drawing you three men into danger. Something's due to happen: I'm as sure of that as I am of breakfast."

"Shucks!" said the old man, with generous softening of the reproof that he put into the homely word. "You mustn't let them kind of notions take a hold of you, John."

"I'm not going to dodge it, or run away from it, captain. I'll go more than half way to meet it if I know which way it's coming, but I haven't got any business putting you and yours in danger. I'm nearly as much interested now in clearing this fog of crime and mystery away from the wreck as I am finding that old safe. It's my venture, and it must be my risk. So I'm going to cut loose and give them a chance at me if they want to take it."

"I don't git just what you're drivin' at, John."

"I'm going to take my tent over in the morning and camp on the ground."

(To be continued.)

Fighting the Onion Thrips

The onion thrips is an insect so small that it is almost invisible to the unaided eye, but it is prolific, and the most serious menace to the onion-growing industry of the west. It causes an annual loss to this crop alone estimated by specialists of the U. S. Department of Agriculture to be at least $2,250,000. Though the insect has a particular liking for onions, it preys upon other garden and truck crops, such as cabbage, cauliflower, cucumbers and melons, and also has a ravenous appetite for greenhouse and many ornamental plants, particularly roses. To aid growers in identifying this insect and preventing the losses for which it is responsible, Farmers' Bulletin 1007, "Control of Onion Thrips," has recently been published by the U. S. Department of Agriculture.

The first indication that an onion field has been attacked by thrips, says the bulletin, is shown by the leaves, which become whitened. In advanced attacks the leaves are curled, crinkled and twisted, and finally die down permanently. To control this pest, begin spraying with nicotine sulphate solution as soon as there is any evidence of the insect. If spraying is delayed until hundreds of young thrips are present the crop will be seriously injured. The spray material is made by the following formula: ⅜ pint of nicotine sulphate (40%), 4 pounds of dissolved soap, and 50 gallons of water. Spraying should be done thoroughly and applied as a fine mist.

It is not advisable to plant other crops, such as early cabbage and cauliflower, upon which the thrips feed, near the onion fields. After onions, cabbage and related crops are harvested, the field should be cleaned up to destroy any breeding places of the insect. They will continue to thrive on any portion of these plants or weeds that might remain in the field. It is a good practice to plow as deeply as possible and harrow the ground after harvest. Much of the injury can be avoided by planting as early as possible and by using quick-acting fertilizers after the onions are well set or the bulbs have begun to form.

Average prices Paid for Cattle

A Kit Carson county stock raiser, Mr. Alonzo St. Clair, R. F. D. No. 3, Arriba, Colo., questioned the accuracy of a statement made in a recent advertisement by Swift & Company, to the effect that $135 was the average price paid for cattle at that time. Mr. St. Clair wrote as follows:

"In one of your issues a short time ago you carried, on the back page, an ad saying Swift & Company were paying the average stockmen $135 for each of the cattle they bought. I have kept the market reports for two or three years and can't find where the producers get anywhere near that price. Will you please look into this matter and let me hear from you in regard to it?"

The question was submitted to Swift & Company at Chicago and their reply, addressed to Mr. St. Clair, is as follows:

Mr. Alonzo St. Clair,
Route No. 3,
Arriba, Colorado.

Dear Sir: Your letter to the Western Farm Life has been referred to us with the request that we answer you direct. The advertisement that you refer to in which it was stated that $135 was paid for cattle did not specify that Swift & Company were paying $135 for each of the cattle they bought. The advertisement reads:

"At the time of writing $135 is **on the average** the price paid for the average beef animal to the stockman by Swift & Company."

October quotations on common to medium steers at Chicago ranged from 10 cents to 11½ cents, and we figured that the average price on medium steers would be 13 cents, which, on a 1,050-pound animal, would be approximately $135. It should be understood, however, that these quotations apply to native steers. On western range steers the quotations were between 9 cents and 9½ cents per pound, which, on animals weighing from 800 to 900 pounds, would only equal about $75 per head.

For your information we can state that Swift & Company's total cattle purchases for the fiscal year ending November 2nd, 1918, averaged in cost $92.70 per head, and includes all grades of cattle.

Very truly yours,
SWIFT & COMPANY.
Commercial Research Department.

A few spare hours can be devoted advantageously to the collection of old implement parts, repairs and scrap iron which have accumulated in the fence corners and lanes, as the present values of scrap and junk justify the farmer in selling such material, which is valuable for industrial purposes.

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

Mr. H. W. Sanborn, who contributes the leading article for the poultry page of this issue, has been at work in Colorado and Utah for over a year, as a representative of the United States Department of Agriculture, in increasing poultry production. He was for many years a poultry raiser in the East and he knows the business from the ground up, having made a success of commercial production on a large scale. He is available for help in any farming community that desires to build up this important line, and may be reached by mail, care Extension Department, Colorado Agricultural College, Fort Collins.

Feeding the Chicks

Little chicks should never be fed until 48 hours old. It is necessary for them to have time to digest and assimilate the yolk of the egg taken into their body when hatched before other food is given to avoid digestive troubles and resultant losses. Too early feeding and over-feeding at first are the direct causes of many of the losses of young chicks. The very best first feed for little chicks is sour milk or buttermilk. They may have this a day or two before they are given water and then both kept before them all the time. They should have fine grit, fine charcoal and fine oyster shells from the start. The best solid feed for the little chicks is rolled oats, bran or a mixture of the two. These may be mixed with hard boiled infertile eggs taken from the incubator if desired. The eggs should be boiled thirty minutes, ground up in a meat chopper, shell and all, then mixed with the oatmeal or bran one part of the egg to six parts of the oatmeal or bran. Whatever the feed, it should be fed five or six times daily, every two to two and one-half hours. Feed all they will eat in ten to fifteen minutes. As the little chicks artificially brooded do not have the mother hen to call them and teach them what to eat, and not having the power of discrimination as to what they should eat, the attendant should feed this on heavy paper or cardboard the first two days until they have learned to eat the foods given and not eat waste, or indigestible matter from the litter. After they have learned to eat the foods given it may be scattered in the litter. After two or three days of this feeding it would be well to give the chicks a little scratch feed in the litter night and morning, continuing the other feeding the rest of the day. This scratch grain may be the commercial chick feeds for sale on the market or mixed at home. Fine cracked corn, cracked rice, millet seed, cracked peas, pinhead oatmeal and cracked wheat, may be used. A mixture of several is better than one alone. A mixture of three parts cracked wheat, two parts fine cracked corn, and one part pinhead oatmeal would be an ideal mixture for the little chicks. This is the mixture recommended by Professor Rice of Cornell, and used by the writer many years with excellent results. It is doubtful if this can be improved upon as a scratch grain for young chicks. After the chicks have become two weeks old and are growing properly, are active, strong, and haven't any digestive troubles they should be fed all they will eat of the right kind of food for rapid growth.

The writer would recommend that at this time a dry mash mixture be placed before the chicks all the time in a low down trough of some kind covered with one inch wire netting, so that the feed will not be wasted and that the scratch grain be fed night and morning, liberally at night, that the chicks just before returning to the hover, will fill their crops to the limit with feed to digest through the night and make the most rapid growth possible.

The mash referred to should be composed as follows: Ten parts bran, six parts feed cornmeal, and four parts good beef scraps, to make a rapid growth. If skim milk or buttermilk is furnished them in unlimited quantities the entire time, beef scraps in the mash will not be necessary, as the chicks will obtain the animal protein from the milk. One or the other, however, is necessary. Professor Lewis, of New Jersey, has shown by analysis that the growing chick's body contains protein in proportion to carbohydrates and fats of about one to four. The grains vary in their proportion of protein to carbohydrates and fats from one to six, to one to eight. In order for the chicks to make the best use of feed without wasting and make the most rapid growth, it is necessary that they be furnished animal protein to balance up the surplus of carbohydrates and fats. This may be furnished by using beef scraps in the mash or by the use of skim milk as stated.

In the proper development of pullets for future layers every one should feed them the maximum amount of the right kind of feed it is possible to induce them to consume, that growth may be made as quickly as possible and egg production begun as early as possible. Where possible free range should be provided, as much of the feed consumed will be picked up by the chicks that would have otherwise gone to waste. As soon as the chickens get well feathered out and no longer require heat, separate the cockerels from the pullets and market them as broilers as soon as large enough, unless it is preferred to raise them, in which case give them a range separate from the pullets. When the pullets are put on range, keep the dry mash in an outdoor self-feeding hopper, accessible to them all the time that in addition to what they get on the range they may have this to go to at any time. They will not eat it if they do not need it. If they need it it should be available. They should also be fed plenty of scratch grain at night.

The writer for ten years grew his pullets on a large free range with a colony coop 4 feet by 8 feet for every fifty pullets, and a self-feeding hopper with four compartments for every two coops. This hopper was of good size so that it did not have to be filled too often. In one compartment was put the dry mash recommended, in another cracked corn, in another wheat and the other heavy oats weighing 40 to 45 lbs. to the bushel. All the pullets had to do was eat, drink, play and grow, and this was what was desired. Under this method of rearing the pullets developed quickly, matured and many started laying between four or five months of age and the majority started at from five to six months of age. They began returning an income early in life. The breed was Rhode Island Reds.

The vital fact in the economical feeding and growing of the pullets is that it required a definite amount of feed daily for a maintenance ration to sustain life without any gain being made. If they are fed irregularly, insufficiently or otherwise improperly, they all only make a growth to the extent of the amount of right feed consumed above that required for the maintenance ration, and the more right feed the pullet consumes above the maintenance ration the more rapid and more economical the growth. If by improper feeding it takes seven, eight, or nine months to bring the pullets to the laying of the first egg instead of five to six months, there has been fed for two to three months this daily maintenance ration at a loss. While the maximum amount of the right feed the pullets can be induced to consume each day will cost more for that day's feeding, it will cost much less to mature them and bring them to the laying of the first egg, due to the saving of two to three months extra feeding of the daily maintenance ration.

The author has dwelt upon this problem of rearing the pullets for future egg producers at considerable length as it is important and the returns obtained from egg production depend very greatly upon how the pullets are developed. The fact is that those making the largest profits in poultry keeping, feed the pullets for egg production continuously after the first two weeks when the danger of over-feeding is past. They are developed for that purpose and make better layers on account of being properly grown.—H. W. Sanborn, Poultry Specialist, U. S. Department of Agriculture.

May Be Caused By Lice

I have read in your paper many helpful hints on chickens, so that I thought maybe you could tell me what ails mine and suggest what to do for them, as I have lost so many old ones and young ones. They get weak in their legs, often falling down. Then after about two or three weeks die, their combs turning purplish. They have plenty of grit, as we haul gravel for them.—Mrs. J. E. H., Idaho.

I am sorry that we can give you no positive information as to the trouble with your fowls. They may be troubled by lice and mites. It may be that they are overfed and lack exercise, or it may be that some disease has taken hold of them. We would suggest that you send a bad case to your Agricultural College for examination. The veterinary department of that institution would probably be glad to diagnose the case for you. In the meantime we would suggest that you be sure of the lice and be very careful of overfeeding and feed as great a variety of feed as possible. We rather think these precautions will eliminate the trouble.

Caponizing Is Practical

I have heard a little about caponizing, and would like to know more about the subject.

1. Is it practical?
2. If so, which breeds of chickens are most profitable?
3. What make of tools are the best for this purpose?—A. A. P., Huerfano county, Colo.

Caponizing is practical and is becoming more profitable as the public becomes more appreciative of their value as food. The medium sized breeds are considered the best for this purpose. I have never used anything but Piling tools but I believe others are fully as good. There seems to be such a difference of opinion as to the best that perhaps it is only a matter of opinion.

Feed For Baby Chicks

What is the most substantial feed for baby chicks, and please tell me the quantity and how often to feed? Whether you should give them warm, fresh water three times a day?—W. R. B., Idaho.

We have no hesitancy in recommending commercial chick feed but seldom use it as we prefer to make our own mixture. We use cracked wheat and finely cracked corn as the steady diet until the chicks are big enough to eat the whole grain. In addition to this we feed the baby chicks oat meal from the beginning until they have good range then we cut out the oat meal. We always have a mixture for them of bran, corn meal and either ground oats or ground barley. For the very small chicks we take the pains of sifting out the hulls of the oats and barley. Once a day they are fed a wet mash and the dry mixture is kept before them at all times. We prefer milk for them but beef scrap may be used if milk is too expensive to buy. When milk is available they should have a large quantity and the mash should be wet up with the milk.

Incubator Instructions

Answer to Mrs. R. S., Wyoming:

It is impossible to say definitely what is the trouble with your hens but on a guess I should say that either they are getting frozen vegetables or mouldy feed of some sort. Troubles of this sort at this time of year are generally caused by feed but it might possibly be that the mites and lice are the cause. It is not at all likely that the trouble is contagious. We would suggest that if you do not have the written instructions with your incubator that you send to the manufacturer for such instructions. Generally the cooling of the eggs begins in two or three days and continues until the eggs are about ready to pip. Generally they are turned twice a day and the length of time the eggs are kept out of the incubator must depend largely upon the temperature of the room. The water tank should be kept filled with hot water. There is no reason why duck eggs should not hatch as successfully as hens' eggs in the incubator.

Capons For Denver Trade

Answer to J. W. P., Arapahoc county, Colorado:

The eggs that I offer for sale are from my own flock. The college poultry work has been discontinued. My birds are white Plymouth Rocks which I have bred for many years and which are bred especially for egg production. I can not give you pedigree of my birds but my breeders are only those that have laid into October and November and my stock is always hatched early enough so that they lay through the winter. I do not think the trap nest now constructed is practical for the farmer to use, as it necessitates frequent and regular visits during the time when people on the farm are busy with other things. It pays to Hoganize when one thoroughly understands the method. Many people are making caponizing profitable but the work must be attended to in a business-like way. I think you would have no trouble in finding a market for big tender capons in Denver, especially in the best hotels, first class grocery stores and markets.

Wants R. C. White Leghorns

Answer to W. H. S., Kiowa county, Colorado:

A year ago through a representative of the Department at Washington we tried to get a survey of the poultry producers in the state. Through that work we obtained the names of several hundred breeders but among them all we could not find a single breeder of Rose Comb White Leghorns in Colorado. Personally I cannot recall a single breeder of that variety. The last man who had a considerable number was J. W. Dillon of Greeley. He may still have them but does not advertise them. I can not recall having seen any at any recent poultry shows. I consider them a fine fowl and am sorry to see that no more interest is taken in them.

PRIZE WINNING WHITE ROCK HEN

This Hen Was First in Her Class at the Denver Stock Show in January, the Largest Poultry Show Ever Held in the West. She Belongs to F. L. Roy Toliver, of Fort Collins, Breeder of Purebred White Plymouth Rock Chickens and Poland China Hogs. Mr. Toliver Is New in the Farming Game, but He Starts off with the Best Foundation Stock In the Two Lines of Breeding That He Has Adopted, and Will Make It Win.

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Most poor layers are "OUT OF CONDITION" or have Colds Roup, Bowel trouble, Sore head, Chicken pox, etc. GERMOZONE is the best remedy for all these disorders. At dealers or postpaid 75c, with 5 book Poultry Library. GEO. H. LEE CO., Dept. 445 OMAHA, NEB.

Poultry Book Latest and best yet: 144 pages. 215 beautiful pictures, hatching, rearing, feeding and disease information. Describes busy Poultry Farm handling 53 pure-bred varieties and BABY CHICKS. Tells how to choose fowls, eggs, incubators, sprouters. Mailed for 10 cents. Berry's Poultry Farm, Box 66, Clarinda, Iowa

62 BREEDS Most Profitable Pure-Bred Chickens, Geese, Ducks, Turkeys. Hardy fowls, eggs, and Incubators at lowest prices. America's Pioneer Poultry Farm. Write for valuable Poultry Book FREE. F. A. NEUBERT, Box 381 Mankato, Minn.

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The World looks to us for its supply of Muskrat. We have a tremendous demand now, prices running as high as $2.50 each for extra fine skins. Ship us all you have—take advantage of the high market *today!* Whether you ship extra large or average skins, blue pelted or prime you will get the most money from FUNSTEN
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WHITE LEGHORNS
Hatching Eggs and Baby Chicks
Do You Want Eggs and Big Profits This Winter?
Then get your hatching eggs and baby chicks from our strain of TOM BARRON ENGLISH bred-to-lay LEGHORNS, TESTED 9 YEARS for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for circular, prices and facts from customers before you buy eggs or chicks. It's free, write.
The Fowler Egg Farm, Fowler, Colo.

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

L. D. GOOCH, SEWARD, KANS., WILL SELL R. C. Brown Leghorn cockerels $2 each if taken soon.

FANCY SINGLE COMB BROWN AND WHITE Leghorn cockerels, $2.00 to $3.00. H. N. Holdeman, Meade, Kan.

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KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

SINGLE COMB WHITE LEGHORN COCKERels, $2.50 each. Eggs, 5c, chicks, 15c. Mrs. C. C. Cole, Levant, Kan.

EGGS—SINGLE COMB WHITE LEGHORNS, Ferris highest laying strain; $5 per hundred. Chicks, 15c each. Mrs. Anna Hege, Sedgwick, Kans.

PURE BLOOD SINGLE COMB BROWN LEGhorns. Setting eggs from healthy range flock. $1 per 15; $6 per hundred, prepaid. Order today. C. O. Johnson, Boyero, Colo.

WINTER LAYING SINGLE COMB WHITE Leghorns, standard bred and Hoganized, 250-egg hens. Flock laid Jan, 1917, 91¼ per cent. Eggs and chicks. Barlow & Sons, Kinsley, Kan.

BARRON'S ENGLISH WHITE LEGHORNS, winter layers. 248 to 308 eggs per year. Baby chicks. Eggs. Royal Oaks Poultry Farm, Jas. Dickey, Cabool, Mo.

WHITE LEGHORNS—THIS STRAIN WON First at the Panama-Pacific Exposition egg laying contest. Lewis Jones, 2327 21st St., Boulder, Colo.

SINGLE COMB WHITE LEGHORN EGGS from excellent laying strain of vigorous, farm range lowls, bred especially for high egg production. $1.50 per fifteen; $6.00 per hundred. Ellen M. Donahue, Inland, Neb.

EXTRA GOOD SINGLE COMB WHITE LEGhorns, pure white, low-tailed, males mated to heavy laying females. Eggs $6.00 per 100; setting, $1.50. Order now. E. D. Allen, Inland, Neb.

S. C. BUFF LEGHORN EGGS, 15 FOR $2.00; 120 for $10.00. Six pens trapnested at $3.00 and $5.00 setting. All prepaid. Few cockerels. Free "Book of Buffs." Pearl Haines, Rosalia, Kan.

'RUSSELL'S RUSTLERS," AMERICA'S FAmous Single Comb Brown Leghorns. Free catalog. Winners at largest shows. Eggs prepaid, $2.00 per 15 and up. Geo. Russell, Chilhowee, Mo.

BREEDING OF BRED TO LAY SINGLE COMB Brown Leghorns in large quantities a specialty;; 50 for $4.00; 100 for $7.00; 150 for $10.00, prepaid. Cockerels, $3.00 to $6.00. Chas. Bowlin, Olivet, Kan.

HATCHING EGGS FROM SINGLE COMB White Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Order now for future delivery. Robert Shumway, Fountain, Colo.

BUFF LEGHORNS—BEST LAYERS ON EARTH. Baby chicks. Hatching eggs now ready—$1.50 for fifteen, prepaid. Book orders early. Number of customers disappointed last season. Classy cockerels. Champney, 25 South Logan, Denver, Colo.

SINGLE COMB WHITE LEGHORN CHICKS, 15 cents; from world's best strains, Young Smith and Ferris, from hens that pay $8 each per year from eggs. Layers, winners and payers, $5 to $25 each. Clara Colwell, Smith Center, Kans.

SINGLE COMB WHITE LEGHORNS—OUR Leghorns are bred to lay more eggs at all seasons than common hens and especially in winter. It pays to get eggs and chicks from a heavy laying strain. Fourteen years in the business. Hatching eggs and chicks. Riverside Poultry Farm, H. D. Walker, La Junta, Colo.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and facts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Colo.

PLYMOUTH ROCKS

BIG-BONED WHITE PLYMOUTH ROCK COCKerels for sale at $2.00 and $3.00 each. Mrs. John Rhudy, Pilger, Neb.

EGGS—15 FOR $3.00, 100 FOR $10.00; from Vaplon's White Plymouth Rocks, real Rock type, continuous layers. W. E. Vaplon, Fort Collins, Colo.

PARTRIDGE PLYMOUTH ROCKS—THE beauty and utllity breed. Eggs for hatching, $3.00 for fifteen eggs; after May first $1.50 for fifteen eggs. Satisfaction guaranteed. A. R. Stover, Manzanola, Colo.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Blunt. Route 1, Greeley, Colo.

ORPINGTONS

BUFF ORPINGTONS—EGGS, $2.00 PER 15, $7.00 per 100. L. C. Moon, Fort Morgan, Colo.

PURE BRED BUFF ORPINGTON ROOSTERS, $2.50 to $5.00 each. Mrs. H. Swan, Hugo, Colo.

WHITE ORPINGTON COCKERELS, KELLERstrass Aldrich strain, $1.50 up. Mrs. Cassity, Stratton, Colo.

S. C. BUFF ORPINGTONS—EGGS, $2 FOR 15, or $7 per 100, postpaid. Mrs. S. S. Tate, Orlando, Okla.

BEST WINTER LAYERS, WHITE ORPINGTON eggs, $1.50 per setting of 15. Mrs. W. H. Persyn, McClave, Colo.

S. C. BUFF ORPINGTON COCKERELS FOR sale. Eggs for setting. Pens now mated. Chas. I. McKee, Wood River, Neb.

FINE BUFF ORPINGTON COCKERELS, $2.00 to $5.00. Eggs, $1.50 for 15, or $6.00 per hundred. Mrs. Frank Neel, Beverly, Kan.

EGGS—BUFF ORPINGTON EGGS, MAILED to you in Frost Proof Cartons. Setting of 15 worth $5.00—only $2.50. C. R. Wilson, Herman, Neb.

'SHANKS ORPINGTONS" S. C. BUFF. EGGS for hatching, utility, $2.00 per 16; $6.00 per 60, and $12.00 per hundred. Exhibition pen eggs at $3.50 and $5.00 per 15; $12.00 per 60; 30 per cent fertility guaranteed. A few good males and females to sell at bargain prices. F. M. Shank, Route 2 A., La Junta, Colo.

WYANDOTTES

WHITE WYANDOTTE EGGS FROM TRAPnested stock. $3.00 per 15 eggs, $5.00 per 30 eggs, $12.00 per 100 eggs. Mrs. Mary M. Wright, Route 2, Box 205, Boulder, Colo.

RHODE ISLAND REDS

SPLENDID ROSE COMB RHODE ISLAND Reds. Eggs, 15 for $1.00, 100 for $5.50. Baby chicks, 15c. Lucy Ruppenthal, Lucas, Kan.

ROSE COMB RHODE ISLAND RED COCKerels from Beans Blue Ribbon stock. John McCrory, Sterling, Kan.

ROSE COMB RHODE ISLAND REDS. EGGS for hatching from matings of dark brilliant red, large bone, winter layers. F. B. Morger, Fowler, Colo.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

ROSE AND SINGLE COMB RHODE ISLAND Red eggs for hatching, $3.00 per fifteen, or $15 per hundred. Good hatch guaranteed, exhibition stock. J. M. Woita, Weston, Neb.

DISPERSION SALE ROSE COMB RHODE Island Reds. Cause: death of Mrs. Huston. Mated pens, hens, cockerels, cocks sired by roosters costing $50.00 to $75.00. Sacrifice prices. W. R. Huston, Americus, Kan.

FOR SALE—S. C. RHODE ISLAND RED EGGS for hatching at $1.50 per setting of 15 eggs; or $5.50 per 105. The whole flock is headed by nice, large boned, dark red cockerels. Order early. Mrs. Joe Brandl, Route 7, Hartington, Neb.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

SUSSEX

RED SUSSEX—LIMITED NUMBER EGGS, TWO cockerels and few females for sale. Won at Chicago Coliseum in 1916 and 1917. Rees Evans, Box 29, Ardmore, Okla.

ANCONAS

ANCONA COCKERELS—GOOD STOCK. $2.00 and $4.00 each. J. L. Moulton, North Loup, Neb.

S. C. ANCONAS—FOR MORE EGGS TRY OUR Anconas, bred from the famous Sheppard strain which holds the world's records for egg production. They fill the basket with large white eggs. Price, $2 per fifteen; $8 per hundred. Mrs. J. B. Shenk, R. F. D. 2, La Junta, Colo.

SEVERAL VARIETIES

FOR SALE—GOLDEN PHEASANT EGGS, $6.00 per dozen. J. T. Graves, Bentonsport, Iowa.

BARRED ROCKS—EGGS FOR HATCHING from 3 fine Pens, $5.00, $3.00 and $2.50. T. W. Drummond, Fairmont, Neb.

PURE BRED BARRED ROCK COCKERELS, $5.00; winter laying strain. Eggs, 15 for $5.00. E. Plessinger, Cheyenne Wells, Colo.

RINGLET BARRED ROCK COCKERELS. PULlet line, narrow barring, fine quality, $2.00 and $3.00. Mrs. A. Anderson, Greenleaf, Kan.

SINGLE COMB RED COCKERELS FROM prize-wining stock, $3.00 to $5.00. Mrs. L. Jennings, Wamego, Kan.

PURE BRED ROSE COMB RED EGGS, 15 FOR $1.00; 100 for $5.50. Mrs. B. F. Weigle, Winfield, Kan.

WHITE ROCK EGGS, $1.10 PER SETTING, $6.00 per hundred. Henry Luers, Columbus, Neb.

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

75 BLACK LANGSHAN COCKERELS. WON first ckl. at Illinois and Kansas state shows, 1919. John Lovette, Mullinville, Kan.

S. C. RED COCKERELS FOR SALE, $3 EACH or two for $5. Ed Grotenhuis, Crawford, Colo.

LARGE CHOICE ROSE COMB RED COCK erels, $5 each. J. W. Songer, Kearney, Wyo.

BARRED ROCKS—THE WINNING, USEFUL kind. Cockerels and pullets. Arthur Gillette, 4423 S. 16th St., Omaha, Neb.

LIMING'S HEAVY WEIGHT WHITE ROCKS. Eggs, $2 per 15. Quality Fruit and Poultry Farm, Manzanola, Colo.

WINTER LAYING BARRED ROCK AND White Orpington eggs, $5 per hundred. Myrtle Stuller, Bristol, Colo.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize winning, heavy laying strain. Write for mating list. E. A. Miller, Alma, Neb.

BARRED ROCK EGGS—PARKS PEDIGREED 200-egg strain. Pens headed by pedigreed cockerels, 15 for $3.00. Utility, 15 for $1.25, 100 for $7.00. Mrs. A. E. Huff, Lancaster, Kan.

CHOICE VALLEY FARMS FOR SALE; ALSO A fine stock farm. Black Langshan and Light Brahma hens, $3.00 each; cockerels, $5.00. Pekin or White Muscovy drakes, $2.50. R. Wright, Phelps City, Mo.

EGGS FOR HATCHING—PURE ROSE COMB silver spangled Hamhurgs, farm raised, $1.50 per 15 eggs. Write L. D. DeVeny, Box 2, Clifty, Ark.

EGGS—IVORY STRAIN WHITE ROCKS, NONE better; send for description and prices. A few cockerels to close out, $5.00 each. E. Kaselack, Lyons, Kan.

EGGS FROM BIG BLACK LANGSHANS. EXTRA good, in perfect health, great egg producers. $2.00 for 15; $10.00 per 100. Ollie Ammon, Netawaka, Kan.

EGGS FROM OUR WINNING BARRED ROCKS. Pens mated with State Fair, Omaha and State Show winners. Send for catalog. Schwegman Bros., Walton, Neb.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

EGGS FROM BUSHBY'S WINTER LAYERS, single comb, reds. $7.50 hundred, expressed from Pueblo. Flock established twelve years. H. A. Bushby, Rye, Colo.

SINGLE COMB RHODE ISLAND DARK RED, big-boned and Black Minorcas, blue ribbon prize winners. Either stock, eggs per setting, $3.00. Booking orders now. E. P. Gordon, Hardy, Neb.

TOLIVER'S PRIZE-WINNING WHITE ROCKS—won at Denver Stock Show. First and third hen, second cockerel. Setting eggs, also cockerels and pullets for sale. F. L. Roy Toliver, Box 144, Fort Collins, Colo.

SINGLE COMB BROWN LEGHORNS AND Barred Plymouth Rocks. Bred for winter laying. Eggs, $1.50 per setting, $6 per hundred, prepaid. Investigate our record. Mrs. W. A. Estes, School, Mo.

PUREBRED BLACK AND WHITE MINORCAS, barred and white Rocks, Rhode Island whites and reds, white, brown and buff Leghorns, Black Langshangs and Buff Orpingtons. All orders filled for eggs at $7 for 100 and $1.50 for 15. C. W. Hamilton, Garnett, Kans.

100,000 BARRED ROCK AND RHODE ISLAND Red eggs wanted for hatching, also other breeds. Farmers please answer. Our cash price, $2 to $3 per case more than Denver commission houses. The Denver Incubator Co. and Hatchery, 175 S. Broadway, Denver, Colo.

FOR SALE—ONE HUNDRED BARRED ROCK cockerels Our barred rock cockerels are raised not only from prize winners but the best of layers; breeding stock at $5 each; prize winners at $10 to $15 each. Write J. R. Anderson & Son, Fort Morgan, Colo.

INVINCIBLE DARK CORNISH—I HAVE JUST been discharged from my enlistment in the service of the United States Marines and will again resume my poultry business. Write for mating list of my 1919 matings. Utility and exhibition eggs for hatching at rock-bottom prices. R. H. Jandebeur, Alma, Neb.

PREMIER SINGLE COMB WHITE LEGHORNS, Barred Rocks, Rose Comb Rhode Island Reds, Dark Cornish, win in the West's biggest shows. Extra heavy egg and fine exhibition matings $5.00, $4.00; $2.50 per fifteen, $13.00 per hundred. Let my strain be the means of increasing next year's egg record. Mating list. Gould Premier Yards, Alma, Neb.

EGGS AND STOCK OF SINGLE COMB REDS. Airhart and Cruthers Blue Ribbon strain, extra fine birds. Eggs, 15 for $3.00 30 for $5.00. These are sure cheap at above prices. D. H. Welch, Macksville, Kan.

PRIZE-WINNING BARRED ROCKS, SIZE AND quality. Tested layers. Eggs, 15 for $2.00; 50 for $6.00; 100 for $10.00. Jos. V. Beran, Verdigre, Neb.

BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

TURKEYS

WHITE HOLLAND TOMS, $6.00. Mrs. G. W. Combs, Fowler, Colo.

FIVE WHITE HOLLAND TOMS, $7.00 EACH. P. L. Kimler, Atwood, Colo.

MAMMOTH BRONZE TURKEYS. A FEW VERY choice ones. Toms, $10.00 to $15.00, hens, $6.00 to $10.00. Mrs. Viola Griblin, Virgil, Kan.

GIANT MAMMOTH BRONZE TOMS. PRIZE winning stock, thrifty range-raised, $8.00-$15.00. No hens left. W. H. Streeter, Dighton, Kan.

PUREBRED BOURBON RED TURKEY EGGS, 12 for $5.00; postpaid, fertility and safe delivery guaranteed. Vivian Anderson, Oswego, Kan.

GIANT MAMMOTH BRONZE TURKEYS, BEAUtiful plumage, finest in America. Not related. Toms two years old, $24; hens, eigbt, $12 each. Fancy eggs, $8-$10 dozen. Brooks Turkey Farms, Staley, N. C.

BABY CHICKS

BABY CHICKS—ORDER EARLY, GET CHICKS from the winter layers. Price list. Sarver's Poultry Farm, Hastings, Neb.

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatchery, Smith Center, Kans. Shipped anywhere, 15 cents.

YOUNKIN'S DAY-OLD CHICKS—BARRED Rocks, Reds, White Wyandottes, Buff Orpingtons, 17c. White Legborns, 15c. 50 or more prepaid. Younkin's Hatchery, Wakefield, Kans.

UNIVERSITY PARK POULTRY RANCH—BABY chicks and hatching eggs. Single Comb White Legborn chicks from 241 egg trapnested stock, $18 per hundred, prepaid. Write for circular. 2520 S. Clayton St., Denver, Colo.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

DENVER BABY CHICK CO., 2436 W. 43RD Ave., Box 1323 Denver, Colo. Booking orders now for quality baby chicks. White Wyandottes, Buff Orpingtons, White Orpingtons, Rhode Island Reds, White Rocks and Barred Rocks and Leghorns. Strong and vigorous chicks from carefully selected, heavy-laying stock. Live delivery guaranteed. Prompt attention to all orders, large or small. Write at once for prices.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have been making the Denver Incubators and hatching and selling baby chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18. Why not buy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live. Hatching eggs, $7.50 per hundred. Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

HIGH GRADE HOLSTEINS FOR SALE—9 cows and 8 bred heifers, $1,500. Wilson Counts, Hasty, Colo.

REGISTERED POLLED DURHAMS—LARGE, growthy, bony, quality bulls. Two years old next April. Mott Rathbun, Ord, Neb.

FOR SALE—HIGH GRADE HOLSTEIN OR Guernsey heiler calves, $24 crated or $30 prepaid. Herbert Talt, Whitewater, Wis.

FOR SALE—MILKING STRAIN SHORTHORNS. Three young bulls, roans, grandsons Rose Glenside. W. A. Wight, Las Animas, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLbred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

SHEEP

3,300 GOOD BREEDING EWES — 10-LB. shearers, 50 yearlings. 16,000 acres grazing land, all in Coconino, Arizona; with forest permit, plenty of water and well-improved ranches. For prices and terms apply to R. C. Croswell, Winslow, Arizona.

HOGS

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemoor Farm, Littleton, Colo., Caldwell Martin, Owner.

HORSES

IMPORTED BLACK PERCHERON STALLION for sale, 11 years old, weight 2,100 pounds. Sure breeder. John Gruber, Eustis, Neb.

REGISTERED BELGIAN STALLION COLTS, two years old. Registered mares, weanlings up to bred mares. Good Jack. E. T. Purinton, Wilcox, Neb.

FOR SALE—THE SURPLUS STALLIONS from small herd of registered Percherons. Lanyon Stock Farm, Gresham, Neb. Branch barn, Harrah, Okla.

FOR SALE—IMPORTED BELGIAN STALLION, Maurice de Frasnes, American No. 7926, coming eight years old. Sound, good producer. Address, Timothy Thut, Route 2, La Junta, Colo.

FOR SALE—SHORT HORN BULL, BETTER Goods 4th., 418157, four years old, color red, a prize winner at Denver Show in 1917 and 1919. Priced right. A good breeder. G. W. Ball, Pierce, Colo.

FOUR REGISTERED PERCHERON STALLIONS. Two, three and six years old. Weight 1,600 to 2,100 lbs., color black. Prize winners at Denver Stock Show. R. A. Chase, Box 185, Fort Morgan, Colo.

THE MILLS PERCHERON HORSE FARM OF Hastings, Neb., has for sale four purebred stallions, 200 Hampshire bred sows, 20 Hampshire boars and 50 barred Rock cockerels. Can use Liberty Bonds.

"KING," DAPPLE GRAY PERCHERON STALlion, foaled May 20th, 1911. Purebred and best of dispositions. Sire and dam weighing 2,100 and 1,800 respectively. Shows four seasons of large, heavy-boned, growthy colts. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CHOICE BLACK AMBER CANE SEED, $3.75 per 100. Gus Herfert, Julesburg, Colo.

FOR SALE—HAVE ON HAND FIELD PEA seed. Sold in car lots only, F. O. B. car. Felix Garcia, Garcia, Colo. Phone No. 25W4.

CHOICE BLACK AMBER CANE SEED, RE-cleaned 1918 crops, $1.60. Sacks extra. J. L. Herrick, Beverly, Neb.

A SMALL AMOUNT OF CHOICE RED FODDER cane seed at $5 per hundred. H. E. Morton, Oberlin, Kans.

SUDAN GRASS SEED RAISED ON DRY LAND, 1918 crop, commercially cleaned. A. J. Tatman, Wiggins, Colo.

FOR SALE—LARGE WHITE BLOSSOMED sweet clover seed. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

ALFALFA SEED FROM NORTH KANSAS, 95 per cent pure, good germination, $7.50 per bu. Order early, freight will be slow. Geo. Bowman, Concordia, Kan.

320 ACRES OR 160 ACRES, 8 MILES FROM

SEED POTATOES — RUSSETT BURBANKS, Ohios, Pearls and some Early Six Weeks. Disease free stock. Grown on the Divide. Prices reasonable. Order at once. W. H. Paul, Eastonville, Colorado.

FOR $1.00 WE WILL SEND YOU POSTPAID 10 apple, peach or pear or 7 cherry or plum, all budded, or 20 grapes, gooseberry, currant or rhubarb, or 25 raspberry, blackberry or dewberry, or 50 asparagus, or 100 spring bearing or 50 Everbearing strawberry plants, or five 2-year roses or 50 seedling, or 10 transplanted red

cedar or other evergreens. Many other bargains. Catalog free. Manhattan Nursery, Manhattan, Kan.

ALFALFA SEED—I SELL IT CHEAPER THAN any Denver house. The free sample tells the story. Alfalfa John, Beaver City, Neb.

ALFALFA SEED—CERTIFIED GRIMM AND Common. Extra fine seed. Prices and catalog free. J. D. Long, Seedsman, Boulder, Colo.

WANTED, SEEDS—ALFALFA, SWEET CLOver, millet and cane spletz. Mail samples, advising quantity for sale to Mitchelhill Seed Co., St. Joseph, Mo.

SWEET CLOVER, WHITE BLOSSOMS, RE-cleaned, no hulls; sow now, 10 lbs. per acre; 30c per lb., F. O. B., sacks free. Pearl Haines, Rosalia, Kan.

10 LARGE PACKAGES OF GARDEN SEED sent anywhere prepaid for 50c. Regular 10c size; one each of watermelon, muskmelon, cabbage, carrots, cucumbers, lettuce, tomato, pepper, pumpkin and onions. Catalog free. Home Nursery Co., McCune, Kan.

FOR SALE—WHITE SILVER MINE AND CATtle King seed corn. Guaranteed. 98 and 100% vital. $5.00 per bu., money with order. John Lichty, Axtell, Kan.

BEANS FOR SALE—GOOD WHITE NAVY beans, 10c per pound in lots 120 pounds, sacked. F. O. B. Rushville. From grower to consumer. F. C. Kohout, Rushville, Neb.

ONION SETS

FOR SALE—WHITE SILVER SKIN BOTTOM onion sets, run 10,000 per bu.; $4.75 f. o. b. G. C. Curtis, Hutchinson, Kan.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED TO HEAR FROM OWNER OF GOOD farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

320 ACRES IMPROVED NEAR BYERS, $18.00. 640 acres, fine section, raw, Byers, $17.00. 640 acres near Bennett, $15.00. Snap. States Realty Co., 207 Century Bldg., Denver, Colo.

LIVE STOCK—CATTLE

Denver, $17.50 per acre. 10 acres adjoining Littleton for $2,50. 40 acres, half in alfalfa, well improved, bargain for quick sale. 1,100 acres, good place for cattle, $15.00 per acre. Sydney C. Osmer & Co., 308 Fifteenth St., Denver, Colo.

160 ACRES ON LINCOLN HIGHWAY, MIDWAY between Greeley and Fort Morgan; ¼ can be irrigated; abundant water; every foot smooth; dandy well, soft water; good fence; 30 acres broke; 2½ miles of station; sickness; $30.00 per acre. Mackley Non-irrigated Farms, 406 Cooper Bldg., Denver, Colo.

IRRIGATED AND DRY LAND NEAR DENVER, Colorado,480 acres non-irrigated, 200 summer fallowed and ready for Spring crop. Immediate possession, choice level land, $28.00 per acre. 160 acres irrigated, first-class water right, immediate possession, $125.00 per acre. Sun Land Co., 309 Century Bldg., Denver, Colorado.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

RAILWAY MAIL CLERKS GET $92.00 TO $135.00 month. Men, women, 18-35. Common education sufficient. Sample examination question free. Write immediately. Franklin Institute, Dept. D 171, Rochester, N. Y.

IF YOU KNOW LUMBER AND BUILDING material, are a real salesman, want to connect with a large concern and get somewhere under your own steam, we have a big money proposition open to you. Address F. Lumber Company, 2469 Boyd St., Omaha, Neb.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo

BUY RICH, RIPE AND MELLOW OLD KENtucky leaf tobacco, direct from producer to consumer; no doping or doctoring, just tobacco; 50c per pound, postpaid. Francis-Qualls, Dukedom, Tenn.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

AUTO

WANT A BELT POWER TRANSMITTER FOR your Ford? Then don't pay more than $12.50 for it. Buy the Simplex; simplest, handiest and most practical. Information free. Frank R. Weisgerber, Salina, Kans.

FORDS START EASY IN COLD WEATHER with our new 1919 carburetors. 34 miles per gallon. Use cheapest gasoline or half kerosene. Increased power, styles for any motor. Very slow on high. Attach it yourself. Big profits to agents. Money back guarantee, 30 days' trial. Air-Friction Carburetor Co., 469 Madison Dayton, Ohio.

KODAKS

KODAKERS—SAVE MONEY ON YOUR FINishing. Send me two negatives for free samples and prices. Saunders, Box A-308, Boulder, Colo.

KODAKS, CAMERAS, PHOTO SUPPLIES— Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

PURE EXTRACTED ALFALFA HONEY. 60 lbs. in can, $13.50. One case, two cans, $26; guaranteed. J. Van Engen, Producer, Crawford, Colo.

DELICIOUS EXTRACTED HONEY ON APPROVal; quality guaranteed. Thirty pounds, $7.85; 60 pounds, $14.90; 120 pounds, $29.75. Sample, 15c. Wesley Foster, Producer, Boulder, Colo.

LUMBER

LUMBER—SHINGLES—POSTS SOLD DIRECT. Karlot Lumber Co., Tacoma, Wash.

POSTS — LUMBER — SHINGLES. LOWEST prices, delivered your station. Send lumber list for estimate. Pay after unloading. Kirk Co., Box 1138-S, Tacoma, Washington.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Evchange, Seattle, Wash.

BICYCLE SUPPLIES

FREE CATALOG OF BICYCLE SUPPLIES Everything for the bicycle; prices very low. Write today. William Mullin, Box 4, LaPorte, Colo.

TYPEWRITERS

REBUILT TYPEWRITERS OF ALL MAKES, $15 up. Salina rebuilts make good. Write for price list of typewriters and office supplies. Salina Typewriter Co., Dept. F, Salina, Kans.

FARM MACHINERY

WANTED — THREE OR FOUR BOTTOM lister, 40-80 Avery. Kelly Ambler, Stapleton, Neb.

CABBAGE CUTTERS—6 KNIVES—SLICES all kinds vegetables rapidly; fine for potato chips. Prepaid, $1.00, three for $2.00. Agents wanted. Lusher Bros., Elkhart, Indiana.

TRACTOR OWNERS—WE SEND EXPERT mechanics, repair, overhaul tractors, engines, autos, anywhere. Reasonable prices. Supply parts. Expert operators furnished. Tractor Service Co., 1717 15th St., Denver, Colo.

FOR SALE
Purebred Livestock

Herefords, Shorthorns, Holsteins, Jerseys, Aberdeen-Angus, Galloways

If you wish to buy anything in the way of purebred live stock write our live-stock department, stating what you want, and we will place you in touch with Colorado breeders that have just what you want. There are almost 1,000 Colorado breeders. We can find some of them that will have real bargains for you. Our services are free to our subscribers. Address

Livestock Department
1400 Arapahoe — Western Farm Life
Denver Colorado

MYERS
HONOR-BILT

Pumps that give most modern water supply for home and farm. Myers Cog Gear Pumps operate one-third easier and have Glass Valve Seats that cannot wear or corrode Myers Self-Oiling Power Pumps, Working Heads and Pumping Jacks run by any gasoline engine or motor. Myers Hydro-Pneumatic Pumps and Self-Oiling Electric House Pumps furnish running water systems for all buildings Myers Spray Pumps protect fruit and vegetables. Also World famous Myers Hay Unloading Tools and Door Hangers Dealers everywhere Ask yours. Attractive booklets on request

(1)

F. E. MYERS & BRO.
309 Fourth St. Ashland, Ohio

PUMPS FOR EVERY PURPOSE

Field Notes

There may be some who think that Mr. A. J. Campion does nothing but manage the Sigel-Campion Commission Co. at the Stockyards, but if you go to his ranch, which is located on the U. P. railroad, six miles west from Nunn, Colo., you will find Purebred Herefords, Poland China hogs, Airdale dogs and White Leghorn cockerels. His hobby seems to be to raise big boned stock.

The Herd bull, "Majestic Sunbeam," grandson of "Majestic," imported by C. W. Armour from England, is big boned. He also uses a grandson of "Beau Mischief" out of one of the oldest and best bred Hereford cows in the U. S. Mr. Campion claims the biggest boned herd of Hereford cattle in the country. His herd board is "Wonderking" and his pure bred Poland China gilts are big boned.

See his announcement in this issue.

Sam Hansen, 4308 So. Penn., near Englewood, Colo., announces a two days' sale of Pure Bred and Grade Holsteins for April 8th and 9th. His Herd bull is "King Segis," related to the bull that sold for $53,200 in Chicago. He says he has the finest marked bunch of Holsteins in the state. Both Col. Banks and Col. Buchanan will attend to the auctioneering.

Homestead Absence Regulations

Answer to D. M., Montrose county, Colo:

Answering your questions about your mother's homestead: It is not necessary to choose the same dates for going back on the homestead each year. If your mother goes on the land April 10 this year, she can leave it November 10. However, the five months' absence does not have to be taken all in one period. It can be divided into two periods if desired. Following is a paragraph from the law in relation to residence: "During each year, beginning with the date of establishment of actual residence, the entryman may absent himself from the land for not more than two periods, aggregating as much as five months. In order to be entitled to such absences, the entryman need not file applications therefor, but must each time he leaves the land file at the local land office, (by mail or otherwise,) notice of the time of leaving; and upon his return to the land he must notify said office of the date thereof. If he has returned after an absence of less than five months and filed notice of his return, he may, without any intervening residence, again absent himself—pursuant to new notice—for the remaining part of five months within the residence year. However, two absences in different residence years, reckoned from the date when residence was established, must be separated by substantial periods if they together make up more than five months." As to the question about the earliest possible date when final proof could be made: The law provides for certain formalities such as publication of notice, etc., and also specifies that the register of the land office must name date and place for submission of final proof. This proof is made after the three year period has expired, but the exact date no one can tell you now. It will depend on just how quickly arrangements can be made with the register of the land office at the end of the three year period.

A silo is the best crop insurance.

Glendale Stock Farm

Breeders of

Belgian horses, Polled Hereford cattle.

Irvindale Rowdy
Grand Champion, Chicago, 1918
Grand Champion, Denver, 1919

Young Stock Always For Sale.

J. D. BRUNTON, Aspen, Colo.

300 Head Choice Quality 1, 2, and 3 Year Old Steers for Sale

These are the best string of steers that I have seen together for several years. Mostly white faces. They are dark reds and most all dehorned. The good, wide back, heavy bone kind. Buy some of these good cattle in Iowa and note the difference in the gains than what you get from those light bone cattle from the Southwest. These steers are priced to sell. If interested, wire me when to expect you. Cattle located near here.

HARRY I. BALL, Jeffeffrson Co., Fairfield, Iowa

DUROC JERSEY HOGS

I have for sale tried sows and gilts bred to "I Am a Pathfinder," the senior grand champion Denver, 1919, also a few Pathfinder gilts to be bred to my Orion Cherry King Jr. boar. The pigs from this breeding will have the richest blood lines to be found in a Duroc Jersey.

Write me for prices and further particulars, J. W. BRAUR, Breeder of Pedigreed Duroc Jersey Red Hogs, The El Paso Herd, Colorado Springs, Colo.

Montair Durocs We have a good March boar, the growthiest in his litter, at a price that will surprise you. Only two or three July boars left. We are sold out on bred sows and gilts.

GEO. E. MORTON & SONS
Route 5, Box 84, Fort Collins, Colo.

Holstein Cattle We offer cows and heifers due to freshen soon, also calves. All bred for production. Write W. C. KENYON & SONS, Box 39, Holstein Stock Farms, Elgin, Ill.

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted

Col. G. M. Banks
LIVE STOCK AUCTIONEER

Residence
709 East 11th Avenue
Phone York 7625 DENVER, COLO.

Col. H. E. BUCHANAN
Live Stock Auctioneer
1904 Logan
DENVER, COLORADO
Pure bred Sales a Specialty
PHONE CHAMPA 5655
For Sale Dates at My Expense Anywhere in the United States My Territory

Passing a Good Thing Along

Mosquero, N. Mex., Jan. 29, 1919.

Editor Western Farm Life:

A neighbor loaned me a few copies of Western Farm Life, and it fits in so nicely that will ask our carrier to enclose an order for one dollar. Please begin with February.—C. N. Tinker.

Majestic Sunbeam Herefords

Herd headed by "Majesty Sunbeam" by "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" by "Statesman". Dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM weighs 2,500 pounds. He is the biggest boned Hereford bull in the country.

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Will sell 20 head of Majestic Sunbeam heifers, from two to four years old, all bred to "Beau June," guaranteed to be in calf, at private treaty.

Also have several head of big-boned yearling bulls sired by Majestic Sunbeam, and a few yearling bulls sired by "Beau Andrew" from Majestic Sunbeam heifers.

If you are looking for best blood and quality and the biggest boned bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and bulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards DENVER, COLORADO

FOR SALE

I also have for sale two registered Airedale dogs three months old. The best bred Airedale dogs in Colorado. Price, $15.

Forty head of full-blooded Poland China gilts by my great head boar, "Wonderking," bred to my great boar "Standard Darkness," the biggest boned Poland China boars in Colorado. Get in the hog business. Fifteen head White Leghorn cockerels one year old; Tom Barron and Ferris strains. Show birds, $3.00.

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE-BRED **Hereford** BULLS

We Have on Hand and For Sale

250 Head Yearling Bulls

100 Head Two-year-old Bulls

Good Bone, Colors and Markings
Fine Condition for Service

Write or phone us regarding these Bulls. It will be worth your while.

715 E. & C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

FOR SALE Purebred Shorthorns

10—COWS AND HEIFERS—10

(Some with calves at foot)

6—YOUNG BULLS—6

REPRESENTING MOST OF MY SMALL, SELECT HERD

J. F. WELBORN, DENVER, COLORADO

SAM HANSEN'S DISPERSAL SALE

100 HEAD OF CATTLE

60 REGISTERED AND 40 HIGH GRADE HOLSTEINS

ENTIRE HERD TO BE DISPOSED OF AT AUCTION

Mostly Females. Also a Few Choice Herd Sires

These cows are from the best blood lines and high producing strains of the Holstein-Friesian breed.

Sale held April 8th and 9th at the Hansen Farm near Englewood, Colo. Take the Littleton Interurban, two miles south on Broadway from Denver. Sale will be held rain or shine. Opens at 10 a. m. each day.

SAM HANSEN, Owner
4308 South Penn
Phone Englewood 122

COL. G. M. BANKS
Auctioneer

HOLSTEIN BULL CALVES FOR SALE

MONTROSE COLORADO
PVR
PAHGRE VALLEY RANCH
QUALITY

POSSIBLY

we have just the individual you want. At any rate, we have some mighty good ones with fine advanced registry backing and from a clean herd. We offer only calves bred and raised by us. Let us tell you of them before you buy your next herd sire.

Prices $100 to $1,000

PAHGRE VALLEY RANCH
MONTROSE, COLO.

MILKING SHORTHORNS

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

Do you notice the Majesty's are "going over the top" in all departments? I have recently added "Majesty's Feather Lad" to my herd. He is out of a daughter of old Royal Majesty, with a test of 712 lbs. butter, and a show cow, and sired by a grandson of Royal Majesty. He is fine individually, too. Where can you beat this breeding? I have one or two splendid bull calves of Majesty breeding, and can spare a few heifers.

In Duroes, am all out of fall boars, but have a few splendid spring boars by an Albian Chieftain boar, and out of Critic-bred sows. Sold out of spring gilts. Have a yearling bred sow to sell.

A. M. McCLENAHAN, Greeley, Colorado

THE L. G. DAVIS HEREFORDS

ANXIETY BRED — Beau Carlos 2nd No. 352001 — The Greatest Living Hereford Sire

SIRES IN SERVICE — Bonnie Weston No. 558495 — Son of Bonnie Brae 15th

Wyoming 4th No. 603868—Champion Senior Yearling Bull of the 1919 Show. Sired by Grand Champion Wyoming.

Yearling bulls and heifers for sale at Colorado ranch, 2309 S. Federal Blvd.
Ranches near Saratoga, Wyo., and Denver, Colo. Visitors always welcome.
Address L. G. DAVIS, Saratoga, Wyo.
Hotel Wellington, Denver, Colo.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

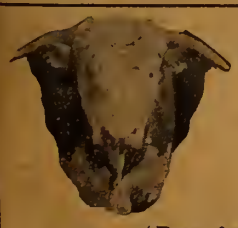
The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

DUROC-JERSEYS

We have the finest crop of Duroc-Jersey pigs that we have had in a number of years. They are sired by a son of Orion Cherry King, a grandson of Orion Cherry King, who is by a Grand Champion boar at National Swine Show two years ago, and by a boar of Golden Model breeding. We can give you as good a selection as can be gotten in the West. Write us your wants.

COLORADO AGRICULTURAL COLLEGE
Animal Husbandry Department — Fort Collins, Colorado



Registered Hereford Cattle

Herd Sires { Beau Aster 412145 / Prince Domino 499611

Young Bulls For Sale
Inspection Invited
Write us

Valley View Hereford Ranch
FULSCHER and KEPLER, Props.
Holyoke, Colorado

THE HOME OF BIG SENSATION, Weight 1,204 Pounds

LARGEST HOG IN THE WORLD

Big type Poland Chinas, choice bred gilts for sale at all times. Call or write.

A. J. ERHART & SONS
Ness City, Kansas

DRAFT HORSES AND BEEF CATTLE

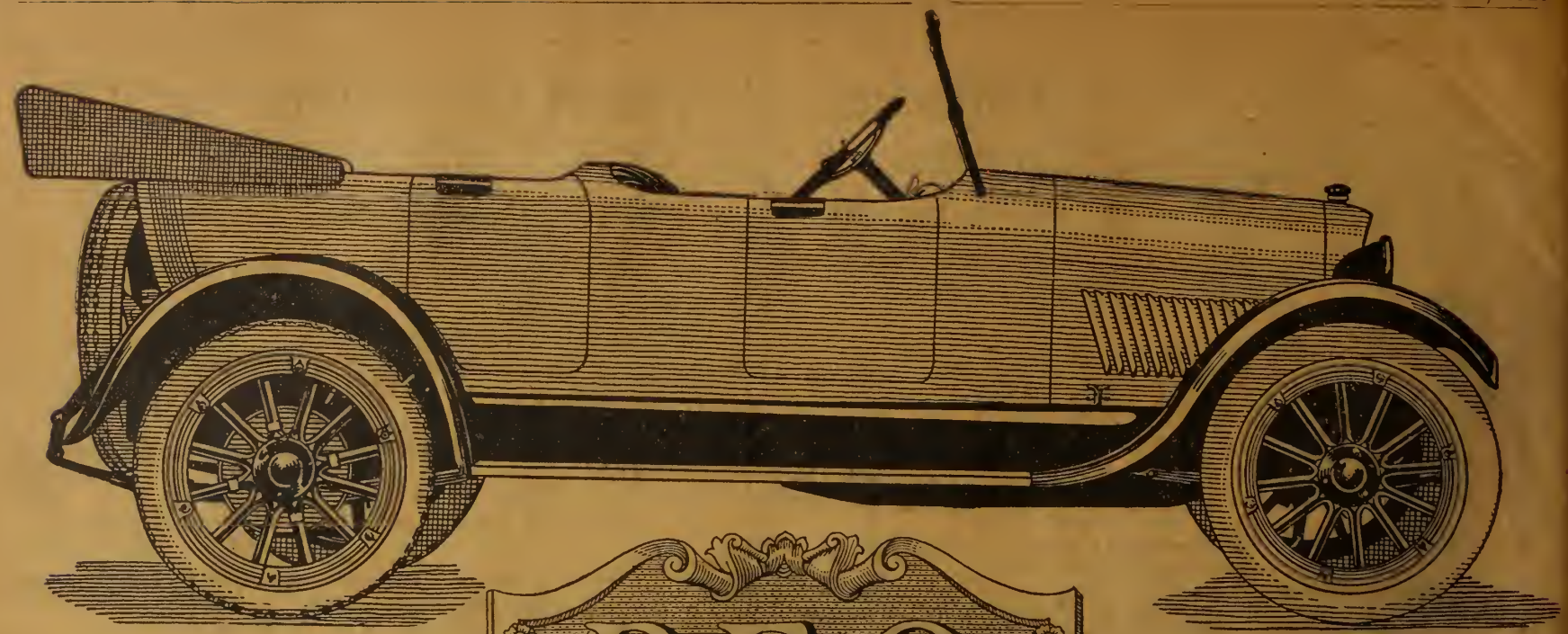
I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

KING RAG APPLE SUPREME

a son of RAG APPLE KORNDYKE 8th, the greatest bull in the world today, heads my herd.

I have some registerd Holstein bull calves for sale, ranging in age from six months to three years. These calves are mostly white and are richly bred, Pontiac Korndyke and King of the Pontiacs, two of the greatest Holstein bulls that ever lived, appear on both the dam and sires' side of the pedigree of these calves. They are fine individuals, absolutely straight and tuberculin tested. Send for pedigrees and prices.

F. M. KING, 1117 West 43rd Street, Kansas City, Mo.



REO

This Is March!—And History Repeats Itself

SPRING IS ALREADY HERE! We are a little late with our regular annual hurry-up message.

ALWAYS AT THIS PERIOD we find it necessary to warn tardy or indecisive buyers that only those who place their orders early—which means at once—can hope to **get** Reos for Spring delivery.

REALLY, WE MIGHT save the trouble of writing a new advertisement each year—the same copy would fit just as well one year as another.

THE SAME STORY might be told in the same way—so consistent and so persistent is the year-after-year demand for Reos.

FOR, NEVER SINCE THE DAY the first Reo left the Lansing factory and went into the hands of its delighted owner—never since that time has it been possible to make enough automobiles to supply all who wanted Reos.

ORDINARILY—and to a normal degree—that is from the factory standpoint, an ideal condition.

BUT IN MARCH of each year the condition becomes aggravated by an excessive over-demand that is at times discouraging to say the least.

CERTAINLY WE COULD build twice or four times—or ten times—as many Reos per annum as we do.

BUT THE REO POLICY has never been to build the most automobiles—only the best.

WE MAKE ONLY AS MANY Reos as we can make and make every Reo as good as the best Reo that ever came out of the factory.

THAT'S THE REASON for the tremendous demand that always exists for Reos. Reo quality—Reo low upkeep—due to a strict adherence to that Reo policy.

REO IS FIRST CHOICE of discriminating buyers. That's the kind of folk for whom we design and build Reos.

THEY ARE THE KIND of buyers a manufacturer and a dealer appreciates and therefore most dislikes to disappoint or to offer substitutes.

AND WHILE OCCASIONALLY a dealer who also handles some other line will try to sell a customer his Second Choice, because he can't get enough Reos to supply his local demand, he never really likes to do so.

ALL DEALERS PREFER to sell Reos—because they stay sold. And every Reo sold sells several more.

THEN THERE ARE the repeat orders from present Reo owners.

ALWAYS THESE HAVE constituted a large percentage of the Reo demand. They are getting to be a larger percentage from year to year because of the larger number of Reos that have been many years in service. Longer than any other comparable car.

OF COURSE a Reo owner always wants another Reo—the percentage of re-sales to Reo owners is amazing and a matter of which we are most proud.

TO ALL SUCH, THEN, we issue the usual March warning—see your Reo dealer at once and place your order.

MAKE IT DEFINITE by paying him a deposit and specifying a date for delivery. Else he cannot, in fairness to other buyers, reserve a Reo for you.

THEN REST SECURE in the knowledge that you will be one of the "lucky ones" to get a Reo this season.

THERE WON'T BE—cannot be made—enough to go round. That is now as certain as the same thing always has been certain in all previous years since the inception of Reo.

SO DON'T DELAY. Decide now. Order at once.

TODAY won't be a minute too soon.

Reo Motor Car Company, Lansing, Michigan

"THE GOLD STANDARD OF VALUES"

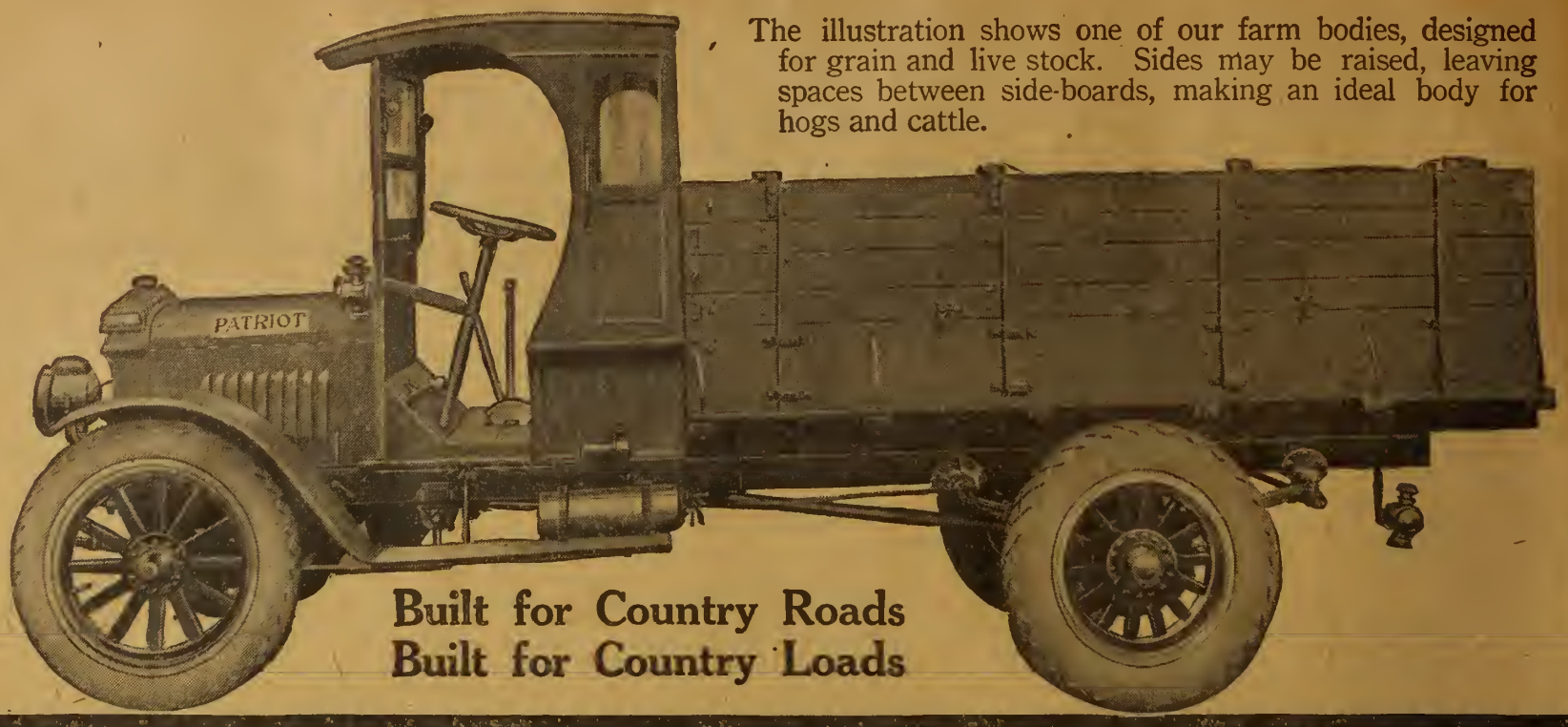
54.05
IN

Western Farm Life

DENVER, COLO.

SAN LUIS VALLEY
STOCK SHOW
WINNERS

April 1, 1919



The illustration shows one of our farm bodies, designed for grain and live stock. Sides may be raised, leaving spaces between side-boards, making an ideal body for hogs and cattle.

Built for Country Roads
Built for Country Loads

PATRIOT

Two Years Ago, When We Began Building Patriot Farm Trucks

We did so, after a thorough investigation of the truck field and market.

We learned that the time had passed for experimentation upon the public. There has already been too much of that, and the public is no longer disposed to pay the bill. It is demanding trucks that are built to render satisfactory service, and insisting that the manufacturer be centrally located, where he can see that his trucks do give the service expected.

What the Patriot Offers the Public

1. **The Patriot was designed,** and its manufacturing is supervised, by some of the best automotive engineers in the country—men who have a reputation of being cranks for quality.

2. **It is manufactured by a $2,500,000 company,** all of its stockholders are western people, and it is controlled by some of the most successful business men of Lincoln, who have had long years of practical manufacturing experience along agricultural lines.

3. **Patriot Trucks have been in operation** for almost two years, under hard working conditions, and have made remarkable records in uninterrupted service and freedom from trouble.

4. **In the competitive demonstrations,** in which the Patriot has been entered, its performance has been nothing short of wonderful, it having outclassed every truck of same rating that has appeared against it.

5. **The Patriot is very modestly rated,** as compared with other trucks, many of the units in the 1½ ton Patriot being practically the same as the 2 ton, or 2½ ton of other makes.

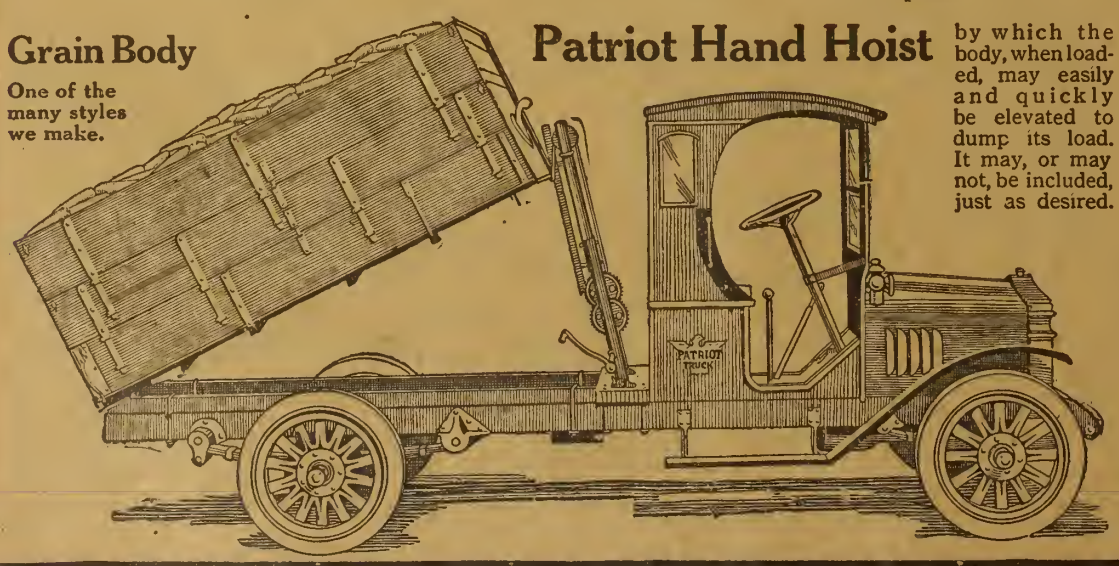
A Big Western Factory Within Easy Reach

Another reason why the Patriot is the logical truck for the buyer who lives west of Chicago is the fact that the Patriot Factory is located within easy reach, outside of the freight-congested manufacturing centers, where quick action can be secured, if service or repairs should ever be required.

We are standing squarely behind every Patriot Truck sold and expect to see that it delivers the service the buyer has a right to expect. Write for full information.

Grain Body
One of the many styles we make.

Patriot Hand Hoist by which the body, when loaded, may easily and quickly be elevated to dump its load. It may, or may not, be included, just as desired.



HEBB MOTORS CO.
Manufacturers of
Patriot Farm Trucks
and Bodies for All Purposes
1381 P Street Lincoln, Nebraska

Lincoln Model
Capacity 3000 Pounds

Washington Model
Capacity 5000 Pounds

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

Entered at the Denver Postoffice as Second Class Matter

WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, APRIL 1, 1919 | Number 7

What the Stockman Can Do To Develop Pastures

POOR RANGE AND HIGH GRAZING FEES FORCE CHANGE IN METHODS

T. S. PARSONS, Extension Agronomist, University of Wyoming

MANY stockmen are becoming dissatisfied with present range conditions and are looking for some other means of keeping their cattle. The forest reserve, even when available, is not entirely satisfactory, the grazing season being considered too short. The grazing rates have also been raised to such a degree that the stockman thinks he does not get value received for his grazing privilege. Losses while on the forest are considerable, and reports of stockmen as to range losses and low percentage of calf crop would indicate that under present conditions a change is needed.

On a visit to the Pinedale country, one of the greatest cattle sections of Wyoming, early in October, a great deal of dissatisfaction was found among cattle men as to existing conditions. The cattle were coming down from the forest reserve a month earlier than they should, and on many of the ranches there had not been much provision made for winter shelter and feed. The time has passed when cattle can be left to rustle for themselves through the winter without shelter or feed. The day of the very large herd is passing. Many of the cattlemen are thinking of cutting down on the number of cattle, keeping a smaller number of better stock and keeping them on pasture at home.

The range has always been considered the cheapest form of pasture, but such is not the case. Of course, irrigated lands cost much more than range lands, but the work in connection with pasturing a given number of cattle on the irrigated land is not nearly so great as on the range, and the losses from predatory animals, poisonous plants and various other causes are practically negligible. One acre of good irrigated pasture is easily equal to twenty-five acres of ordinary range grazing land in carrying capacity, and the only work incident to pasturing of the same after it is established is the irrigating that is necessary to keep up the growth of the grass.

Salvation of the Stockman

Irrigated pastures are the salvation of the livestock business in the semi-arid region. The total number of cattle need not be cut down, but rather will be increased, as more men will keep some cattle instead of a few men keeping very large herds. Winter protection will also cut a large figure in preventing losses and increasing the per centage of calf crop. In the home pasture everything is under the cattleman's control. Shortage of winter feed need not trouble him, as he is generally so situated that he can purchase feed close by. The small herd will also receive better care than the large herd.

The irrigated pasture solves the problem of keeping the cattle at home. The Montana experiment station some years ago carried on experiments with irrigated pastures and obtained some striking results. At the Huntley experiment farm three pastures were seeded; one to orchard grass, brome grass, redtop and timothy. The second was seeded to brome grass, orchard grass, perennial rye grass, meadow fescue, Italian rye grass, Kentucky blue grass and tall oat grass. The third was sown to the same mixture with the addition to alsike and white clover. The writer saw the pastures in July the year after they were sown and they were then in excellent condition.

In the experiment pastures two and three were combined and the cows were alternated from this pasture to the first, being allowed to feed on the large area ten to fourteen days and on the smaller area five to seven days. The pastures were irrigated while the cows were off. The pastures furnished feed at the rate of two and two-thirds cows per acre from April 28 to October 8 the next year after seeding. Figuring the cost of feed and the value of the butterfat produced, the pasture was valued at $48.20 per acre. The pasture produced a value of $22.80 per acre the first year. An irrigated pasture should not be used until the sod is well formed and the stock should be kept off when the ground is wet. This is the principal reason for rotating the pastures. These pastures need plenty of irrigation.

J. M. Sparks of Boulder, Wyoming, uses alsike and timothy for pasture and for hay. He is one of the men in the Pinedale section who has become dissatisfied with the existing range conditions and is planning to cut down his herd to a smaller number of better cattle and to pasture them at home. Mr. Sparks says that one acre of timothy and alsike is equal to at least 25 acres of range. He grows alsike and timothy principally for a hay crop, but pastures it a good deal in the spring and fall. He says that he has had no trouble from bloat either when the cattle were on the pasture or when he fed hay, and considers the alsike a more valuable feed than alfalfa for this reason.

Mr. Sparks is probably the most successful grower of alsike in the state. He has 110 acres seeded to the crop and is putting in more every year. His land is rather low and sub-irrigates a good deal, and the alsike does well on these low lands that are inclined to seep. For this reason many native meadows in that part of the state are being seeded to alsike and timothy and thus made to produce two or more tons per acre instead of less than a ton of the native grasses. Mr. Sparks cuts about two and one-half tons per acre from his alsike and timothy meadows.

Inoculation of the soil for alsike and other legumes is strongly advocated by Mr. Sparks. He has had no trouble in getting a good stand where he has inoculated. Where he did not inoculate he did not get a stand. This has also been the experience of other farmers in that section who have sown alsike. There is no doubt but that inoculation is beneficial in growing legumes, especially in new ground. Mr. Sparks gives as the essential factors in successful alsike growing: inoculation, good seed bed and plenty of irrigation water for the hay crop. Less water should be used if a seed crop is to be grown. Too much water causes the alsike to grow too rank and fall over so that the seed pods do not fill well.

Mr. Sparks' method of growing alsike is to plow in the fall and disk lightly in the spring, sowing broadcast seven pounds of alsike and five pounds of timothy per acre. He uses no nurse crop, but sows the alsike and timothy alone and does not pasture the land the first year. He says the crop needs a good deal of water. His land sub-irrigates and is moist all through the growing season. When asked concerning alsike Mr. Sparks said: "I do not consider it a better feed than alfalfa, but it is a safer feed on account of the freedom from bloat. Some other feed will need to be fed along with alsike for horses and mules. If it is fed alone it will give them a skin disease. The cure is a change of feed. For cattle feed I find no fault with alsike whatever."

Wyoming Pasture Mixtures

The necessity for permanent pastures is being recognized all through the range section where the small herd of cattle or flock of sheep is counted on as a source of revenue and soil fertility. The permanent pasture can be profitably grown wherever there is water for irrigation. The pasture mixture recommended for Wyoming conditions is made up of orchard grass 10 pounds, brome grass 10 pounds, meadow fescue 6 pounds, timothy 5 pounds, alsike 2 pounds, and yellow sweet clover 4 pounds. Rather heavy seeding is necessary if a heavy sod is to be obtained quickly. The seeding should be done as early in the spring as the seed bed can be put in shape. The seed should be sown broadcast and harrowed in. If desired, 30 pounds of oats per acre may be sown as a nurse crop and cut for hay the first year. It will be better to cut a crop of hay from the ground the second year. After this the sod will have become sufficiently tough to withstand tramping, and the pasture will be good for at least ten years, if properly cultivated from time to time and given sufficient irrigation. Such a pasture will support two cows to the acre.

Sweet clover is also becoming a popular hay and pasture crop both on the irrigated and dry farm. The Great Western Sugar Company at Lovell, Wyoming, put 100 March lambs on five acres of sweet clover on June 1, and

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FARMERS WHO ORGANIZED THE COLORADO STATE FARM BUREAU

(See article Page 7)

From left to right: W. F. Wilcox, Montrose; C. H. Miller, Garfield; F. H. A. Blasey, Lincoln; J. D. Karst, Huerfano; E. E. Crossen, Logan; E. P. Emery, Boulder; H. A. Brown, Jefferson; F. R. Lamb, Fremont; H. L. Lowell, Douglas; E. J. Leonard, Morgan; J. D. Flint, Adams; N. A. Morgan, Saguache; W. H. Paul, El Paso; E. D. Duling, Las Animas; H. T. Wadleigh, Otero; C. L. Hover, Boulder; F. M. Drescher, Moffat; Andrew McDonald, Las Animas, and John Solee, Pueblo.

The Production of Certified Seed Potatoes

HOW CAREFUL GROWERS CAN DEVELOP A PROFITABLE BUSINESS

E. R. BENNETT, Potato Specialist, University of Idaho

THE potato is at its best when growing in a climate of clear, sunny days and cool nights. Given these conditions, plus a rich soil and plenty of soil moisture at all times, the potato responds with a broad, Irish smile and reproduces like an ideal Rooseveltian family. Perfect conditions—a life of ease—with the potato as with humans tends to degeneracy. It takes opposition, something to overcome, to produce vitality — or is it because difficulties and hardships of plants and animals weed out the weaklings? Anyway, figure out the theory to suit yourself; under irrigated conditions in many parts of the United States potatoes soon go to pieces—lose their power of reproductiveness, even lose their identity as to form, so that new seed has to be brought in every few years. This is not true of all districts but in general, particularly in the warmer valleys of the west, it is true. It is also true of the warmer districts of the east and south. Virginia, the Carolinas and Florida depend upon Maine to supply them with seed potatoes that they may in turn send their crop to the markets of the north. Texas and Louisiana get their seed from Wisconsin and Minnesota.

Demand for Seed Potatoes

The demand has been such that these northern states have worked up a big industry in growing seed potatoes for the southern planters. New Mexico, Arizona, Utah, Nevada and California are looking for good northern grown seed potatoes for their planting. So far they have looked in vain, or at least, have been dissatisfied with the seed they have secured. Why? Because they want seed of strong vitality, medium size and free from disease. They also prefer that which was grown without irrigation. Irrigation does not necessarily disqualify or make seed less desirable, but the tendency is for such lands in the west to produce potatoes of too great size for the largest of the potatoes to be economical or strong seed, hence the smaller ones, the culls of the crop used for seed work.

Certification of Seed Potatoes

But what about the certification of seed potatoes? Well, certification of seed potatoes by the states or by an association has been carried on successfully in a few states for several years. Here in Idaho we have had some certified seed potatoes each year for the past three years. Some of it has been mighty good seed, too. Most of the work, however, has been done on irrigated farms, by the best potato growers in the state. That, of course, was to be expected, as it is always the best growers who are the first to take up methods of improving any of the crops. Our experience has been that these growers, by the careful methods employed to grow this nice type, pure, disease-free seed, got potatoes so big that they were not in all cases desirable seed. One man had a plot—about one-half acre—of Netted Gems (Russets), that when dug resembled stove wood or sugar beets more than potatoes and yielded two hundred and forty sacks—more than four hundred sacks to the acre—but they were not good seed. They did not do well the next season.

Seed Potato Plot, Twin Falls Tract, Idaho

In fact, our first years' experience was that the plan followed made a fine A1 demonstration of how to get a big yield of potatoes, but we did not have the certified seed problem solved. Then we tried a bit different plan. We planted the potatoes later in the season and closer in the row, so as to make them stay small and be more or less immature when dug. This worked well except that it reduced the yield, made more work, and most of the growers, like the old woman in the fable, with the cakes, decided they were too good to sell, so they kept them for their own use.

Yes, outside of a few districts in the intermountain territory, potato growers on irrigated land can grow seed potatoes to be certified. The question usually asked, however, is, won't this system cost more in labor and also reduce the tonnage of the crop? Yes. "Well, then, other than what I want for my own use, I'll let George do it."

Seed Potatoes from Unirrigated Land

Outside of the irrigated lands there are many millions of acres in the intermountain states—we have personally been over a lot of it—that can be made to grow a fair yield—from one to two hundred bushels to the acre—and potatoes of an appearance and quality unsurpassed for seed purposes. There is but one thing needed, that is the grower—the man who knows the game; who knows not only how to grow the potatoes, but also what to grow and how to sell the crop after it is grown. These lands are now either in pasture or growing grain. Planted to potatoes, under the proper system of management, these lands will produce a greater return for the effort and money invested; yes, and bring a greater return per acre, than from any crop that can be planted on them. Of course, this statement is more or less general, as not all soils are adapted to growing potatoes. Of the high altitude or far north hill lands, the north and east slopes or level lands that are composed of a deep sandy loam are best suited to this work.

Essentials for Certification

If the crop is to be certified, the first essential is that the seed used shall be pure as to variety, of good type and free from disease. We say pure as to variety advisedly. In going over many hundreds of fields of potatoes we have found comparatively few of them that did not have representatives of several varieties, if not of families, of potatoes in them. The way to get pure variety and be sure of it is to breed it up from one plant. Maybe some men can select potatoes all of one variety out of a bin and feel sure that all of them are of the same variety. We can with some varieties as the Netted Gem (Russet), but with the white varieties we would prefer that some one else should take the job; they look too much alike. Even in the field they sometimes fool us.

When it is too late to do any field selecting of seed potatoes for the next year's planting, the best we can do is to select the best appearing seed from the cellar, or buy certified seed. In either case the seed must be looked over carefully for disease. Cut a slice off the stem end of a few hundred of them. If many are found that have a discolored ring, each potato in the lot should be tested and all that are diseased must be discarded.

Treating the Seed

Before planting the seed must all be soaked in a disinfectant. Corrosive sublimate in water, four ounces to thirty gallons, treated one and one-half hours, is the most commonly recommended treatment. This seed must, of course, be planted on clean land. By clean land we mean land that has not grown potatoes for several years.

On lands that are not to be irrigated there will be more assurance of a crop if the land is plowed to a good depth late in the fall. Leave the land till spring just as it was plowed. Prepare the land and plant the crop as early as possible in the spring, so as to get the benefit of the winter's accumulation of moisture. Plant deep for the same reason. Cultivate shallow and often to make plant food available and conserve the moisture. Do not hill the potatoes. In fact, in all details of culture, keep in mind that the soil moisture will probably be the limiting factor in production.

Rogueing Out the Unfit

At least once—twice is better—during the summer season the field must be carefully inspected for disease, foreign varieties and off type plants. Blossoming time is the best for this inspection. Here is where the pride of the bin seed selector takes a fall. Many tubers that look more or less alike will produce plants of a different habit of growth and color of bloom and stem. All plants that are off variety or type must either be destroyed or staked so that they may be removed before the remainder is dug and all diseased plants must be taken out. Just before harvesting time another inspection of the field should be made to guard against disease that may have developed later in the plants. Again after harvest the tubers must be examined for type and freedom from disease. Clean seed potatoes planted on clean land will, for the most part, produce good type, disease-free potatoes. These may be certified as such by the proper authorities.

Uniform Certification Needed

So far there is no uniform system of handling this certification of potatoes between the different states of the west. A movement is on foot by which it is hoped an agreement may be reached, so that the requirements may be the same in all these states, and that it will be such as to insure the purchasers of such seed in getting the desired article.

There is an unlimited field for the development of a seed potato industry in these western states. We have the climate and soil. What we need is men—more men who know the game.

Wide Row Planting A Good Paying Proposition

HAVING just introduced a four-year crop rotation on 80 acres of my land, one-fourth of which was to be summer tilled, I decided to adopt the wide row work, or the one-half summer till, believing it would pay all expenses of summer tilling, and leave the land in excellent condition for wheat; also retain a large per cent of the summer moisture. While I did not carry the work out as thoroughly as I wanted to, yet I feel satisfied that it is a paying proposition, especially so when one looks into the future for a continuance of fertility. The land was first double disked as soon as I could get on it in the spring, then harrowed to keep a mulch and plowed about seven inches deep early in May, giving the land about one month to settle. Also harrowed twice during this time. Beans were planted about the first of June, came up readily and a good stand, seeding about five pounds per acre. They grew very rapidly in spite of the fact that at one time the weeds came near getting the upper hand. The beans never at any time lacked for moisture. They matured about the first of September and I could have had the wheat seeded easily by the middle of September had not other work interfered. The yield, machine measure, was 408 pounds per acre.

Wide Row Field of Pinto Beans on Gordon Farm

While my object in planting this way was to conserve as much moisture as possible for wheat and have the beans pay for the tilling, yet I feel that one can by this method year by year beat the average solid row crop at much less expense for cultivation and harvesting, also get a better quality of beans. Using an extra long marker the work of planting is cut in half; also the seed. I used a disk harrow, three horses, to cultivate the wide space first time over, then a six-foot spring tooth harrow; a regular cultivator for the bean rows. This cut some on the cultivation. In harvesting the work is again cut in half. My beans this year beat the average yield of solid row beans, and the quality was fine and but very few small beans.

I also tried some corn on the same plan on a sand ridge, and am well pleased with results, as the yield of grain was fine, and I fully believe that there is more corn per acre on this land than there was on my solid row field, and it was good for this season. This being my first experience, I find much room for improvement on my methods and feel certain that one can count on a paying crop every year, also a big boost in the next wheat crop.—Geo. J. Gordon, Bennett, Colorado.

Johnstown District Farmers Hold Annual Show

GUERNSEY AND HOLSTEIN BREEDS MEET IN LIVELY COMPETITION

JOHNSTOWN dairy farmers celebrated the closing of another prosperous year of milking, with the annual dairy show, held March 14. Nearly 100 purebred and high grade individuals of the Holstein and Guernsey breeds were brought in from the farms for a lively contest for supremacy in type and production. These neighborhood shows have been held for six or seven years and the results are astonishing to those who have been privileged to watch their growth from year to year. Factors responsible for this development are the Cow Testing association and the Johnstown condensery, the First National Bank of Johnstown cooperating with the dairy farmers. Splendid aid is also given by the Great Western Sugar company, who annually offer good cash prizes to stimulate competition.

Over $600 in prizes was in sight for the various classes in this year's show. Naturally the keenest sort of rivalry exists, not only between herds of one breed, but more especially between the breeds that predominate in the district. This year's show saw only representatives of the Holstein and Guernsey breeds, the Jerseys being temporarily out of it because of the sale and removal of one of the leading Jersey men. Next year it is expected that this breed will again be in evidence.

Some remarkable records are being made with cows on the high-class farms where a balanced ration is produced, with alfalfa and corn silage as the foundation. For example: A Holstein, owned by W. A. Purvis, in the year ending March 1, produced 17,356 pounds of milk, containing 631 pounds of butter fat. This is equivalent to 788.8 pounds of butter, which at a minimum average for the year would be worth about $350. To that remarkable figure should be added the value of two calves, which this cow produced during the test year.

The cow is a purebred Holstein, Rocabie. She shows a remarkable gain over the previous year, when her record was 487 pounds of butter fat.

The grand champion cow this year was a Guernsey, owned by E. J. Bender, Quoin of Hillside, a 5-year old cow bought in Wisconsin. This was her first year in the show.

The Guernseys gave the Holsteins a run for their money, capturing also the first and second prizes for the best fitted herd, first going to E. J. Bender and second to J. W. Purvis.

The cattle were judged by Prof. George E. Morton, of the Agricultural college, whose work always gives excellent satisfaction and who is careful to explain to breeders the reasons for his placings.

In the Cow Testing association awards the Holsteins were in evidence, Lohry & Wailes showing best increase in milk in the class for more than $1,500 worth of milk; F. G. Holmes, Holsteins, best for increase from $500 to $1,000 worth of milk, and S. A. Gray, same breed, for best increase on less than $500 worth of milk.

An interesting class was the boys' and girls' calf club, with ten entries, judged by a team of students from the Greeley Agricultural high school, in charge of Prof. F. A. Ogle. The youngsters showing calves were Donald Purvis, Jimmy Gray, Roland Holmes, Charles Gray, Frank Darlington, Alice May Teal, Gordon Teal and Jimmy Teal. The winners were placed as follows: Gordon Teal, first; Donald Purvis, second; Jimmie Teal, third.

Judging the Calf Class at Johnstown Show

The student judging team was composed of Walter Bain, Lacy Wilkinson, Willis Snider, Orvall McKee, Frank Read, Ralph Robb, Ovid Plumb, Leroy Johnson, Albert Riggs, and Harry Straight.

Mention has already been made of the high cow in the testing association. The second cow in the test, owned by Fred Lohry, produced 11,390 pounds of milk, containing 585 pounds of butter fat and testing 5.2 per cent. The third cow by the same owner produced 15,103 pounds of milk, containing 497 pounds of butter fat.

Roy M. Curtis, the cow tester, also gave the record of a nine-year old grade Holstein, owned by J. W. Whowell, who produced 117 pounds of butter fat in 30 days.

The condensery at Johnstown had some rough sledding during the first two years of its existence, at times almost being forced to cease business for lack of a steady supply of milk. Persistent efforts, however, on the part of the management, with the assistance of W. E. Letford, president of the First National Bank and his former associate in the bank, Mr. F. H. Hill, resulted in getting more farmers interested. Organization of the Cow Testing association finally put production on a business basis. The farmers now know exactly which cows are paying for their keep and which are making them a good profit, and they send those that are unproductive to the butcher. The condensery is handling at present more than 20,000 pounds of milk a day, and as the milk comes in the cash goes out to every farmer that has a dairy herd.

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All Dairy Breeds Represented in Boulder Show

AYRSHIRE COW IS WINNER OF THE GRAND CHAMPION

BOULDER'S annual dairy show, held March 11th, brought together the quality individuals out of the best herds of the Holstein, Jersey, Guernsey, Ayrshire and Milking Shorthorn breeds of the neighborhood for interesting and lively competition that had two distinct results: First, the determination to make the show a permanent feature of dairy development. Second, the creation of a stronger bond of interest and community cooperation between the business men of Boulder and the farmers of the surrounding country. Prize awards in cash and merchandise were of sufficient value to pay the expense of bringing a herd to town and showing it. The educational value of such competition and the good feeling created between the merchants who contributed the prizes and the farmers who competed for them, were just so much velvet in community betterment which it is impossible to estimate in dollars and cents. The county commissioners, the Boulder Commercial Association and the city council made substantial appropriations of cash in support of the show, consequently it was a public enterprise in every sense of the word.

Prof. George E. Morton, head of the animal husbandry department of the Agricultural college, judged the show. Roy M. Curtis, tester for the Johnstown association, who officiates in the same capacity for the Boulder County Cow Testing association, announced awards in the testing division. Roud McCann, field secretary for the State Creamery Men's association, spoke on dairy development, and D. W. Thomas, secretary of the agricultural bureau of the Denver Civic and Commercial association, represented that organization at the show. F. B. Schroeder, formerly cow tester for the Boulder association and now in the dairy farming business, and other breeders and farmers, with the help of County Agent H. H. Simpson, were responsible for organizing and managing the show. The cattle were housed in a garage building and the classes were brought into the street for judging.

The two big events were the selection of the grand champions and of the prize winning cows on test. For the grand championship on cow, four contenders heading their classes were lined up, the selection being confined to registered animals. Ed Mason showed a Jersey, Henry F. Harmon a shorthorn, Mark Harper, Holstein, and Albert Bashor an Ayrshire. The shorthorn was eliminated because she was not of dairy type, and between the three other breeds, the question came up to the Holstein and Ayrshire. Prof. Morton picked the Ayrshire, faulting the Holstein on her hindquarters and stating that the Aryshire was true to that breed type and lacking the fault so often found in Ayrshires of short teats, this cow having teats that would be acceptable even in a Holstein. The Guernseys were not in the grand championship class, because the cows in that herd were all grades.

On grand champion bull, a striking youngster of the Holstein breed, owned by Marcus Harper, easily won over entries from all other breeds.

Results in the cow testing contest were as follows: Silver cup to H. S. Andrews, on a Holstein that yielded 12,247 pounds of milk and 543 pounds of butterfat during the year. Second and third cows in this contest, both Holsteins, were owned by Clark Wood, with 13,996 pounds of milk and 523 pounds of butterfat, and A. W. Gillam, with 12,504 pounds of milk and 520 pounds of butterfat in the year. The loving cup must be won three years before it becomes the property of any contestant.

Following is a list of the other awards:

Registered Holsteins

Cow: Mark Harper, first and second; Clark Wood, third.

Heifer, 1 year old and under 2: H. H. Hayworth, first.

Grand Champion Cow at Boulder Show and Albert Bashor, Her Owner

Heifer, under 1 year: Nels Anderson, first; Mark Harper, second; F. A. Wood, third.

Bull Calf, under 1 year: Mark Harper, first; H. H. Hayworth, second; Elmer Kingman, third.

Sweepstakes Holstein female: Mark Harper.

Sweepstakes Holstein bull: Mark Harper.

Holstein Grades

Cow: Glen Martin, first; Clark Wood, second; L. L. Lyman, third.

Heifer, 1 year old and under 2: Mrs. Frieda Hoffman, first.

Heifer, under 1 year: L. L. Lyman, first; Elmer Kingman, second; Clyde Travis, third.

Sweepstakes, Holstein grade cow: Glen Martin.

Registered Jerseys

Cow: Ed Mason, first; W. A. Groom, second; Art Gillam, third.

Heifer, under 1 year: Art Gillam, first; W. A. Gillam, second.

Aged Bull: E. P. Euler, first; Ed Mason, second; Art Gillam, third.

Bull, over 1 year and under 2: W. A. Groom, first.

Sweepstakes, registered Jersey cow: Ed Mason.

Sweepstakes, registered Jersey bull: E. P. Euler.

Jersey Grades

Cow: Robert Foster, first; E. J. Maris, second; Art Gillam, third.

Heifer, 1 year and under 2: Martin Johnson, first; G. Yhrman, second.

Heifer, 1 year and under: Art Gillam, first; E. J. Maris, second; , Ed Mason third.

Sweepstakes, Jersey grade cow: Robert Foster.

Registered Shorthorn

Heifer, 1 year and under 2: Henry F. Harmon, first; Glen Martin, second and third.

Heifer, under 1 year: Henry F. Harmon, first; Glen Martin, second and third.

Sweepstakes, registered Shorthorn female: Henry F. Harman.

Aged Bull: John Hendrix.

Bull, 1 year and under 2: Glen Martin, first. Everett Harmon, second and third.

Bull Calf, under 1 year: Henry F. Harman, first; Glen Martin, second and third.

Shorthorn Grades

Cow: John Hendrix, first and second.

Heifer, 1 year and under 2: Hendrix, first and sweepstakes.

Ayrshires: Albert Bashor, exhibiting the only herd, all prizes.

Guernseys: W. D. Emery, exhibiting the only herd, all prizes.

How the H. O. G. Gets Results

COOPERATIVE VETERINARY SERVICE IS EFFECTIVE

THE cover design of this issue is made up of prize winners at the recent San Luis Valley Stock show, the pictures including the following:

First prize registered Hereford cow and second prize registered Hereford bull, shown by Ed Gets.

Grand champion shorthorn bull, Count Valentine, shown by J. H. Neal of Moffat.

First prize pen of Rambouillet ewes, shown by J. C. Gilbreath.

Sweepstakes sow over all breeds, a Poland China, shown by the American Guaranty company and posed by County Agent W. A. Sauder of Saguache county.

Six mule team, prize winners, and pronounced the finest outfit of its kind in the state, owned by O. L. Sanderson.

The hog raisers of the San Luis Valley are finding an assessment of $25 a year a very economical price for the eradication and prevention of hog cholera and other diseases which formerly caused tremendous losses in that section. In our last issue we made mention of the annual stock show and meeting of the Monte Vista Hog Growers Association, also publishing the list of awards. Farmers all over the West will be interested in a little further detail concerning the excellent manner in which the hog growers of the San Luis Valley co-operate in matters of production, sanitation and protection of the industry.

Two veterinarians are employed unde the co-operative plan. Perhaps the best way to bring out what they are doing is by a glance at the annual report filed by Drs. A. G. Wadleigh and L. L. Glynn at the recent meeting. This report, among other things, shows that some 23,000 hogs were vaccinated with the anti-hog cholera serum during the year ending February 10, 1919. It also calls attention to the fact that while hog cholera is under complete control, there are two other diseases which are much harder to eradicate, namely, necrobaccilosis (sore mouth) and hemorrhagic septicemia. These two diseases are widely prevalent in the West and need to be fought wherever they develop.

The annual report of Charles Edman, secretary of the Monte Vista Hog Growers Association (familiarly known as the High Order of Grunts) shows that over $5,000 was paid out to the veterinarians in salaries. The total disbursements amounted to $6,435.96, other expenses being for salaries of secretary and incidental expenses such as the annual banquet, etc. A substantial balance on hand in the treasury at the beginning of last year has been added to and an ample sum raised by assessment and membership fees to finance the association for another year. There are over 300 active members who are paying $25 a year for the protection afforded their livestock through the work of the veterinarians. Following is a copy of the veterinarians' report:

Report of A. G. Wadleigh

Extending from February 1, 1918, to February 10, 1919.

Total number of calls	1,037
Total number of hog calls	483
Total number of hogs vaccinated	14,038
Total number of infected herds vaccinated	99
Total number of herds vaccinated	219
Total number of hogs that had died before treatment	445
Total number of hogs that died after treatment	794

Report of L. L. Glynn

Extending from February 1, 1918, to February 10, 1919.

Total number of calls	910
Total number of hog calls	280
Total number of hogs vaccinated	8,857
Total number of infected herds vaccinated	38
Total number of hogs that died after treatment	554

You will see by our annual report that the work for the past year has been quite extensive, especially the amount of vaccination against hog cholera. You will also observe that most of the members received veterinary service at a very low cost, when you take into consideration the total number of calls and the amount paid in by each member.

We are glad to state that the hog cholera situation is very satisfactory at this time, as this disease is well under control. This has meant considerable hard work, but the results justify the effort. Dr. Stout has given us a great deal of assistance along this line and we are more than pleased to have the government B. A. I co-operate with us in this work. There are two other diseases here that are much harder to control than cholera, and these are necrobaccilosis (sore mouth) and hemorrhagic septicemia.. The latter disease is more common among young stock such as lambs, pigs and calves, and also affects chickens and turkeys. The losses in the valley from these two diseases have been quite heavy at times and cause much greater loss than hog cholera. There has also been unnecessary loss of both stock and feed by not feeding a balanced ration. This not only wastes feed, but it also causes your stock to become unthrifty and susceptible to disease.

Pork can be produced here easier and cheaper than any place we know of, if systematic vaccination and sanitation are carried out, but you should remember that the more hogs you keep together and the longer you keep them on the same ground, the more liable they are to become diseased. There are few things that will bring you better returns than the time you spend giving your hogs proper care. We feel that we have done our "hit" in helping to win the war by helping to conserve the supply of meats and fats, and believe that we have accomplished more along this line than would have been possible for us in any other position.—A. G. Wadleigh; L. L. Glynn.

Colorado and Utah Bulletins

A number of good bulletins have recently been issued by the Colorado Agricultural college and the Utah Agricultural college. Copies may be obtained free on application to the institutions issuing the bulletins, which are as follows:

Colorado Extension Bulletin No. 149, "Preparation and Use of Dried or Dehydrated Vegetable Products," by E. L. Kirkpatrick and Mrs. E. L. Kirkpatrick.

Colorado Extension Bulletin No. 150 A, "Horse Management," by R. W. Clark.

Colorado Extension Bulletin No. 151 A, "Dairy Market Survey in Colorado," by J. A. Raitt.

Colorado Extension Bulletin No. 154 A, "Hemorrhagic Septicemia in Sheep," by Dr. I. E. Newsom.

Colorado Extension Bulletin No. 153 A, "Seed Testing in the Home and School," by W. W. Robbins and C. E. Eggington.

Utah Circular No. 34, "Sugar Beet Production in Utah," by F. S. Harris and N. I. Butt.

Utah Circular No. 35, "Field Beans," by George Stewart.

Utah Circular No. 165, "Labor Costs and Seasonal Distribution of Labor in Utah Valley," by L. G. Connor.

Utah Circular No. 39, "A Day With the Agricultural Experiment Station."

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Reduces Strained, Puffy Ankles, Lymphangitis, Poll Evil, Fistula, Boils, Swellings; Stops Lameness and allays pain. Heals Sores, Cuts, Bruises, Boot Chafes. It is a SAFE ANTISEPTIC AND GERMICIDE

Does not blister or remove the hair and horse can be worked. Pleasant to use. $2.50 a bottle, delivered. Describe your case for special instructions and Book 5 R free.

ABSORBINE, JR., antiseptic liniment for mankind, reduces Strains, Painful, Knotted, Swollen Veins. Concentrated—only a few drops required at an application. Price $1.25 per bottle at dealers or delivered.

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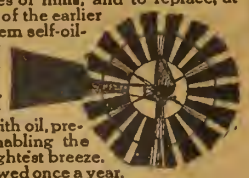
has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

Why farmers everywhere are buying the

GRANT SIX

There is a big demand for the GRANT SIX from business farmers all over the country. A generous proportion of our sales for the past four years has been to owners of farms. We have tried to analyze the reason.

It is easily determined that price alone has nothing to do with this preference. Even during war times, when high prices obtained, a steady stream of business from rural districts poured into the Grant factory.

Nor is it traceable to our distribution for we are equally well represented in the big cities where the sales are constantly growing.

Inquiry amongst hundreds of purchasers as to the cause of this preference for the GRANT SIX shows some perfectly natural and obvious reasons —based on common sense.

First, they say the GRANT SIX is neither too large nor too small. It has speed. It operates smoothly. It rides easily. It is comfortable, stylish and well finished, and its mechanism is simple, accessible and easily cared for by anybody.

Again, operating cost is low. There is plenty of gasoline to be had, but when one can do better than 20 miles to the gallon in comfort, why be content with 7 to 10 miles? GRANT SIX owners average 900 miles to the gallon of oil. At present prices that means a big advantage. And GRANT SIX owners average 7,000 miles to the set of tires. And the GRANT SIX is built to stand hard service. These same facts are certain to lead you to choose the GRANT SIX.

Select from these 5 body styles

Five Passenger Touring Car $1120, Roadster $1120, Coupe $1625, All Weather Sedan $1645, Demountable Sedan $1400.
All prices F. O. B. Cleveland.

GRANT Trucks

Grant Trucks give you more for your money than any other trucks made. 1,800 lbs., 1½ tons, 2 tons, 3½ tons capacity, all electrically started and lighted and completely equipped. Get our prices.

Descriptive literature on passenger cars, trucks, or both sent on request. Write for it and name of nearest dealer.

GRANT MOTOR CAR CORPORATION—CLEVELAND

$1120
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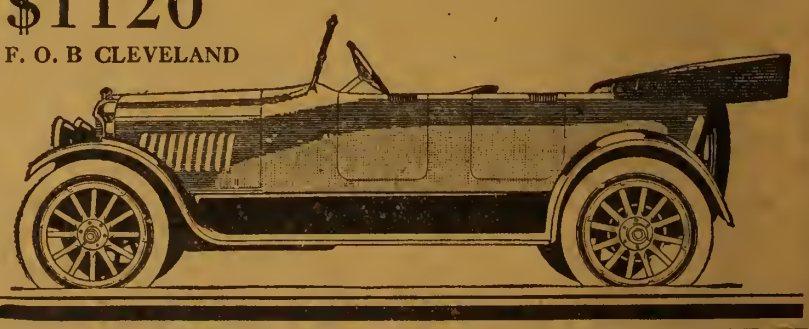

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40 Cents Saves a Calf

From Blackleg, the dreaded cattle plague that has cost dairymen and stockmen millions of dollars. Over a million cattle immunized with one treatment without a single loss. There is but one vaccine with such a record. The original—

O. M. FRANKLIN'S BLACKLEG VACCINE

We have hundreds of letters pronouncing it 100% perfect. The price is 40c per dose. For 10c per dose additional, covering clerical cost, we issue a written guarantee that it will save every calf from Blackleg. Order today and protect yourself—or write for booklet.

THE KANSAS BLACKLEG SERUM COMPANY
415 Livestock Exchange Bldg., Denver, Colo.

40c SAVES a Calf

Colorado State Farm Bureau

Colorado now has a State Farm Bureau. It was organized early in March, at Fort Collins, during the annual conference of the county agricultural agents. Nineteen counties were represented by farmer delegates, and while the county agents participated in some of the preliminary discussions, the real work of organizing was performed by the farmers themselves. Farmers are to keep the organization going and make it of real help to agri-

W. G. JAMISON
President Colorado State Farm Bureau

culture in the state. The State Farm Bureau is the logical outgrowth of the County Farm Bureau. The National Farm Bureau, when it comes into being, is the next step in a big movement that may be the long heralded body to speak for all the farmers of the nation.

Just now ideas about the function of the new state organization are a trifle hazy. The farmers are feeling their way along, willing to start by backing up the activities of the county agents, coordinating efforts where county lines overlap, and cooperating where matters are of state wide or regional interest. In all counties where a farm bureau organization has been perfected along what is known as project lines, there is a program of work, suggested by the farmers and headed by farmer committees. This program, which may include livestock and crop improvement, pest eradication, home improvement and other plans for the betterment of agricultural conditions, serves as a classification of the problems that the farmers of a given community and county are called upon to solve. That this work may go forward in a systematic way, the State Farm Bureau comes into existence as a natural and logical clearing house for the educational activities carried on in the various counties.

Officers were elected as follows: W. G. Jamison, La Veta, president; F. R. Lamb, Canon City, vice-president; E. J. Leonard, Fort Morgan, secretary-treasurer. These officers are authorized to serve as an executive committee to perfect plans for the future and for the calling of a second meeting, to be held early in the summer.

The tentative state program includes livestock improvement, home improvement, crop improvement, pest control, rural roads and boy's and girl's club work. Chairmen of committees were appointed as follows: Pest control, J. D. Karst, Huerfano county; club work, F. H. A. Blasey, Lincoln county; roads, E. C. Crossen, Logan county; livestock, E. G. Duling, Las Animas county; home improvement, F. M. Drescher, Moffat county; crop improvement, J. M. Collins, Eaton.

This question of organization is being discussed in all the leading farm papers and at gatherings of farmers all over the country. Views are at variance as to the exact functions of a national organization. In fact, in some quarters the view is expressed that it is practically impossible to get the farmers together into one central body, because of their diverging interests and the difficulty in providing a program of action that will meet with the views of a majority of farmers. Of all the proposals so far made it seems that this one of a coordinate body reaching up from the farmers of the county, through the state and thence becoming nation wide, and adopting an educational program, leaving the specialized organizations to carry on their work as it is done at present, is the most practical. The matter is open for discussion.

JOHNSTOWN DISTRICT FARMERS HOLD ANNUAL SHOW

(Continued from Page 5)

Following are the awards:

Best fitted herd. First prize, $50, by Great Western Sugar Co., to beet growers only; second by First National Bank, $25. E. J. Bender, first; J. W. Purvis, second.

Grand champion cow. T. M. Callahan cup offered by Colorado Condensed Milk Co. E. J. Bender, on Guernsey.

Purebred Holstein Bulls

Tbree years and over: Fred Huwa.

Under 3 and over 2 years: Lohry & Wailes, first; W. A. Purvis, second.

Under 2 and over 1 year: W. A. Purvis, first; F. G. Holmes, second.

Under 1 year: Lohry & Wailes, first; J. W. Whowell & Son, second.

Purebred Guernsey Bulls

Three years and over: J. W. Purvis, first; H. H. Ewing, second.

Under 3 and over 2 years: E. J. Bender.

Under 2 and over 1 year: E. J. Bender.

Under 1 year: J. W. Purvis, first and second.

Purebred Holstein Cows

Over 3 years: Lohry & Wailes, first and second.

Under 3 and over 1 year: Lohry & Wailes, first; J. W. Whowell & Son, second.

Under 1 year: W. A. Purvis, first; F. G. Holmes, second.

Purebred Guernsey Cows

Over 3 years: E. J. Bender, first; J. W. Purvis, second.

Under 3 and over 1 year: E. J. Bender, first; J. W. Purvis, second.

Under 1 year: J. W. Purvis, first; H. H. Ewing, second.

Purebred Holstein Herd

Bull, cow and calf: Lohry & Wailes, first; W. A. Purvis, second.

Purebred Guernsey Herd

Bull, cow and calf: J. W. Purvis, first; E. J. Bender, second.

Grade Holstein Cows

Tbree years or over: J. W. Whowell, first; F. G. Holmes, second.

Over 1 and under 3 years: J. T. Green, first.

Under 1 year: W. A. Purvis, first; F. G. Holmes, second.

Grade Guernsey Cows

Three years or over: E. J. Bender, first; John Lauck, second.

Over 1 year and under 3: J. W. Purvis, first and second.

Under 1 year: J. W. Purvis, first and second.

Purebred or grade herd: E. J. Bender, first; Lohry & Wailes, second.

Purebred or grade cow producing most butter fat: W. A. Purvis, first; Lohry & Wailes, second and tbird.

Other Prizes

For best increase in milk from Feb. 1, 1918, to Feb. 1, 1919. For more than $1,500 worth of milk: Lohry & Wailes, Holstein

From $500 to $1,000 worth of milk: F. G. Holmes, Holstein.

Up to $500 worth of milk: S. A. Gray, Holstein.

Great Western Sugar Co. prizes for beet raisers only:

Best purebred Holstein herd of five: Lohry & Wailes.

Best purebred Guernsey herd of five: E. J. Bender.

Best grade Holstein herd of five: F. G. Holmes.

First National Bank prize:

Three of best Holstein get of sire, any age or sex registered: W. A. Purvis.

The present is an opportune time for taking inventory of farm machinery resources, as well as account of essential repairs and record of implement condition.

THE NEW Studebaker CARS

THE New Studebaker Cars—notable for their thorough quality, for their comfort, their economy, and their beautiful lines—are the supreme product of Studebaker's 67 years of manufacturing experience.

You have known Studebaker Cars for years—you know how they have proven good under all the varying conditions of service on country roads. Your father—yes, and your grandfather—knew, too, the inbuilt quality and proven excellence of Studebaker vehicles.

Never has Studebaker quality and honest value been more self-evident than in the New Studebaker Cars. The long years of experience, the feeling of responsibility to buyers, the pride in that name Studebaker, show in every detail of design and manufacture.

The New Studebaker Cars, in three distinct sizes, represent the best that engineers know. They embody so many splendid features of construction that you must see them to really appreciate their mechanical excellence.

The LIGHT-FOUR	The LIGHT-SIX	The BIG-SIX
$1225	$1585	$1985

All prices F. O. B. Detroit

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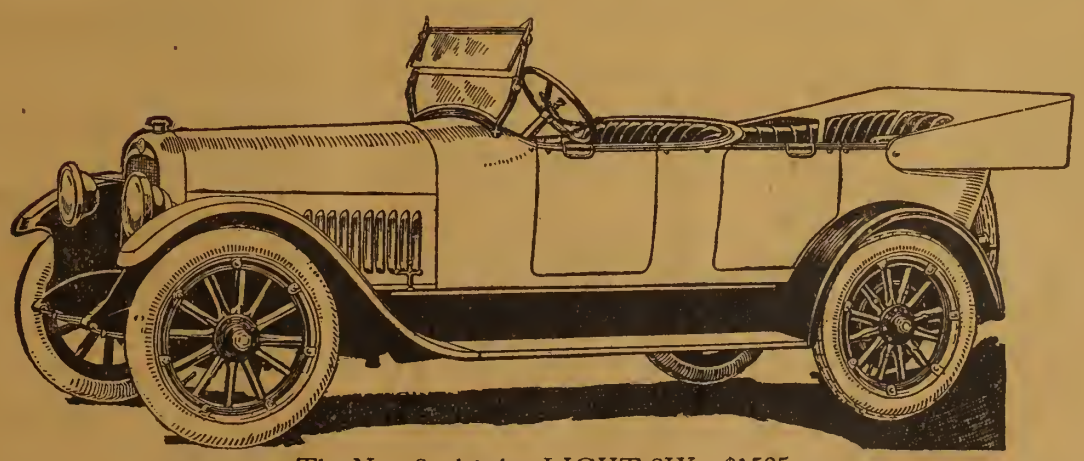

The New Studebaker LIGHT-SIX—$1585
119-inch wheelbase; 50 h. p. motor, with "two-range" carburetor; genuine leather upholstery

The Cooperative Credit Unions

EXPLANATION OF THE NORTH CAROLINA PLAN

GEORGE H. DACY

Neither a borrower nor a lender be,
For loan oft loses both itself and friend.

WILLIAM SHAKESPEARE'S couplet may have been apropos during the age of ruffs, doublets and lace, but it is out of fashion now. Judicious, legitimate lending and borrowing are now primary principles of successful business. The game of keeping the dollars constantly in circulation has developed to such an extent that in many sections personal credit organizations have been promoted which cooperate with local banks in rural and urban financial affairs.

"There should be provided a system of personal-credit unions, especially for the benefit of individuals whose financial circumstances and scale of operations make it difficult for them to secure accommodations through the ordinary channels," said David F. Houston, secretary of agriculture, not long ago. "Organized commercial banks make short term loans of great aggregate volume to the farmers of the nation possessing the requisite individual credit, but there are many farmers who, because of their circumstances, are prevented from securing the accommodations they need. An investigation by the U. S. Department of Agriculture to determine the extent to which farmers in the southern states were dependent upon credit obtained from merchants, revealed the fact that 60 per cent of them were operating under the 'advancing system'. The men I have especially in mind are those whose operations are on a small scale and who are not, in most cases, intimately in touch with banking machinery, who know too little about financial operations, and whose cases usually do not receive the affirmative attention and sympathy of the banker. Such farmers would be much benefited by membership in cooperative credit associations or unions."

"What further can be done by the Federal government directly to stimulate personal credit unions it is difficult to outline," continues Mr. Houston. "This matter has received consideration at the hands of many experts and was thoroughly canvassed by a joint committee of Congress. The conclusion, up to the present, seems to be that the field is one primarily for the states to occupy through sound legislation. About 125 associations have been organized, but the larger percentage of them have been formed by wage earners in urban centers. The attempt to develop strictly rural credit bodies has met with somewhat more success in North Carolina than elsewhere. In this state the work of promoting and supervising such organizations was placed in charge of an official in the Division of Markets and Rural Organization of the State College of Agriculture. The law of this state was enacted in 1915 and at present 16 credit unions, all of them rural, are in operation. It is noteworthy that the North Carolina law makes special provision for educational and demonstrational activities."

Eight States Enact Credit Laws

Eight states — Massachusetts, New York, Texas, South Carolina, North Carolina, Wisconsin, Utah and Oregon—have passed credit laws, while North Carolina now boasts 17 rural credit unions, five of which are especially prosperous and successful. Furthermore, in many urban sections of the New England states, personal credit unions have been established which have fostered saving among the laboring classes and their children. In Massachusetts, where the first of these clubs, the Myrick Union, was formed in 1908, there are 80 such clubs at present.

Under the German Raiffeisen system the credit union was a strictly cooperative association, conceived without capital stock, although, ultimately the Imperial government required all such clubs to have capital stock. Under the Raiffeisen system, these unlimited liability institutions make small loans at a low rate of interest for a designated purpose to worthy members of the society.

The capital stock company is the typical form of organization in the United States. For the association with share capital, there is a limitation as to liability of the members, and this feature has been important in attracting members and capital. On the other hand, for those communities where share capital is not readily available, the non-stock association affords a means of obtaining funds on the basis of an unlimited liability.

Credit Union a Depository

The credit union will accept deposits from anyone, but it will lend money under restrictions only to its members. Funds are obtained by the credit association through share capital, by general deposits or by borrowing in the name of the association. Usually in the non-stock association a small membership fee is charged. This furnishes funds for a small working capital.

In the share capital clubs, each share sells for $5 to $10. Ordinarily there is no limitation on the purchase of shares unless this is controlled by state law or by-law of the association. No salaries are paid except a nominal one to the secretary-treasurer, who usually is a farmer or a business man having a connection with a local bank.

The success of the agricultural credit unions in North Carolina has been due largely to the fact that the state agricultural department has aided the movement by valuable educational work among the farmers for the encouragement of credit organizations. The superintendent of credit unions in

GIVEN

To Land Owners

Latest edition of Ropp's New Calculator — the handiest book ever printed for farmers. Tells instantly just how much is coming to you when you sell your hay, grain or stock. Saves figuring—prevents mistakes. We will also mail latest catalog of

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PURE WATER Pure Water is Essential for

the family and the live stock. This can be best secured by drilling. "American" Well Drilling Machines are made in styles and sizes suitable for almost any locality. A source of profit either as a regular business or side line on a reasonable investment.

Catalog on request.

Dept. 27, The American Well Works

—General Office & Works: Aurora, Illinois—

CHANDLER SIX
$1795

Choice of City, Choice of Farm

IN the cities, from coast to coast, where automobile buyers have the choice of all makes—because all of them are sold in the cities—the Chandler leads in the field of medium-priced fine cars.

The buyer in the city can look them all over. He can *see* how the Chandler compares with other cars of similar price. He can see how Chandler checks with the highest priced cars in many of the most essential features of construction—such as Bosch Magneto for ignition, silent chain drive for the motor shafts, solid cast aluminum crank case, annular ball bearings, and many other features. The buyer in the city can make these comparisons. And he buys thousands of Chandlers every year.

Wherever the Chandler is sold in smaller communities the buyer who knows motor car values is just as quick to recognize these Chandler superiorites, these finer features of design and construction.

You would be greatly pleased with a Chandler Six as your family car. It has style, it has comfort, and above all else it has extraordinary mechanical excellence.

On the one great Chandler chassis, brought to a stage approximating perfection through six years of honest production, distinguished among sixes for its marvelous motor, are mounted several handsome styles of body. Whichever one may best meet your needs deserves your thorough consideration.

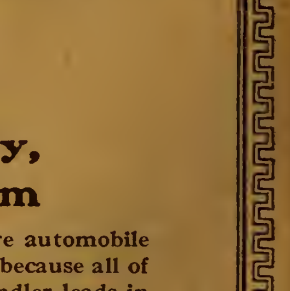
SIX SPLENDID BODY TYPES

7-Passenger Touring, $1795 *4-Passenger Roadster, $1795*
4-Passenger Dispatch Car, $1875
Convertible Sedan, $2495 *Convertible Coupe, $2395*
All prices f. o. b. Cleveland

If the Chandler is not sold where you trade, write for name of dealer who can serve you. Catalogs on request.

CHANDLER MOTOR CAR COMPANY
CLEVELAND, OHIO

Easy Ditching



THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with

THE Martin

DITCHER, Grader and Terracer

Makes new ditches; cleans old ones; grades roads; builds dykes and terraces. Cuts alfalfa, Bermuda grass or sweet clover roots from ditch banks, without plowing. Does more work and better work than 100 men with old methods.

Made In Horse and Tractor Sizes

All steel. Reversible. Adjustable. No wheels, cogs or levers. More MARTINS now in actual use than all other farm ditchers combined. Warehouses and distributing points in nearly all Western States. Write for free descriptive catalog and nearest distributing point, together with list of MARTIN users near you.

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AMERICAN Flint Tile SILOS

The Everlasting Silo

Built with curved, hollow *Flint Tile* Blocks. *Flint Tile* cuts glass. Lasts forever. Special construction. Absolutely guaranteed not to blow down. No expense of upkeep. Costs less than cement or wood. *Thousands in use.*

Prompt Shipment

We have 14 factories and kilns on main lines of different railroads. No matter where you are located, we can supply your needs quickly and at big savings. Prompt shipments assured. Get our latest catalog and place your order in full confidence of a square deal.

Lower Prices Now Order now and save money. Special low prices for immediate shipment. Full line of Silos, Ensilage Cutters, Building Tile, and Auto Trailers. Illustrated catalog sent FREE and postpaid by return mail.

Write Dept. 1611 at office nearest to you.

W. W. COATES COMPANY

Kansas City St. Louis Sioux City Omaha Des Moines
Oklahoma City Denver

North Carolina assists groups of farmers interested in the credit union idea and advises with them not only in the formation of clubs, but also in the efficient management of the organizations after they are formed.

North Carolina Has 17 Unions

The 17 credit unions of North Carolina up to December, 1918, had a total membership of 783, with 299 depositors who have made payments of $7,977.27 on shares of stock. The deposits aggregate $14,175.25, and the loans to 144 borrowers total $17,778.76. Only $3,200 had been borrowed from local banks, while the cash in banks amounted to $7,529.82. The total resources of the 17 cooperative credit clubs was $27,465.01 at the time mentioned.

The Vadese union, organized February 10, 1917, has 80 members and 87 depositors who have made payment of $1,746 on shares. The total deposits were $6,655.08 in December, 1918, while 31 members had borrowed $6,916.43. The club had $1,429.78 in the bank and total resources of $8,986.23. The Lowe's Grove union, the oldest in the state, organized January 20, 1916, had 55 members and 79 depositors in December, 1918. The paid-up shares amounted to $687.50; the deposits were $1,159.78; the loans to 30 members aggregated $2,326.45. From the local bank $600 had been borrowed, while the cash in banks amounted to only $1.41, as compared with the total resources of $2,632.29.

From one point of view, the credit union really operates as a connecting link between the farmer and the banker, and improves the farmer's chances of doing business with the bank. The credit union affords an excellent channel for the farmer to get in intimate touch with their home bankers. The bankers, as a rule, appreciate that it is good business to aid the credit unions, as ultimately the local bank benefits from the plan, in the same way that savings accounts, usually dead losses at first, finally figure prominently in the net profits. The fundamental value of the credit union is that it encourages saving. It also enables farmers to negotiate better term loans, and it encourages the practice of modern business methods in farming.

Banks Furnish Credit Funds

Usually each credit union makes definite arrangements with some bank by which the latter acts as a depository and furnishes loans on specific terms. Thus one of the unions in North Carolina receives 3 per cent interest from its bank on deposits subject to check, and 4 per cent on savings accounts left on deposit three months or longer. It pays 5 per cent interest on its loans from the bank. The credit union in turn pays its own members 5 per cent on their savings accounts and furnishes them loans at 6 per cent. Such a credit union not only accustoms its members to the use of check and savings accounts, but also enables the members to obtain loans for approved, productive purposes on better terms than they could obtain elsewhere.

In addition to handling deposits and floating loans, some of the North Carolina unions also aid their members in the purchase of cottonseed meal and corn or soy bean seed, the credit club buying in car lot quantities and thereby saving money for their members who otherwise would have to buy in small quantities at retail prices.

Loans for Productive Purposes

Any member who is industrious and pays his debts should be able to borrow from his credit union, provided his loan is to be used for productive purposes which will help pay the debt. The character of the borrower is prime security. Two indorsees are required to sign the note. This is regarded as extra security to safeguard the credit union.

During the first year of activities of a credit union the shorter term loans for four months or a year should be given preference to those for longer duration. The longer time credit can not be realized on while the shorter term loan can be renewed, if possible and desirable. The length of time for which a loan should be granted will depend upon its purpose and the system of farming practiced. It takes a farmer longer to gain full returns from a mule or plow than from seed or fertilizer. A dairy farmer might be able to pay off his indebtedness in from two to three months, while a cotton producer might require six to twelve months.

The National Tractor Show

When 120,000 people pass through the doors of on exhibit hall to view farm tractors in one week, it is evidence of more than casual interest in the subject of mechanical aids to farming. That was the attendance of farmers and dealers at the National Tractor show, held in Kansas City recently. While this exhibition does not show the machines in field operation and lacks the spectacular features of an outdoor demonstration, it is, nevertheless, of vital importance to the tractor buyer, because it enables him, at his leisure, to make a critical examination of the machines and ask a thousand questions, if he so desires.

Seventy makes of tractors, thirty-five lines of power farming implements and two hundred lines of power farming accessories were displayed on 110,000 feet of floor space. It was the largest show of its kind ever held.

Nowadays no one asks the question "Is the farm tractor a success?" The machine has justified itself and if there were no other evidence than the assembling of such a show as this, it would be sufficient answer to point to the display and say: "Would millions of dollars in manufacturing capital be tied up in such machinery if the future of the industry were uncertain?"

We are experiencing a repetition of automobile development. Though not quite so universal as the auto, the farm tractor has become established and the industry is due for a rapid growth in the next ten years. The tractor has exploded an old theory held by many that the farmer is slow to take advantage of modern improvements. He is keen for the tractor, and when he is not an immediate prospect it is because he lacks prosperity and can't buy, or he has a farm which, owing to peculiar topographic or other conditions, keeps him tied down to horses.

Reports from the show indicate that many sales were made, but that some buyers were inclined to hold back because of a feeling that tractor prices might come down. This was dispelled by explanations of the manufacturers who declared that the material and labor going into this season's output had been paid for at war rates and that it was useless to expect any lower prices, this year at least. The farmers who bought saw the point, many of them being wheat growers, who are guaranteed a price on their 1919 crop, and are putting in a large acreage of spring wheat.

A feature of the show that was popular with the farmers was that of marking the cost of the machines on them in plain figures. Under this system a farmer found it easier to concentrate his attention on the makes that appealed to his purse. Another thing that impressed the beholder was that changes made during the year in tractors were mostly of the practical order; no frills. The war has brought this sane result in the manufacture of all implements, encouraging a standardization of parts and sizes that is for the benefit of both the maker and the user.

Because of the unqualified success of the show a permanent building is now planned for it, this to contain not less than 300,000 feet of floor space.

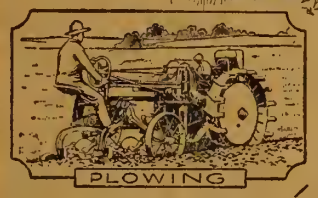
Western Farm Life: Enclosed you will find $1.00 for two years' subscription to your fine farm paper. We take general farm papers, but count Western Farm Life one of the best. It always has so much home news in it.—Mrs. Fred Lohry.

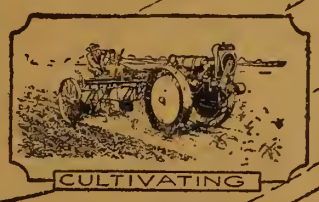
One Man Harvests 40 Acres a Day with this Outfit

MOLINE UNIVERSAL TRACTOR

and the new

Moline 10 Foot Grain Binder





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Moline-Universal Tractors
Stephens Salient Six Automobiles

This new Moline 10-ft. tractor binder attached to a Moline-Universal Tractor running 3½ miles per hour, with one man in control of both tractor and binder, will cut 40 acres of grain in a ten-hour day. This is more than 2 men and 8 horses with two 8-ft. binders can do; and more than 3 men with any other tractor pulling two 8-ft. binders can do.

Considering the amount of work it will do, and the saving in expense, the Moline 10-ft. binder is the lowest priced binder ever made, and it will last twice as long as any other. But of greater importance is the fact that you can now harvest your grain when it is ready in half the time you ever did before—this may save you the price of the entire outfit any rainy season.

The Moline 10-ft. Binder is made to work with the Moline-Universal Tractor. One man controls both tractor and binder from the seat of the binder. The entire outfit is easily and quickly backed to turn square comers so that a full width of cut can always be maintained. The new Moline Binder is constructed heavier throughout and has much greater capacity than any horse drawn binder.

Equipped With Hyatt Roller Bearings

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Western Farm Life

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Why Keep Your Copies?

Are you keeping your copies of Western Farm Life? If not, you are losing the benefit of a lot of good advice and suggestions that may be of value to you later. Start with the issue of January 1, 1919. If you have mislaid any of the copies so far issued, write us and we will send you the missing numbers free, providing you write soon. We expect to publish every six months an index number, containing a list of all headed articles, by title, that appeared during the previous six months. Thus readers will be able to look up any article which they once read and to which they wish to refer again.

Every issue of the magazine contains information directly bearing on some phase of farm practice in this territory; some idea that you may wish to make use of, if not this season, perhaps next. You may wish to treat your seed grain for smut or your potatoes for scab. One of your cows may be troubled with caked udder. Perhaps you want to know what Parsons has to say on the use of the lister, or what Morton's advice is on preventing pig eating by sows; or what Glover says about hog cholera prevention; or Miss Douglass on water in the house; Vaplon on some poultry problem; or Dr. Cooke on sweet clover; or Robbins on weed eradication—or a hundred other things that have been handled in these columns lately. If you keep your copies it will be easy to look up these articles with the aid of the index, but the index to be published later will not help you if you do not begin now to lay aside each copy of the magazine after it has been read.

Western Farm Life is not padded with clipped items or fillers, but is a carefully prepared and edited farm magazine with a definite purpose—that of helping farmers in Colorado, Wyoming, Idaho, Utah and New Mexico solve their problems of crop and animal production and marketing. The items appearing under the Service Bureau heading alone are worth preserving, for in that column readers will find, from time to time, answers to questions covering every phase of farm life, veterinary and legal included. Only the important questions and answers are published, consequently the selection of information is that having the widest general application.

Any reader doubting the value of the magazine should begin with the cover page and carefully analyze each item in the present or any other issue, and then answer for himself the question: is it worth laying aside for future reference? The only answer to that question is the test we suggest. It is not what WE say about the magazine, but what YOU find in it that tells the story. Start now to keep a file which will be handy for reference.

The North Carolina Plan

Those who read the editorial in the last issue entitled "Personal Loans for Farmers" will recall that mention was made of the North Carolina plan of credit unions, organized to meet the needs of farmers for short-term loans at reasonable rates of interest, for productive purposes. We are able in the present number to give some detailed information regarding the plan followed in North Carolina, where seventeen such unions are in operation. The article by Mr. Dacy, of the United States Department of Agriculture, is necessarily brief, but enough detail is given to enable groups of farmers interested in the plan to pursue a further investigation of the subject.

To such groups, if in this state, we would say, get in touch with the Colorado Office of Markets, writing to Mr. Stuart L. Sweet, Field Agent in Marketing, Denver. Or, in other mountain states, take the matter up directly with Charles J. Brand, Chief of the Office of Markets, U. S. Department of Agriculture, Washington, D. C. The Rural Organization division of that bureau is making a special study of rural financing plans, and interested farmers will be given all the information available. There are thousands on our western farms who feel the lack of capital for immediate farm expansion—purchase of implements, seeds dairy cows, silo building and the like. If these farmers can get together in groups similar to the National Farm Loan associations, and with the help of country banks acting as depositories of their savings and furnishing sums for loans on the joint security of the group, a great need will be met.

There are many homesteaders who have not proved up on their land, and who are therefore not eligible to a federal mortgage loan, others whose needs do not justify a land mortgage; still others who may be borrowers on the thirty-six year plan under the Federal Land bank and who need short-term money for seasonal needs.

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Bean Embargo Is Suggested

It is not likely that any one outside of the Grain Corporation knows what the future demands are going to be from Europe, and to what extent these purchases will be made from the Orient or this country, nor the prices that they will pay. The mere anticipation of such purchases may have the effect of holding up the Oriental market. If, however, conditions undergo a radical change, and we do learn that Europe has a sufficient amount of beans to last her for several months, the Oriental market will, in all probability become panicky. This would have a disastrous effect upon the local producers, particularly in California.

The probabilities are that many of the operators are due to get a bumping, the reasons for which, we may eventually learn, are due to their inflated imaginations as to the actual European demands. If Europe is starving, and she is due to eat beans in sufficient quantity to offset the world overproduction, well and good. Should the contrary be true and the administration today knows this to be a fact, the only alternative that would in a measure have local growers would be to immediately put an embargo on all imported beans. Just recently the embargo was again put on rice. Why not on beans, if it will be to the protection of our local growers and such that will stabilize the market?—The Bean Bag.

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This Man Reads the Paper

Dear Mr. Steinel:

I received the March 1st number of the Western Farm Life last evening, and want you to know that I enjoyed it better than ever before, and that's saying a great deal, for I have read and kept every copy since it started, and I read and enjoyed the Ranch and Range years before. Your article on Minnesota No. 13 corn and Dr. Cooke's article on sweet clover are of special interest to me. Then the reports of the different Farm Bureaus and county farm agents are helpful. I am glad to see that the most of the agricultural counties of the state now have farm agents, for they are doing great work. The article on "Suggestions for Books for a Rural Library" is good. I have a number of these books and have read others and I have marked a number which I will get. There are several articles written by men, telling of their success in different lines of farm work, and it seems to me that such articles are especially helpful in a farm paper. Lastly, I wish to mention the article by C. H. Hinman on shorthorns. Our farmers need a strain of cattle that will produce both milk and beef, and Mr. Hinman's article sounds very logical to me.—W. M. Tarr, Akron, Colorado.

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On Farmers' Organizations

Editor Western Farm Life:

There are three farmers of us here at another farmer's house, and we have just been looking over some of his copies of Western Farm Life, and I want to say we are all agreed on many of the articles, etc. That is sure a dandy article by Mr. Ammons on training in citizenship. That's the kind of dope to hand out on all sides, and then the red flaggers and "I won't workers" thing we are all interested in was that letter on farmers organizing by a farmer, in February first issue; and I want to say that all four of we farmers believe in farmers' organizations, if they are the right kind, but we don't want any mixing in a farmer organization that ties up with organized labor and its paid lawyers and near anarchistic agitators. There is a so-called farmers' paper sent out from Denver that is a disgrace to self-respecting farmers. If the farmers can't find someone to speak for them other than some of those wild-eyed agitators, they better do their own talking or else cut out the organization, and lots of other of my neighbors feel the same way about it. Show us a real clean farmer organization and we are for it strong, but we don't believe in class agitation or stirring up class hatred; and that's what some of those outfits are trying to do. We all believe in the doctrine of America for Americans and a live and let live policy, and that is just what the results will be from the training in citizenship which Mr. Ammons advocates. Success to Western Farm Life. Signed: FOUR OTHER FARMERS.

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Effect of Artillery Training

(By Dr. Chas. A. Lory, President of the Agricultural College)

We are very fortunate in obtaining an artillery training unit at the Agricultural College because it will enable us to better correlate the work in military training with the other branches of instruction, thereby strengthening the technical lines.

The Agricultural College is required to give military training; the original Morrill act establishing land grant institutions specifically provided for this. Since the college must give military training it has chosen an artillery training unit because this type of training lends itself to correlation with the technical lines much better than infantry training, such as we have always had heretofore.

Under the old system the benefits to the student were confined to opportunity for developing qualities of leadership, a knowledge of the value of discipline, improved physical condition, and a preparation for service to his country in time of war. Now, in addition to these advantages, much of the time spent by a student in military training will prove of benefit to him in his technical studies.

Excellent opportunities for practical work will be provided for veterinary students in the stables of the unit, which will contain 94 horses; the agricultural student will learn many things useful to him on the farm in handling the horses, the tractors, and the trucks which will be part of the equipment; and the engineering student could not have a better piece of mechanism designed for his study and practical use than the guns of the unit with their complicated and delicately adjusted parts. Because of these advantages, none of which were available to the student while taking infantry training, the work at the Agricultural College will undoubtedly prove still more attractive to the young men of Colorado.

Opportunities for leadership and experience in organization, two things especially valuable to agricultural college graduates, will be even greater now than heretofore.

The Branding Iron

Applied by Elias M. Ammons

One of the Denver boys with the army in Siberia writes home:

"I took a girl to a movie show the other day that cost me a ruble and a half, that's equal to about sixteen cents at the present rate of exchange. We have no ice cream parlors nor anything like it, so we went home and ate pumpkin seeds to pass the time away. SOME LIFE!"

Pumpkin seed would suggest pie, but inasmuch as the luxury is not mentioned, it is probable that the pumpkin seed grew on a sunflower. Whether they are pumpkin or sunflower seeds, it would be interesting to know if the people parch and eat them as did the pioneers with corn in the old days in this country, or whether they put them in chocolate drops like peach seeds now are, and sold for chocolate almonds.

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While there is less than the usual amount of snow on the high ranges, especially in Northern Colorado, the ground in the lower altitudes is well supplied with moisture. Fall wheat promises better than an average crop, and the outlook for agriculture is bright.

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The supporters of the bill in the Colorado legislature to meet the requirements of the Lane soldiers' settlement bill should not relax their efforts because congress failed, on account of the filibuster, to pass the federal law. There was really no opposition to the congressional bill, and the act will doubtless become a law at the extra session to be called in June. If our legislature should fail to act now, nothing could be done until 1921, and Colorado would be placed at a great disadvantage. The states which do meet the requirements of the Lane plan are pretty certain to reap material benefits from new settlement.

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The sugar beet acreage on the Western slope will be increased at least one-third the coming season.

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The passing of Senator Barnette T. Napier will cause a feeling of deep regret in every circle in which he was known. He has not only been a sterling citizen of the state and a wise legislator, but he has ever been an able, consistent supporter of measures beneficial to the stockman and farmer.

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Out of 796 men demobilized at Fort Logan 712 had positions awaiting them. Up to March 15th, only 117 returned soldiers had listed their names with the federal employment agency in Denver and 90 of them have been furnished work of one kind or another. Places were found for a few others who could not be located and who had probably been supplied with employment through other sources. In this connection it is interesting to note that figures compiled in Washington indicate that the number of idle men in the country is but seventy per cent of the normal.

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The following from former Governor Alva Adams, anent an editorial on "The Curl in the Pig's Tail," fully, logically, unequivocally, scientifically and finally explains why a pig's tail curls:

"Dear Governor Ammons: In Western Farm Life of February 1st you devote an editorial to 'The Curl in a Pig's Tail.' Why does it curl? Last summer I visited a ranch down the river. The owner called my attention to a fine litter of young pigs. They were beauties, but all tailless. In speaking about the abbreviation the proud farmer said that he and the hired man had bit off the tails three days before. When I asked him why the tails were bit off he replied that it was done because his father and his father's father always bit off the tails when the pigs were four days old. As they were successful in raising hogs he had always followed their example. If there is such a thing as logic, the like sort of reasoning would make it capitous and hypercritical to deny the argument that a pig's tail curls because the tail of his father and generations of ancestors curled.—Alva Adams."

Comment by Farmer Putnam

OUR MISSOURI FRIEND HAS A GOOD TIME AT THE DAIRY SHOWS

SINCE that thar dry law was passed here in Colorado dairy shows is gittin' to be the popular thing. Them college people back in Illinoy has got out a big poster picter with a Holstein cow on it headed: "The Foster Mother of the World." I reckon the dairy cow is gittin' her just dues when she's called that. I kin think back a few years when people wasn't so fond of milk and grown men was kind of ashamed to be seen drinkin' it. If we'd had to make up a poster in them thar wet days showin' "The Foster Mother of the World" I'm mighty afeared it would-a been a picter of a brewery instead of a cow.

The cow is comin' into her own ag'in. Why do I say "ag'in?" Because she must-a been considered a important part of life in them old bible times. You-all probably remember readin' about them Children of Isreal makin' theirselves a golden caff to worship? Well, I reckon it was a dairy caff—and it wasn't a Holstein either. Must-a been a Jersey, because the Scriptures is clear on the point of color—golden.

They say hist'ry repeats herself and I reckon that's true, because you kin go up in the Johnstown district and see them farmers just a-worshippin' their heifers. They're golden calves, too—that is, they bring in the gold from the condensery, which is payin' out about $500 a day to the farmers fur milk. I was up to the show ag'in and also the show in Boulder, where they had some good cows. I liked both shows but I got somethin' to remind the farmers of.

Boys, you got good cows, mighty good cows, but how about the sires of them herds? Ain't you-all furgittin' that it takes a good daddy fur every producin' heifer that goes into the milk game? I know all about the cow that brings the money, the cow that's makin' from 8,000 to 17,000 lbs. of milk a year fur you, but when that cow dies or reduces her production, have you got another one to take her place? I seen a few good bulls, but folks it just strikes me—and I'm more of a beef man than a dairy farmer—that you could put a little more money and interest in the bull judgin' and encourage better average sires then I seen either in Boulder or Johnstown.

I ain't a sayin' that every farmer should be in the breedin' business. Only a few kin do the breedin', but every herd owner has to see to it that the good blood he's bought in them cows is continued in the herd. I want to see Johnstown famous fur dairy blood lines as well as milk production and cows alone cain't do it.

I was on probation fur the Johnstown trip. Mr. Liebers took me along in his car. but I had to sign a agreement before leavin' to write nuthin' that would cause anybody to suspect nuthin'. I hain't goin' into no details exceptin' to say that last fall, durin' the flue scare. I was a invited guest of Mr Liebers, etc., fur a business trip to Cheyenne and my remarks on that trip was misconscrewed by some fellers that cain't think of Cheyenne without thinkin' of booze, so feelin' that maybe Mr. L. will want my company ag'in on some other trips, because I kin do him a lot of good, I'm not agoin' to say nuthin' that'll make him undignified. Fur this reason I reckon it won't be necessary fur me to mention the names of the other fellers in the car with us, which Liebers took along fur business reasons. Business before pleasure, you know.

Well, when we got to Johnstown who should we see first but Mr. Letford, the banker, and Gilbert Landell, manager of the condensery. They was standin' at the town gate with the latchstring in their hands welcomin' visitors. Inside of the tent was Prof. Morton judgin' the cattle and Editor McDermott puttin' down the awards. Mc is one of the best country editors I ever seen. He ain't ashamed to have farm news in his paper and the farmers all appreciates it. No country home in the Johnstown district is complete without a Bible and the Johnstown Breeze, one offsettin' the other.

I was purty busy shakin' hands with my old friends, Fred Lohry, Mr. Whowell, Roy Curtis, Prof. Bray, H. D. Parker and A. M. McClenahan from Greeley. County Agent Mason Knapp and lots of others. Carl Hall was up from Denver lookin' after the interests of the Holstein breed. He is in the legislater now, but it's his first offense and he's behavin' to the benefit of the dairy and farmin' industry generally. I'd like to see a feller like him be governor of this state—not that I got it in fur him—but really and truly if he was in the chair the price of butterfat would stay up about where it had ought to be to keep farmers in the dairy business. I ain't in favor of price fixin' as a general thing, but I don't find no objection among dairy farmers to fixin' the price of butterfat, providin' it is fixed high enough and feed is kept down.

I'm in favor of makin' the cow the foster mother of the world, if I kin do some of the milkin'. Up in the Johnstown district the cow is doin' more then the farmers figgered on when they first went in the business. She's not only doin' her part in supplyin' tinned milk fur them hungry people in Europe but she's makin' the Johnstown soil more fertile. She eats the beet tops, the corn silage and the alfalfa, is bedded on the straw from the wheat crop and gives the farmers a cash income every day in the year while enrichin' his $300 land by the manure. Yes, it's a lot of work to have to milk cows, but the cow does the work—all you got to do is to put the feed in and take the milk out. She does the rest.

THOMAS JEFFERSON PUTNAM.

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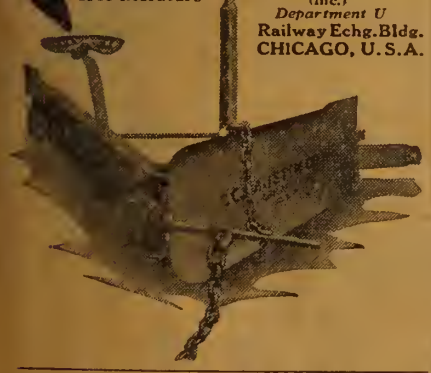

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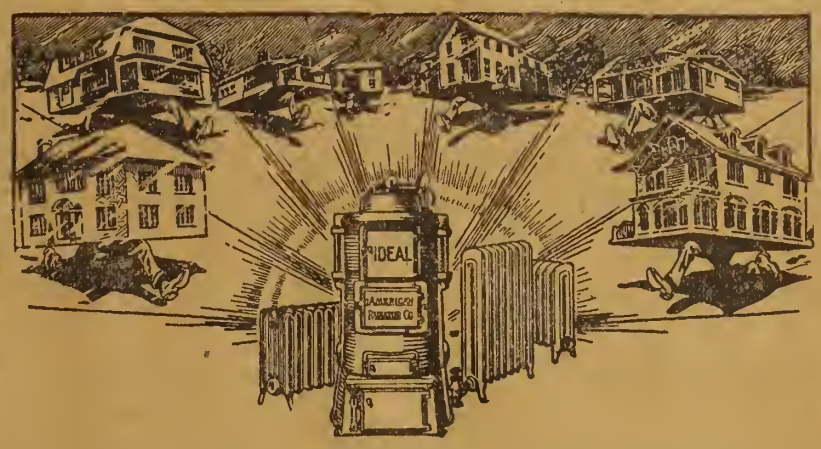

Every farm home has the right to be comfortable and clean. The need for comfort on the farm is really greater than in the city for the physical work is harder and the exposure is more severe. The young men returning from demobilized armies will look for modern heating comforts in the farm home. They will be disappointed if they are not there and they will be more anxious to stay on the farm if they are there.

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Fence On His Homestead

Answer to G. D. S., Saguache county, Colorado.

In answer to your question regarding fence which cuts across the center of your homestead: The fence belongs to the party who put it up, and he has a right to remove it along with other improvements that may be on the place. If he does not remove it, it can be moved back to the line in case the line is not fenced, and used as a part of the division fence.

About Building Pit Silo

Answer to G. K., La Plata county.

Answering your question about building a pit silo by walling it up with brick and covering with cement plaster. Yes, you can build a pit silo that way, if the brick wall is made perfectly round and the inner coating of cement plaster is put on so that it is quite smooth. If projections are left in the wall, there will be spoiled silage for every air space. The customary way is to apply the cement plaster directly to the dirt, without walling up. Usually, where the water table is shallow and ground water interferes with digging, it is best not to try to build a pit silo, but to put an above ground silo. It is highly important to keep the silo impervious to moisture from the outside.

Must Join In Deed

Answers to C. L., Las Animas county.

Wife has no community interest in property in Colorado. If wife has homestead, then both husband and wife must join in the deed, otherwise the man can give the deed. What the wife might or could do on an alimony proceeding in this case has not been demonstrated. The wife might get an alimony order. That matter could be discussed when she does it.—Hamlet J. Barry, Attorney, 724 Equitable building, Denver.

Should have Been Plowed

Answer to A. T. H., Morgan county, Colorado.

Land that was disked in the fall would not raise much of a crop of anything by disking it again in the spring. It ought to have been plowed about ten inches last fall and disked again in the spring, and in a good season, on fair soil, should raise from 20 to 35 bushels. I should plow the land deep this spring, summer fallow it, and plant it to winter wheat in August. That is your best chance. It could be plowed now and planted to spring wheat, but the odds are all against a good crop, unless there is a plentiful supply of moisture in the ground, which you can find out by digging or boring with a soil auger. If you have from two to three feet of moist soil before coming to the dry, the chances of a crop are good. —E. R. Parsons.

Break the Ground Early

Answer to J. M., Larimer county, Colo.

Your ideas on dry farm plowing are certainly correct and you cannot fail if you follow them out. While sod land for winter wheat is often broken as late as May or June, it is even better, as you suggest, to break it early while the ground is still wet from the winter snows, and it will have some time to accumulate moisture. I would have it plowed as deeply as possible. Try and have it broken not less than eight inches, then rolled level and disked and harrowed alternately. The rolling may be dispensd with if you can disk it without, for the field will have lots of time to compact and settle. The only thing is the rolling makes it more level and easy for the man on the disk. During the summer the land will have to be worked to free it from weeds, and this must be enough to reduce the surface to a fine tilth for planting. Don't be afraid to plant in August. Turkey red is still my choice for winter wheat.—E. R. Parsons.

Question of Signature On Note

A and B are man and wife. A signs a note for C without telling B anything about it. Can B lose on that note?—M. N., Colo.

B does not lose on the note, unless she has signed it with A.—Hamlet J. Barry, attorney, 724 Equitable building, Denver.

Treatment for Potato Scab

Answer to A. K., Douglas county, Colorado:

Corrosive sublimate treatment for potato scab is applied as follows: Mix the solution by using 4 ounces of corrosive sublimate to 30 gallons of water. Make it up in a 50-gallon barrel, using water as directed, about 30 gallons, and then dip the potatoes into the solution in gunny sacks, letting them soak about an hour and a half, after which the seed may be cut and planted. Do not feed treated seed to stock, as the poison is very deadly.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Sunburn of White Hogs

Answer to R. S., La Plata county:

White pigs having no pigment in their hair or skin are subject to sunburn, and nothing that can be appropriately used will prevent it. For this reason white hogs are especially objectionable in Colorado, where the sun shines brightly. It might be well to consider a black breed of hogs and in the meantime use on their sore backs, one part of carbolic acid to fifty of raw linseed oil.—G. H. G.

Cow Bothered With Grubs

My Jersey cow that I bought not long ago has twelve grubs in her back. How can I rid her of these? I tried to slit the holes to a size where I could press them out, but she would not stand still. If in the future I can keep these pests out of her back she should become a better producer.—A. S., Pueblo county.

The "grubs" in the back are not at all necessary to the cow, but the cow is quite necessary to these particular parasites. They really do very little harm further than the damage they do to the hide in making leather. It will be well to squeeze them out, for every one destroyed means one less gadfly to pester the cows next summer. It is usually not necessary to enlarge the opening to get them out, but if so, the cow can be easily restrained. —G. H. G.

Examination Is Recommended

What is the matter with my cow? She has lumps or enlarged glands on the sides of the neck and on soft places in front of hip bones. Her mother had them. They vary in shape, some oblong and others round. I have noticed them in a great many cows in this part of the country. The two cows that I refer to have had tuberculin test and proved negative. Have had them examined by one veterinarian and have talked with another about it and have received no satisfactory answer. I would like to know what it is and if it affects the milk and butter.—F. W. M., Weld county.

The location of the tumors indicates that they are not enlarged lymph glands, neither would we expect to find warbles encysted on the side of the neck. The tuberculin test presumably eliminates tuberculosis of the skin. A small piece of one of the tumors might be sent to the veterinary laboratories at Fort Collins, in ten per cent formalin solution, for diagnosis. Possibly a physical examination of the cow might reveal the nature of the disease, otherwise we are now unable to make a positive statement.

—G. H. G.

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Many of our readers are aware of the great damage done by the foot and face disease—sometimes referred to as prairie sod disease—among poultry. For the last eight years the Agricultural college has been doing more or less investigational work, and much field work has been done in the effort to find a cause and a remedy for this trouble. This department is in receipt of a letter from Mrs. Augusta Schlapfer of Cousin Springs, Pueblo county, Colorado, which is published herewith. You people who are familiar with the Holy Scriptures will recall the story of the king who came to the prophet to be healed of leprosy. Because the remedy was so very simple, the king got sore and wanted to go back home without taking the prophet's advice. He was finally prevailed upon to do so, however, and he was cured. Perhaps the simple suggestions made in the letter from the Pueblo county woman will do more than our investigations to stop this trouble. I wish many of our readers might give it a trial and let us know the results.—W. E. V.

Poultry Dept., Western Farm Life:

I am glad the Experiment Station is working on this foot disease in chickens. I have wrangled with it for five years. In the outskirts of Pueblo we raised hundreds of chickens and never had a case of it. In the foothills on a homestead where we now live we have it every year. The first year it made its appearance in a flock of fine fat market size Rhode Island Reds; cockerels and pullets. A friend happening along advised me to use 2-3 coal oil and 1-3 raw linseed oil as a foot-dip, which we did immediately, with the result that every chicken was saved. Most of the flock went on thriving and growing as though nothing had happened. The few where the skin between their toes had broken and were festering before I could get back from town with the dip, were quite a while in recovering.

Their feet seemed to hurt them so they were content to sit around most of the time without making an effort to get feed or water, and as a consequence got thin. Since then we could not raise chickens without the dipping vat. My chickens are always profitable, but at the expense of much work. Both as a measure of prevention and cure we begin to dip the chicks at two or three days old, and thereafter every seven days until they are two months old.

If dipped in this way they grow unhindered and can be raised without the loss of one from this terrible foot and face disease. If I can be of any help to clear up the mystery of the cause and prevention of this disease that takes so much of the poultryman's time, I will be glad to do so, or in case something has been discovered, I should be glad to hear it.—MRS. A. SCHLAPFER, Cousin Springs, Colorado.

Starting with Poultry

Answer to W. D. S.

I have always felt that any one going into the poultry business expecting to build a large commercial plant should lay out his plans, very carefully arranging building, yards, etc., for the entire plant. It has always seemed to me a mistake to put a building in the place that seems to be the most desirable at the present time, without regard to future plans. Believing this, as I do, it is the more difficult to advise you, inasmuch as you probably will not be able to expand to any great extent under your circumstances. For many years I was very closely wedded to the small yard idea, but for the past eight or ten years I have been getting away from that and find that the majority of old-time breeders are of like mind. You spoke of selling eggs for hatching and breeding stock, and perhaps you will feel it necessary to keep separate pens, but even so I think you will eventually get the larger flock in a pen furnishing larger yards and less divisions. I would suggest, then, that you start at one corner of your space, building such a house as can be extended indefinitely, the house to reach eventually across the lot. Whether or not you use the entire length of the lot for yards is immaterial, as the amount of space is not so essential as is the providing of sanitary conditions and exercise. This can often be done in a small space, but requires much more time and effort. If this long house does not appeal to you, a plan similar to the one I am outlining might be preferable. I am a little inclined to prefer the colony house to the continuous house myself. The number of fowls kept on this space will depend entirely upon the ability to furnish proper sanitary conditions and exercise. I think if you begin on a comparatively small scale, you will very easily realize when you have reached the limit.

A Boy's Poultry Story

I am 13 years old and I belong to the Boys' and Girls' Club organized in our public school. Each member of the club was supposed to sign up to raise something during the season, and as I am very much interested in poultry I chose that.

In the year 1917 I raised 16 of the finest Barred Plymouth Rock pullets on the market. I sent them to the Denver Stock Show and they all brought back first premiums.

In the spring of 1918 I set their eggs and then begun to take orders for them and soon realized a profit from them. I advertised my stock in the Western Farm Life, a farm paper published in Denver, and from that advertisement received orders from nine different states. They proved so satisfactory that I sold $136 worth of baby chicks that season.

During that summer my agriculture instructor came out to see how I was progressing, and I had the privilege of showing him 400 of the finest stock of Plymouth Rock chickens that could be found.

I wanted to use my chicken money ($136) to a greater advantage and to bring me some more income, so I purchased a fine cow for $80 and used the remainder to buy more chicken feed.

To this date I have orders for cockerels and pullets amounting to $950 and I have 150 fine hens left. Out of the proceeds from these chickens I have bought six cows and calves.

All of the above work was accomplished on a small tract of land just a short distance from Fort Morgan, Colorado, and all I started with was sixteen of the finest Plymouth Rock pullets on the market.—Harold Anderson, Fort Morgan, Colo.

The Grange

Offices 1616 Arapahoe St., Denver
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Vital issues were discussed at the annual session of the Colorado State Grange, held at Denver early in March. The meeting was well attended, delegates being present from all parts of the state, representing over 200 local Granges. That the Grange is actively interested in the betterment of farming conditions not only for its members, but for the farmers generally, is evidenced by the active interest taken in reference to the pinto bean crop. The Grange adopted a resolution urging upon the government the absorption of the big surplus of pinto beans still in the hands of Colorado farmers. This can be done under the appropriation voted by Congress to relieve hunger conditions in portions of war devastated Europe. The National Grange now has a representative at Washington who will bring this matter to the attention of the United States Food Administration.

Another important matter was the adoption of a resolution favoring con-

(Turn to Page 22)

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CHAPTER XIII.

THE DEVIL'S HALF.

"So you've found her, have you, Jonathan?"

Caleb Moore's voice was lively with interest. Juliet stood beside the porch railing, absorbed in the report that Randolph had brought from the corn-field below, where he was sounding for the Morning Star.

"Her boilers," Randolph returned, "and not her barrels, as Captain Gregg expected all along. He seems to take it as a personal loss; he went home this evening the most complete picture of a disappointed man that I am able to conceive——but one. I told him from the first the barrels had rotted years ago and their contents drunk by the sand."

"But that doesn't mean that the—the other—has leaked out and been lost in the quicksand." Juliet said quickly, as if hastening to sustain his courage and shore up his hope.

"Not at all, Miss Moore," the treasure-hunter said, catching her purpose as he would have snatched at a rare flower tossed to him from a balcony, and giving her his appreciation in one of his hard-coming and quick-going smiles.

"Well, that was to be expected, certainly," said Moore, gazing off in his old, mist-exploring way, "and no loss at that."

"We struck a cavity fifteen feet below the surface which Gregg believed to be a cabin that had only partly filled with earth, and about twenty-seven feet below that we reached the boilers. I think the old man must have put down five or six holes since we hit the iron about eleven o'clock this morning, he was so determined to find a barrel."

It was evening of the day that Randolph had set up his tent at the place of exploration, according to his intention expressed to Captain Gregg. Randolph had seen his helpers off in the wagon, and had waited only to change his clothes before going to the gray old house on the hillside to report the day's important developments.

Captain Gregg had worked on much later than usual, the important fact of the successful outcome of their search overshadowed by the state of resentful excitement that he had been thrown into by the baffling elusiveness of the whiskey barrels. All day long, since the first unmistakable trace of the wreck had been found, he had buckled himself up and pranced and capered at the highest possible tension. Hope rose fresh in him with the beginning of each new drive of the casing into the soft earth, and sank away to mutterings and small swearings when his pump sucked nothing but air.

"Well, there's barrels, and full ones, too, somewhere down there, and we'll hit 'em if it takes a year," he declared.

But even the desire to find a barrel could not hold him so late at the work that he would be in danger of nightfall coming on as he went home along the river road. He was off with Hugh and Arkansaw a little before sunset, with many backward glances as long as the work was in sight, and what speculations and anticipations Randolph could only guess from the gleam in his eyes.

"So you'll soon begin on sinking your shaft?" Moore inquired.

"Some time tomorrow. We've already sounded across the hull and got her width, and I know about where we are by that. She's buried deep—an average of forty-three feet to her boiler deck."

"Where does she lie?"

"A little nearer inshore, sir, than your and Gregg's estimates placed her; but you were both very close to it—remarkably close to have no marks to guide you."

"And you've moved over to camp on the ground and hold it under your thumb." Moore nodded his approval of this close guard.

"You must be more neighborly after this, too, said Juliet gravely. "You've neglected us since you began work."

"I've begun to make myself neighborly already," he said. "I've come up in the deliberate intention of getting myself invited to supper, knowing that you haven't had yours yet."

"The invitation is a standing one from this time forward," said Moore.

"And we'll hold you accountable, with the severest penalties for any future slights, oversights, or prolonged absences," Juliet warned, pointing her declaration with a finger solemnly leveled at his eyes.

She flashed away from them with that, darting like a humming-bird, and soon her clear, young voice came to them from the house, Rhody's rich undertone replying now and then shortly, like a viol carrying a fragmentary accompaniment. Soon Juliet appeared in the yard, gathering flowers. The old man's face grew soft as he watched her flitting from place to place, here selecting a flower, there lifting one to look at it with tender eyes, as if she raised a bashful child's head to give it assurance and comfort as she passed.

"She's always glad to see you come, Randolph," said he, with a sigh. "Youth calls out in the ways of the world for its kind; it can't be sequestered and bloom. She's always glad to see you come."

"I hope so, sir," Randolph said, feeling his face grow hot, for youth in his own breast was calling to her that moment, and he felt as if the old man had overheard its voice.

'It's wrong in me to keep her here, for her wings are grown now; she wants to try them. I've often considered selling out and going down South with her to the land of her nativity to end her days, but somehow I've never come to it."

"It's hard to pull the feet up from their lifelong ways, they say," Randolph mused. "I don't know; I've always been a wanderer."

"Mine have grown to these old fields and places where they have been inactive so long," said Moore. "Isn't that Joel Langworthy driving up? Yes, it's Joel. He's got a coat on, and that looks like a new hat. He must have sold a calf!"

Joel was approaching from the direction of Gregg's swinging his dusty team out of the road as if he intended to hitch and come in.

"He's a pretty shrewd bargainer, isn't he?" Randolph asked.

"Yes. Joel makes you think he's doing you a great favor when he consents at last to take your scrubby two-year-olds off your hands," the old man smiled.

Joel came up the broad lawn path as Juliet turned from her flower-picking and crossed the grass. At the steps they met. Joel bent himself in lissom grace and poured out his compliments, which sounded very grand and insincere, as pretty speeches which are contrived always fall. Juliet's face grew almost white as the petunias which she carried against her breast, and Randolph was moved with a quick upsurging of indignant surprise to see in her eyes something like that which he had seen come into Mystery Gregg's when Joel came on the afternoon of Hugh's arrival.

Only there was no adoration there, but a widening of the lids, a distention of the pupils, a darkness which spread over them as if moved by wonder or fear. She appeared glad of the excuse the flowers gave her to get away from Langworthy's disconcerting presence, and there was at least one other in the group on the veranda better pleased to see her go than stay.

Joel refused the chair offered by Moore. He perched himself on the porch railing, one foot dangling, on the reason that he must keep an eye on a new horse in his team. It was clear pretense, as Randolph knew, for the horses had no more spirit in them than two potatoes. From that perch Joel at once presented the fair side of his face, and became the most prominent figure in the group, a prominece contrived at in the expectation of Juliet's return, Randolph believed. He wondered whether this fair-foul man had gone so far as to lift his hope to her.

Randolph knew very well why Joel had made that call on his way home.

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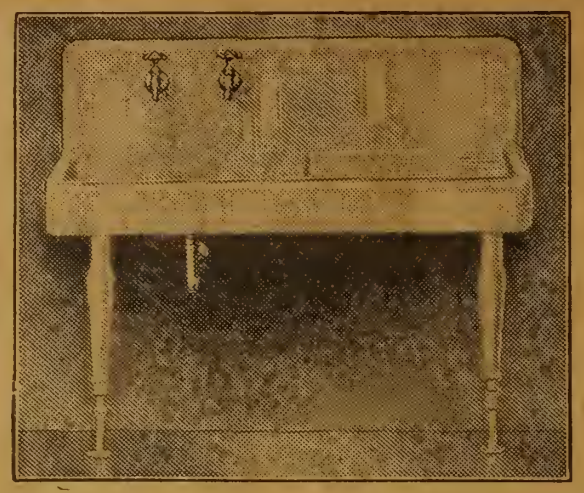

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He had met Gregg and pumped the news out of him. Now he had turned in here to satlsfy his still yawping curiosity.

"Gregg was telling me that you've found the old wreck at last, Mr. Randolph," he said, turning his head a little more than his usual practise when addressing anybody, presenting for a moment his drawn eye and blasted cheek.

"Yes, at last," Randolph replied as graciously as he could in his deepening dislike of Joel.

'Well, it will be interesting to see how you handle that quicksand when you start digging down to her. I suppose you'll begin operations soon?"

"Tomorrow," Randolph nodded, having no more to conceal at this stage of his explorations than he had at the beginning.

"I'll come around and look on—unless you're going to bar visitors?"

"Why bar them?" Randolph asked. At that moment he was thinking of Mystery Gregg, her cold hand, and the fright that spoke from her eyes when she begged him to put down that work and leave.

"They'll be there in the morning as thick as corn in a field," Joel laughed, "and maybe interfere with your operations standing around so close."

"Well, if any of them get covered up, I call on you beforehand to witness that I disclaim any responsibility," Randolph said, grinning a little when he recalled the inactivity and reluctance of his visitors in the past.

Joel drove off home after tender and clinging hand-shakes, and Moore and his guest went into supper. Afterward they returned to the porch to enjoy the cool night breeze. While they waited for Juliet to finish the superintendence of her household and join them, Moore's talk turned back to Joel.

"That boy had a hard beginning, Jonathan," he said—"harder than my own son would have had if he had been obliged to remain here under the handicap of such a father."

"I've heard how you befriended Joel and put his feet on the road."

"I have been repaid a thousandfold by Joel's gratitude and loyalty. He has championed me; he has stood between me and the world, Randolph, many a bitter year."

"It will stand to his credit all his life."

"I don't know, Randolph—it has hurt Joel here and it has hurt him abroad. The Narris is a place of strong and narrow prejudices, strange delusions. There is old Sam Langworthy's delusion, founded on a dream, and there is mine, as men have been pleased to name it. Any man that stands for me seems to go away from me with a taint of my peculiarities clouding his chances in life. If it hadn't been that my son left me when he was a lad, it would have reached out after him. Joel's loyalty to me, his defense of me, has held him down, unquestionably. I am grateful for his many sacrifices, and he shall be repaid—he shall be repaid."

Randolph was speculating on the nature of the reward the old man set aside for Joel when Juliet came to them. With her coming the thought of Joel Langworthy vapored away. They talked, and the moon came up and turned from raw gold to refined silver, and it was not lonely there in any remote degree.

Indeed, the world seemed as full of solace in the presence of Juliet Moore as the fields were full of moonlight. Last night he had thought it must be oppressed with a lonliness there such as to make the heart sick.

Moore spoke little of the return of the boats to the river that night, and then only in connection with Randolph's discovery of the wreck.

"Yesterday's paper stated that the last piece of machinery was to be set to-day in the boat that is to reopen the river to traffic between St. Louis and Kansas City," he announced.

"Which way is the first one coming?" Randolph inquired.

"From St. Louis; it is being remodeled there. It seems strange, too, that you should strike the wreck of the old at the same time that an epoch of the new is marked."

"It does seem a peculiar coincidence."

"It seems more than a coincidence to me as I think of it—your coming just as this new enterprise was dawning, bringing information that illuminates a great deal of the darkness gone before. Now you locate the wreck, and the first boat enters the last stage of completion. It seems more than a coincidence, Jonathan."

Randolph was not troubled by the coincidental happenings which moved Moore so deeply; he did not raise the question whether they boded for him good or ill. Even his suspicions against Moore, his sanity, and innocence in all that remained unexplained, were dim that pleasant night. He was conscious mainly of a regret that the hours were passing so quickly, as hours pass when the warm heart of youth touches its kind and a glow is set up that fuses time like wax in a candle's flame.

When he rose to go, Juliet rose with him and descended the steps at his side, as if from old habit. She walked slowly with him to the gate.

"Will you be lonesome down there by the old store?" she asked.

"Not to-night," he told her, a fulness in his throat, between the fear that he had said too much and the desire to say a great deal more.

"Not to-night? Why, do you expect to be to-morrow night?"

"I hope not,' he replied, too serious to feel absurd.

"Some would be afraid to camp so near the old melancholy place," she said; and he, seeing an opportunity gone, sighed and let it go. "Poor grandpère, he's gloomy to-night—I suppose because your bold invasion of the place has stirred up a flock of old ghosts, like bats."

"Maybe they'll leave him in peace after we drive all of them out of the Narris, Miss Moore."

"I've often wished that lighting would strike the old store, or that somebody would set it on fire and burn it down. It's stood there all the years, and nothing has happened to it; only lies have grown up around it, and a great bitterness that long ago blasted the promise of my grandfather's life."

"Yes; perhaps it would have been a blessing if it had burned long ago," he said.

"I've looked through the dusty, webby windows, between the boards nailed over them, straining and tiptoeing many a time, to see what was inside," said Juliet. "Even when I first came here—I was only a little tad then—I wasn't afraid of the old store like most people around here are. I used to run away from Rhody and play down there for hours—she was afraid to come after me."

"It's a strange place to play," he said, looking at her with a growing tenderness in his eyes. "What did you see in there?"

"Wagons and harness, and farm implements of many kinds, and guns and axes—everything that you could imagine a frontier trader would sell. For this part of Missouri was the frontier fifty years ago, the front door of the West."

"Forty thousand dollars, father told me, was the value of that stock the day the river left the Narris."

"He couldn't realize a thousand on it now."

They were standing at the gate. The road that he must take to his camp lay ahead of him through the corn-field, over which the moonlight was pouring, softening the crudities of the landscape like snow. There was nothing that spoke of mystery or loneliness under that soft light; the old tragedies, the old fears, the old dark blotches of the Narris, sank into the invisible shadows. Only romance lifted its head for the benediction of that moonshine.

"If they hadn't laughed at him and called him crazy, it would have had a different ending, Mr. Randolph," she said sadly. "He was proud and independent, and counted himself a rich man in those days. Foolish, for a man like grandpère."

Randolph's hand was on the gate; he knew that it was high time for him to be gone.

"Joel Longworthy left the gate unlatched behind him," said he.

"Isn't he the strangest man?" she said, something undefined in her voice—half wonder, it seemed, and something of a reluctance to speak to him.

"I thought—" Randolph checked himself, as if his tongue had started to betray him.

"You thought, Mr. Randolph?"

"That you were afraid of Joel Langworthy, Miss Moore."

a little of her grandfather's way of thoughtful hesitation in her manner. "I think it is rather a reluctance, undefined but growing, to meet him or hear him speak. It's foolish, I guess—I used to like Joel."

"Your grandfather has a high opinion of him."

"Yes. You've heard that he's a sort of protégé of grandpère?"

"I've heard."

"But I tell you, Mr. Randolph," seriously, with a grave shake of her wise head, "I don't believe he's honest with grandpère."

"I hardly know what to make of him, frankly, Miss Moore. I never have seen a man like him; I never had such a shock as he gave me when he turned the scarred side of his face toward me the first time I met him over at Gregg's."

"I used to imagine all kinds of things about Joel when I was little," she laughed, "but mainly that he was some kind of a fairy or a man half under enchantment. I used to mix up things to sprinkle on him and restore him to his right form."

"If I had the prescription I'd hesitate to use it," he said, "for if both sides of his face were fair alike he'd go breaking all the ladies' hearts for fifty miles around."

"I'd think a long time before translating him, too," she told him in deep seriousness. "Rhody says half of him

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We make the cash market for your poultry, butter, and eggs more steady.

We broaden the outlet for your goods, because our organization reaches every important consuming center in the country.

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belongs to the" — whispering — "the — devil! I'd be afraid he might turn out all bad."

"I asked Hugh Atchison his opinion of Joel not long ago, and I was impressed by his answer. It was that a man seldom is like the face that he habitually turns toward the world."

"I am afraid that is doubly true of Joel," she said. She was silent a little while, her hand on the gate near his own. "You know he wants to marry me?"

"No, I didn't know it!" said he, rather explosively, indignation in his tone.

"Oh, yes," she sighed; "everybody knows that — everywhere. I thought they surely had told you."

Randolph was thinking of Moore's declaration that Joel should have his reward for his fidelity and defense of his patron before the disparaging world. Could Juliet be the precious pawn on the board between them, urged by one, grasped for by the other? It did not seem within the just and high character of Caleb Moore to contemplate such a sacrifice. At the risk of her resentment, he asked:

"Has your grandfather coerced you in the matter?"

"No, not by even a word. He told Joel long ago that the lists were open, and that I was mistress of my own favors."

"Then why don't you send him about his business? Surely—"

"Oh, I have sent him away, but he always comes back. There is so little competition here, you see, Mr. Randolph, that Joel always seems to think I'll take him out of necessity in the end."

She laughed over it, but it was nothing better than a nervous little counterfeit which would not pass current even in the moonlight. In a moment she was grave again.

"It's not an enviable position," she declared; "everybody knowing that somebody wants to marry you and will not take no for his answer!"

"I should imagine not," said he, so muffled in a cloud of his own thoughts and plans that he was scarcely conscious of his surroundings. He had it dimly in mind to tell her that competition would be riskier from that hour, but feared that he might make it sound frivolous and insincere.

Juliet was like a sick one unbosoming herself to a physician whose coming has been delayed.

"He used to follow me around and pick up things I'd drop," she said. "Nobody likes to be followed around and have things handed back. It's too much like calling attention to one's faults insinuatingly, meanly, don't you think?"

"Well, I don't know," he returned slowly, his hard smile breaking; "I've never been followed around that way."

"Joel used to sigh so much, too, and kind of droop around."

"I suppose he grew meek and suppliant in his moments of proposal?" he suggested. Danger of Joel being past—for danger of a man in a woman's affections is over when she can joke about his wooing—Randolph was beginning to feel a lightness about him like the deceit of wine.

"Oh, he was just too limp," she laughed —"as meek as a kicked dog."

"If he'd have stood up more like a man, and ignored the handkerchiefs and spools and things you dropped, maybe you'd have liked him better."

"Maybe," she nodded. She lifted her hand as if to touch his arm, her face turned ti him, white and appealing in the mottled moonlight. "But it isn't a joke, Mr. Randolph; seriously, it is far from being a joke. Mr. Langworthy has changed; he isn't suppliant any longer. You're not a stranger—I don't feel that you are a stranger—so I can talk to you about it, can't I, Mr. Randolph?"

"Surely. If the scoundrel—"

"Oh, no, he doesn't—he never says a word about it any more! But there is something in his face that turns me cold—I seem to be afraid he's going to —going to—whisper to me!"

"That's because you've heard those tales about his so-called gift, foolish and im—"

"Gift?" she repeated, puzzled and surprised. "What gift?"

"Oh, you must have heard—about taming horses and that kind of stuff? Arkansaw told me about it the second day I was here. He thinks it's capital going to waste."

"I never heard of it," she said slowly, wonderingly. "You say he can tame horses?"

"By whispering, they say. I shouldn't have spoken of it, only I thought you must have heard long ago. It's an old superstition, and as well founded as the rest. Arkansaw calls it the 'whispering gift'—I suppose that's the name for it."

"The — whis-pering — gift," she said slowly, as if she had found a wonder in the sound.

"It isn't worth thinking of," he said, out of humor with himself for speaking of it, seeing that it had thrown her into such a somber train of thought.

"I didn't know," she said, still in that slow, speculative way; "I never heard—only Rhody says he can call the dead up out of their graves. But that's foolish—you know how negroes talk."

"He can do that just as easily as he can work any other wonder beyond you or me, Miss Moore."

"I suppose so, Mr. Randolph."

He watched her from the shadow of the corn, when they parted at length, until she mounted the steps and was engulfed in the cavern of the deep veranda. As he went along to his tent, presently seen standing clear and white in the strong moonlight on the dry river bank, he thought of what the old negro woman had said of Joel Langworthy's divided ownership.

Strange, it was a thought that had come to him when he first beheld the withered half of Joel's face. Evil drove a part of that man's soul with hard and unsparing hand, he had told himself then. Rhody, in her way of primitive directness, had given the force personification. Half of Joel Langworthy belonged to the devil. The clear side, or the clouded side—which half of him did the devil own?

To be continued.

Late winter is the best time to make plans and preparations for any building which is contemplated.

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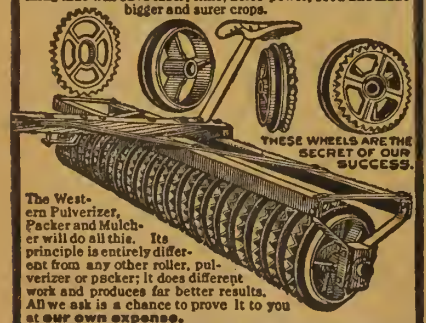

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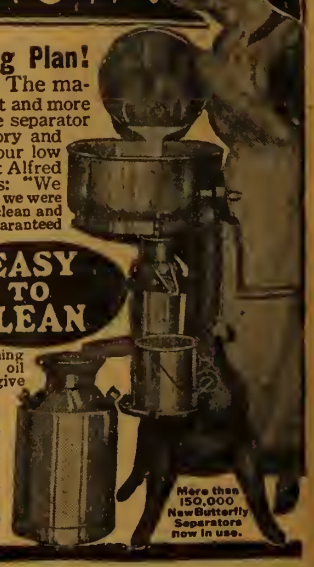

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Co-Operative Shipping

Very few people in the West are familiar with cooperative shipping associations. There are only a few of them in this region. The success that they have attained in some states further east justifies the hope that they will fill a real need here. The situation the last ten or fifteen years has been practically this: There have been few live-stock speculators in country towns to buy in small lots from the farmers and ship them after making up a carload. Such country speculators were very common throughout the corn belt, and they furnished a market for the farmer who was growing livestock in small numbers. A good many farmers growing hogs did not care to produce them in carload lots, and it was only through the country speculator they were able to sell them. With practically no country speculators in Colorado and the surrounding states, there has been difficulty in getting the farmer, who has been chiefly depending upon the sale of crops, to go into the live-stock business on a small scale. In some towns there are local slaughter plants or butcher shops that kill for their own supply of meat, hut these are limited in number and furnish a very restricted market.

During the last two or three years country speculators have appeared in some sections of the intermountain region. Most of them take full advantage of the situation and buy at the lowest possible price when they find a man has only a few animals to move. I have known local butchers who held their market price at about a given notch below the Denver buyers, to ship in hogs from Denver, paying the Denver price plus the freight, while at the same time they did not raise their bid for local hogs beyond fifty cents under the Denver price. This was done in order that they might not educate the farmer to any higher price under Denver. I do not know that you can blame the local butcher or buyer for this attitude, as each man is out for himself when it comes to individual bargaining. On the other hand, the farmer growing a few odd head of livestock is entitled to the full market price at his nearest large market, less freight and shrinkage, and anything more than the freight and shrinkage deducted from the central market price by the local butcher buyer is just that much taken from the profit which the farmer should get. The country speculator who is buying locally and shipping must have, in addition to this, a margin of profit sufficient to pay him for the time and labor put in while buying, and to insure him against occasional loss from a sudden drop in market. This latter item is small because it is offset by the extra gain which he makes by a rise in the market after he has purchased his stock locally.

With country speculators coming into this field we are likely to develop this country buying to an extent where we will depend upon it, instead of organizing to ship our stock direct. It seems to me that right now the field is ripe for the development of the Farmers' Cooperative Shipping associations. Where these associations have been operated they have proved very successful. There are several now in Colorado.

H. A. Lindgren, agriculturist for the Uncompahgre reclamation project, with headquarters at Montrose, Colorado, put through the first cooperative shipments made in Colorado. His people have been shipping for something over two years. These shipments have proved uniformly successful and profitable to the men putting stuff in the cars. In this particular case a shipping association has not been needed, as Mr. Lindgren has handled the work in person, and I think such a method would very largely be the one used in counties where there are county agricultural agents while the work is just beginning. After the cooperative shipping scheme has opened up the market from any given locality, farmers will produce more stock in the way of odd steers, pigs and sheep, and shipments will become more frequent from each locality. It would then become necessary for the farmers of that locality to organize into a shipping association with one man designated as manager, who would give to the project the time necessary to locate the stock for each carload and make shipping arrangements. Such a manager gets a percent of the sales money received from each car of stock.

The method of working the shipment is simplicity itself. Say a carload is to be made up of cattle, sheep and hogs. The hogs and sheep are penned off separately from the cattle, and an easily seen mark is placed upon each head of stock belonging to a given man. Hair brands are generally used, the hair being clipped on a given spot; a slash across the shoulder may designate one man's stock, while a slash across the loin may designate another, and a slash on the right side of the rump a third man's stock. The shipping agent, whether he be a county agent or the association manager, notifies the commission men to whom the consignment is made that a car of mixed ownership stock is coming. The commission firm sells the stock according to the designated brands, distributing the expense of freight and selling among the men according to the stock they have had in the car, and remits the net proceeds direct. Every man in this way gets full market price for his stock, with only freight and selling out, just as if he had had a full carload of his own.

A good many farmers who read this are living in counties where there are county agents. If you are interested you should see your county agent and talk over the proposition with him, and he will be glad to organize shipments wherever there is interest enough among farmers to justify it.

Since there is no expensive association of any kind to join and pay fees upon, every farmer who wishes a market for his odd stock should do his best to further the shipping association in his own community. It is worth trying and, so far as we know, where it has been tried it has not been abandoned.—G. E. Morton.

"Cash" Crop Versus Livestock

This occurred in a country store on the Colorado plains a few months ago:

"Good Morning, Mr. Jones. What can I do for you today?"

"You can have this can of cream and these eggs. I want some groceries."

They figured the can of cream at $18.00 and 5 dozen eggs at 55 cents a dozen, as eggs were at top notch just at that time. The farmer took his pay in groceries and cash and came

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Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or, if you don't know him, write to the nearest De Laval office as below.

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away a good many dollars ahead of the game.

While this transaction was in progress another farmer was waiting in the store. Having finished with Jones, the merchant turned to Smith.

"Well, Mr. Smith, what is it for you today?"

"How much are eggs worth?"

"Sixty cents a dozen."

"All right, let me have 3 dozen eggs and 5 tins of milk."

"Anything else?"

"No, that will be all today, just charge it."

The difference between Smith and Jones was that Jones is milking cows and his wife is taking care of poultry, and following approved methods of early hatching, good feed and care, which means winter eggs. Smith is a wheat farmer who sells his grain and the fertility off the farm, puts nothing back and buys most of his table necessities at the store, while Jones produces these on the farm. The moral is obvious: It takes live stock to build up a permanent agriculture on the plains. Also: A cash crop usually gives the cash to the other fellow.

Dairy Industry Must Act

Various reasons are advanced why the price of butter and butterfat declined so sharply in the face of the continued advance of the already high prices of dairy feed stuffs, and I believe there is a tendency on the part of a great many to place the blame where it really should not be. While we may differ in the main as to who and what is the cause, all dairymen are agreed that there was a little chance to make a recompense from our labors, even with ordinary cows, when we were getting upwards of 70 cents for fat, but to make anything at all when the price runs around 40 cents necessitates that we have the best of cows, from which we can sell the offspring at a price greater than we can get for veals.

The demand for pure butter at the prevailing prices slumped during the last few months nearly half. And why? Just because the consumer refused to pay the price. But why should he not pay an equitable price for so staple and necessary article of diet? The one big reason—because the meat packing industry is spending millions of dollars in educating the public mind to believe that Oleo-Nut Margarine, and other bull fat substitutes are clean, healthful food, and contain as much, or greater, food value than butter; and because there is no concerted action on the part of the dairy industry to counteract this propaganda, and no willingness to contribute the funds necessary to maintain a campaign of public education, the packing industry is gradually, but surely, undermining the very foundation of the dairy industry.

A man's biggest problem is himself. An industry's biggest problem is within its own organization. I believe this is particularly true of the dairy industry today. Our biggest problem consists in getting the units of the industry together into an organization in order that the problems may be met collectively and with united effort.

It is a bad state of affairs when the manufacturer of one kind of produce will stifle the manufacture of another kind, yet condenseries have closed out cheese factories by using unfair methods. Cheese is indispensable as a food to the human family, and it is needed by the people of the world; and to close a cheese factory cuts the supply. A far better plan would be to increase the source of supply of raw material, increase the dairy cows, improve the dairy farms, and produce enough milk so that there will be enough for the manufacture of both products. We must remember that the products of the dairy industry consist of milk, the product of the cow, and the foods made from it. As we develop and improve the market for any one of these products, we develop the dairy industry. Yet if the domination of one eliminates the other, the industry is injured. This is another phase of the problem that must have a solution.

It is a known fact that there is much inefficiency in the dairy industry. The great need is for efficient production. Let us start at the beginning, the cow and the dairy farm, and eliminate waste and in efficiency. The boarder cow, the scrub bull, the unprofitable crop, the wasteful method, the unfair practice; these must all give way to the newer and better means of making an industry. In the late war we showed the world what America could do when we pull together. We made sacrifices, we laid aside prejudices, we allowed the good in man to dominate. At that time harmony existed. And there is as much need of harmony at this time as there was a year ago. The big thing we gained from that war will have become lost in this industry if we forget or fail to apply the lessons.

There was never a time in history when the necessity for combatting the aggregation of imitation products was more needed than it is today. The National Dairy association has been spending thousands of dollars fighting legislation for the coloring of substitutes, which only has a tendency to make the public believe that the substitute is really a competitor and only lacks the color to make it the same thing. I believe that if this money, and some more, was to be spent in advertising the food value of pure butter, and the real necessity of dairy products in our diet, instead of advertising the other fellow's business and his products, which we are doing when we fight the substitutes in the manner we are now following, something could be accomplished and great benefits to the dairy industry would result. We have scientific and proven knowledge that no fat compounds, however delicately flavored with borrowed essence of milk, possesses the properties vital to the reproduction and development of the human race.

The need of the present time in the dairy industry is an organization made up of its various units, directed and controlled by representative men who are big enough to see the needs, solve the problems, and direct the activities along safe and sane lines; to lead in the accomplishment of supplying, in sufficient quantities, the human family's indispensable food.

We worked together in war; let us work together in peace. If we keep right on with right thinking, honest practice, and allow the good in man to dominate, there is no limit to the possibilities of the industry and the good it can accomplish in the world. Let us put on a campaign of educational advertising, the same as our competitor—the packing industry is doing. There is no substitute for butter, but how is the public going to know about it?—George La Grange, Grand Junction, Colorado.

Make Safe Long Cream Shipments

You can trust this Sturges Refrigerator Can to hold its contents at a safe temperature from 12 to 24 hours in extremely hot weather. Built with special heat and cold proof insulation between its heavy outer and inner walls. Twice as efficient as felt jackets. No icing. Just the can to widen your cream market and satisfy customers more. Saves time and work—cuts shipping bill. Superior construction of finest steel heavily tinned. Write for booklet No. 127.

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MONTHLY PAYMENTS

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AMERICAN SEPARATOR CO.

Box 6100 Bainbridge, N. Y.

Wyoming, Minn.,
The Empire Cream Separator Co.,
Bloomfield, N. J.

Gentlemen: This was our situation when the Empire Agent happened along. I was discouraged. Rheumatism had me by the arms and there was no one else to milk. Nine years of hard work had replaced a scrub herd with high grade Holsteins. Now it looked as though they must be sold; for hiring help was out of the question. In desperation we bought an Empire Milking Machine. With its installation our worries took wing.

When, one afternoon, the thrashing machine pulled into our place at 4 o'clock and stayed until 9, the cows were not left bawling until the job was finished. My wife had the milk in the tank cooling on time and can't milk a stroke by hand either. But with the Empire she had milked 14 cows and enjoyed doing it. This all happened 4 years ago. Am now buying full bloods and disposing of the grades. My 10 year old boy does the milking and makes a good job of it.

So instead of selling out, we are buying more and better cows and looking forward to a still brighter and more prosperous future, thanks to the Empire Milking Machine.

F. A. HELMUTH.

10-Year-Old Boy Milks Holstein Herd

Read Mr. Helmuth's letter and see how an Empire Milking Machine helped him out of a desperate situation. It prevented the selling of his cows and enabled him to build up his herd from grades to pure breds. His Empire proved to be so simple and easy to use that even his 10-year old boy "makes a good job of it."

That's the big point about the Empire Milking machine. *Anybody* can use it and make a good job of it. You get uniform results and equally as much milk no matter who does the milking.

It gives you greater freedom. You can delegate the milking to others and *know* that the cows will not drop off in production. Its action is gentle, soothing and regular, and always the same no matter who is operating the machine. Your herd becomes accustomed to the regularity of the milker, and even the hardest and most nervous animals give their best when an Empire Milker is used.

If you want to cut dairy costs, to increase milk profits, to be independent of hired help and have more freedom, investigate the Empire Milking Machine. Send for catalog No. 28 and learn more about it.

EMPIRE CREAM SEPARATOR COMPANY

Bloomfield, New Jersey

Also manufacturers of Empire Cream Separators and Gasoline Engines

Chicago, Ill.; Denver, Colo.; Atlanta, Ga. Montreal and Toronto, Canada

EMPIRE MILKING MACHINES

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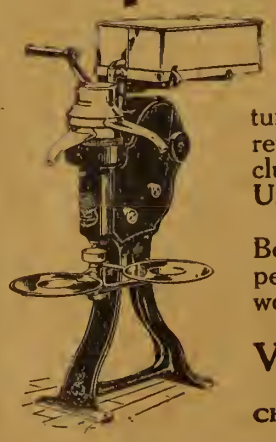
NEARLY a third of a century ago the United States Cream Separator introduced oil-splash lubrication. All the United States gears and bearings run in a constant oil bath.

Today the better automobiles use this system. It assures long life and smooth running.



The same engineers who invented this and other exclusive United States features have constantly worked on other refinements. In the last two years seven exclusive patents have been granted on the United States Disc Separator.

Besides being the last word in mechanical perfection, it is the separator that holds the world's record for close skimming.

Vermont Farm Machine Company

BELLOWS FALLS, VT.

Chicago Portland, Ore. Salt Lake City

U. S. Farm Lighting Plants and Engines

Watch your newspaper for this advertisement telling where you can see the United States Separator. Agents and dealers wanted in some localities.

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THE UNITED STATES DISC SEPARATOR

Joint Sale of Hereford and Shorthorn Cattle

A joint official sale under the auspices of the Western Hereford Breeders' Association and the Western Shorthorn Breeders' Association is scheduled for the Stock Yards, Denver, April 29 and 30. The Herefords, to the number of 120 head, will be sold the first day with 85 head of Shorthorns as the second day's offerings. This is the first of what will be an annual consignment sale arranged by the two leading beef breeds during the spring.

The influence of the National Western Stock Show in building up the livestock industry is shown in the increasing number of breeders of registered cattle for whom a convenient market must now be provided. The stock to be offered at this sale, while perhaps in not such a highly fitted condition as would be the case during the stock show sales, nevertheless will include some of the best individuals of the leading Colorado and Wyoming herds. There will be an opportunity for farmers in all parts of the mountain states to make their choice of herd sires and breeding cows of all ages.

In addition to the bulls and cows in the individual sales, there will be on hand some carlot offerings of bulls for localities that desire to buy co-operatively, or for the big ranchmen who wish to introduce new blood on their ranches. One of the features of the sale will be the fact that group offerings will be arranged to suit buyers who wish to get foundation stock for a herd. Official announcement of the sale will appear in the issue of April 15.

Hereford Breeders who will consign cattle to this sale are: W .N. W. Blayney, Denver; L. G. Davis, Saratoga, Wyo.; A. J. Campion, Denver; C. H. Lupton, Denver; John E. Painter & Sons, Roggen; Fulcher & Kepler, Holyoke; J. D. Craighead, La Junta; Firm Bros., La Veta; Cudahy Stock Farm, Olney Springs; Colorado Agricultural College, Fort Collins; Hereford Corporation of Wyoming, Cheyenne, Wyo.; J. D. Canary, Saratoga, Wyo.; I. B. Scott, Idalia.

Shorthorn breeders who will consign cattle to this sale are: A. G. Cornforth, Elbert; Gleason & Blazer, Kiowa; Paul Jones, Elbert; C. A. Melburn, Elbert; Allen Cattle Co., Colorado Springs; Charles Plageman, Eckley; H. M. Wilson, Lucerne; C. V. Owens, Lucerne; Harmon Bros., Boulder; Maxwell & Miller, Steamboat Springs; Colorado Agricultural College, Fort Collins; R. G. Maxwell, Fort Collins; Noe & Son, Greenland.

Swelling On the Udder

I have a cow that has two small swellings at the lower part of the udder. They come to a head and then form a scab. Her calf was weaned about four months ago. I am feeding good alfalfa and a little pulp. She is with calf. Can you tell me the cause of this trouble and a remedy for it? Is her milk good, and would these sores make any difference in the churning of the cream?—E. S., Utah.

If the cow's udder is not caked there should be no difficulty in healing of the wound. Give her a bed of clean straw. If there is frequent discharge of pus with formation of a scab, it indicates a fistulous condition that will need surgical interference. Petrolatum liquidum might be used on the surface, which among other things will prevent the scab forming, but this alone will probably not be sufficient. It will be better to employ a veterinarian in this case if possible. It should receive attention immediately to avoid complications when she again becomes fresh.—G. H. G.

Inflammation of the Udder

J. H. G., Las Animas county.

This is a case of mammitis or inflammation of the udder. This is usually caused by infection through the natural opening in the teat and is sometimes communicated by the hands of the milker to other cows. The acid secretions cause the milk to curdle in the udder and come away stringy. In case of severe irritation there will be hemorrhage which, mixed with the milk, will give it a red tint, or it may come away in small clots. The udder should be massaged gently and the milk drawn frequently. Bathe in hot water for a half hour several times a day, and when dry apply an ointment by mixing two tablespoonfuls of gum camphor in a teacupful of melted lard. To this is added an ounce of fluid extract of belladonna. If the udder is very large it should be supported by placing a sheet around the cow, and, twisting it on the back, lift the udder about two inches. This will also provide a convenient way for applying hot poultices. If possible a veterinarian should be employed, who would probably be provided with the necessary appliances for administering internal treatment.—G. H. G.

What the Stockman Can Do to Develop Pastures

(Continued from Page 3)

kept them there until December 1, feeding them during this time one-fourth of a pound of beet pulp per day in addition to the pasture. When sold on the Omaha market the lambs averaged 60 pounds in weight.

A mixture of 5 pounds of brome grass and 5 pounds of sweet clover makes a good pasture for the dry farm. This should be sown as early as possible in the spring on a well prepared seed bed without a nurse crop. Inoculation is even more necessary on the dry farm than under irrigation conditions. Such a pasture when well established will supply feed for one cow per acre.

Pasturing Sweet Clover

The Goshen county agent reports one farmer in his county who pastured seven cows per acre on irrigated sweet clover. The Crook county agent reports one farmer in his county who cut 105 loads of hay from the 30-acre non-irrigated field the next year after sowing. There is nothing better than sweet clover for a pasture or hay crop on the dry farm. Both the white and yellow varieties are used. The yellow is preferred for pasture in this state, because it is a little hardier and seeds itself a little more readily when cut or cropped close.

For a pasture or meadow mixture it is better to buy the seeds separately and mix them at home. The ready-made mixtures offered for sale are not recommended. Better seeds and better results will be obtained by the home mixing. The irrigated or dry land pasture, whether of the regular grass mixture or the sweet clover, works well in the rotation, keeping the land clean and increasing the soil fertility.

A good rotation for the dry farm is oats, rye, corn and sweet clover. The rye is sown in the oat stubble to hold the snow, and the sweet clover can be sown after the corn by merely disking the ground. The sweet clover should be given a good top dressing of manure during the winter, and by adding a little seed, it can be used as a pasture two or three years. For the irrigated farm corn should follow the pasture. This is followed in turn by oats, wheat or barley, seeding back to pasture in three or four years, unless the pasture is wanted for a longer period. In the best sections the pasture can be broken up in the fall and fitted for beets the next spring.

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Intermediate sizes at proportionate prices. Sold by mail only. Terms, cash. Not less than six silos in one community.

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BOOK ON DOG DISEASES And How to Feed

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Faster Shearing

Shear with a machine—save time and money. You can shear at least one-half faster. Get 15% more of longer, better wool and not scar the sheep. Get a Stewart No. 9 Ball Bearing Shearing Machine. Fine for flocks up to 300 head. Price $14. Send $2—pay balance on arrival. Write for catalog.

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"Give me STAR equipment and I'll make any barn a better, more profitable building," says a prominent dairyman.

The STAR "Unit System" and curb clamp mean ease and economy of installation; the STAR one-piece arched stall means stronger, better looking, more sanitary equipment; the STAR Alignment Device lengthens or shortens the cow bed instantly. These and many other features make STAR the preferred equipment everywhere.

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showing everything for the barn, and a great variety of free barn plans and helpful suggestions on barn building.

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HUNT, HELM, FERRIS & CO.

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STAR Equipment

Use my Worm-expeller—make more Hog-money

Worms are the worst cause of big hog loss. They cut down *your* profits, because practically all hogs have worms. I *know* this from my 26 years of veterinary practice. I also know that my Hog Prescription is a deadly enemy of worms—it *does the work*—rids hogs of worms, tones up the digestive organs and makes more hog-money for *you*.

It is the supreme remedy for nearly all hog ailments. A first-class tonic and blood purifier, fat producer and worm-expeller. Good for many cases of so-called cholera in hogs, such as diarrhea, bowel trouble, kidney worms, etc.

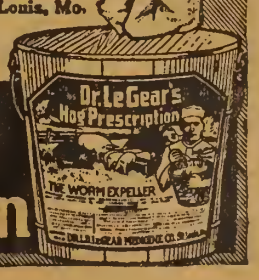
Don't tolerate wormy runts and costly feed loss—try my Hog Prescription

At my risk

Buy it today—if you don't find it does what I say, go to your dealer and get your money back. 60c packages; 25 lb. pails, $3.00; 100 lbs. $10.00. Take no further risk of loss—keep my Hog Prescription on hand. Dr. LeGears Stock and Poultry Remedies are handled by forty housand dealers, never by peddlers.

Dr. L. D. LeGear Medicine Co., 757 Howard St., St. Louis, Mo.

Save baby chick loss by using Dr. LeGear's Poultry Prescription.



Dr. LeGear's Hog Prescription

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

My Window Picture

A month ago we were talking about those thawing back yards and the things we could do toward cleaning them up. But that was a month ago, when the weather was one of the most important topics of outside discussion. Now March winds have swept sturdily and her suns have warmed bravely, and the flash of color in the bluebird's wing, together with those bubbling trills of that very first meadow lark, have sent their thrills all up and down our spines, and we are ready for outdoors again.

You remember Riley was so disgusted with the weather in general that he put it something like this:

This morning I was 'most afeared
To wake up, when, by jing!
I seen the sun shine out and heered
The first bluebird of spring!

But the bluebird isn't the only one. Not one person in a county, perhaps, sees enough of the outside things to know and love more than a hundredth part of the very common ones around him. How many people who read these lines could name more than a dozen of our prairie birds that are already planning their nests? And yet their sweet notes have been heard often and often by almost unheeding ears. They flash up from the fields and flit by us on the road, and yet we do not see them.

In just a short ride into the plains country the other day there were seen at least five different varieties of field sparrows, titlarks and horned larks, and the junco, with his peculiar chromatic whistle. Grown-ups and children need to learn and love more of these best things that are nearest us; and it wouldn't be a bad idea to start a family campaign to see who can distinguish and tell about the most birds in a week or month. You've no idea how much more enjoyment you can get out of your own little portion of the earth by just learning to "see all there is in it." The writer would like to make it a great big family campaign and ask all the readers of these pages to join. How many birds do *you* know?—E. D.

What Mary Wants—From Sarah's Viewpoint

Dear Mary:

For weeks, of course, I have been longing to get over and see you turning on every faucet in the house to see if the water is really running yet, and to plan out gardens with you. But that will have to go until summer, it seems. That will keep; but there is something over here that I'm afraid will "done 'vaporate" under tension unless I get it on paper and show it to someone, quick!

You have noted that all my letter writing topics have been very much of a family nature, and not a great deal was said about the place nor the house. Dear, it was the old Willoughby kitchen which sealed my lips in fear. It was no wonder Jim Willoughby's mother died of paralysis, especially of the lower limbs. She couldn't have done anything else, for the walking mileage which should have lasted her feet for their natural span was used up in just about half that time, just traveling about that kitchen. As the tourist guides say, "The distances are magnificent½"

The thing is close to twenty feet long and about twelve wide, and the furniture was scattered about according to the sketch I'm sending you — mere words couldn't do it justice. You'll see on the other side how I've managed to shift things about a little. You know this is spring, Mary, and a woman wouldn't be a woman if she didn't want to change something about house cleaning time.

It isn't an ideal arrangement yet, by any manner of means, but you'll see I did manage to get my working things in one end of the room and in a fairly logical working order. The china closet is where I can reach it from the sink in putting things away after dishwashing, and the long work table under the cupboards gives me plenty of space to set soiled dishes coming from the dining room. The kitchen cabinet isn't very large, so I've left it for all the baking materials.

The old store room, with a new door cut in between I use for a separator room; but we haven't our "water system" all fixed yet, and consequently there isn't the water in there that there should be. I don't like the spaces around the stove, but it was the best I could do, and the wood box filling from the outside is a great joy, the boys feeling that the "privilege" of shooting the sticks into the house that way is almost equivalent to artillery practice.

We use the other end of the room for our own meals, and yet it's not quite in the kitchen, but "across the window" from it. When you come over you may wash my dishes and get the view from the window at the same time.

The business of shifting from a hare doubling in its tracks to avoid the seeking hounds, as I did while getting a meal in the old kitchen, to a human who can walk upright and progressively from one task to another has made me so excited that I'm not even going to give you an inkling of the state of the family health.

Love to you,
from SARAH.

Poor Old Dad

Brooms, rags, mops, sticks,
Bottles, pots and pans,
Papers, playthings out of fix,
Rusty, dusty cans.

Smoky cobwebs, sooty walls—
Let 'em go! Who cares?
None but father ever crawls
Down the cellar stairs.
—Kansas Industrialist.

What's down stairs that dad does all the going himself? And, do you suppose mother put any of those things out of fix there for him to mend?—E. D.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2752—A Dainty Model. Girls' dress, with sleeve in either of two lengths. Lawn, batiste, crepe, challie, taffeta, messaline, gabardine, nun's veiling, linen and other wash fabrics are nice for this style. Braid, bands of embroidery and lace are suitable for trimming. Cut in sizes 6, 8, 10 and 12 years. It requires 1 yard of lining 27 inches wide for the underwaist, and 3 yards of material for the dress, for an 8-year size.

2749—A Comfortable School Frock. Serge or gabardine with striped or plaid suiting for trimming would be good for this style. It is also nice for wash fabrics, such as linen, gala-

tea, gingham, seersucker and percale. The sleeve may be in wrist length, or short, to the elbow. A neat cuff finishes either style. Cut in 5 sizes: 4, 6, 8, 10and 12 years. Size 10 requires 3½ yards of 36-inch material.

2750—A Splendid Cover-All Apron. This style is easy to develop, easy to adjust, and easy to launder. It is comfortable and trim looking. Nice for gingham, seersucker, lawn, drill, cambric, percale, alpaca and sateen. Cut in 4 sizes: Small, 32-34; medium 36-38; large 40-42; extra large, 44-46 inches bust measure. Size medium will require 4½ yards of 36-inch material.

2760—A Practical Service Dress. Gingham, seersucker, drill, galatea, khaki, lawn, percale and flannelette, are good for this style. The closing is at the side. The sleeve may be in wrist length or finished in elbow length, with a cuff. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6 yards of 36-inch material. The dress measures about 2¼ yards at the foot.

Build Bird Houses

The following from the American Red Cross Rays shows the value of caring for our birds and may give some of our junior readers a bit of interesting work:

The latest count of birds in our United States is approximately 25,000,000. Twenty-five million birds! Just think of it! The robins are most numerous. Then come the English sparrows, and for every one hundred robins there are forty-nine cat birds, thirty-seven brown thrushes, twenty-eight house wrens, thirty-seven king birds and twenty-six blue birds. The birds are found in larger numbers in and around cities and towns. The proportion of birds in the cities is increasing in places where bird houses are provided. Boys of the Junior Red Cross—get to work and build appropriate quarters for Mr. and Mrs. Bird, in order to encourage their settling in your community."

Home Made Soap

A request has come from Mrs. Therressia Miles, of Ramah, Colorado, for a good receipe for home made soap, as she does not like the one usually given on the can of lye. The following receipe was sent her, but some one of the readers may have one they like better, and she would no doubt appreciate receiving a copy through these columns:

Place the contents of one can of lye in a fairly large stone jar. Over the lye pour two and a half pints of cold water, stirring occasionally until the mixture cools and has become a smooth liquid. When this is ready, add the grease, softened so that it will pour nicely and strained through a cloth to remove the dark bits of burned food or other material. It takes about five pounds of grease (approximately ten to twelve cups) for one can of lye. Stir the mixture until it becomes "mushy," or for about one-half hour. The more it is stirred the whiter the soap is. When it is thick but still soft, pour it into a shallow box lined with paper, and allow it to harden. Just before it hardens, usually in three and a half hours, cut it into squares or oblongs. Oil of sassafras or oil of geranium stirred in just before it is poured out to harden gives a pleasant odor. This soap is especially good to use with "hard" water.

It Costs More

FOR several years material and labor costs have steadily increased, and all transportation charges have been advanced. That means that every operation in the giving of telephone service has increased steadily in cost.

It costs more to operate a switchboard, keep the books, do the billing and collect the accounts.

It costs more to install a telephone.

It costs more to repair a telephone.

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It costs more to string a circuit, repair a wire and to set a new pole.

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AND MEANWHILE—

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The Mountain States Telephone and Telegraph Company

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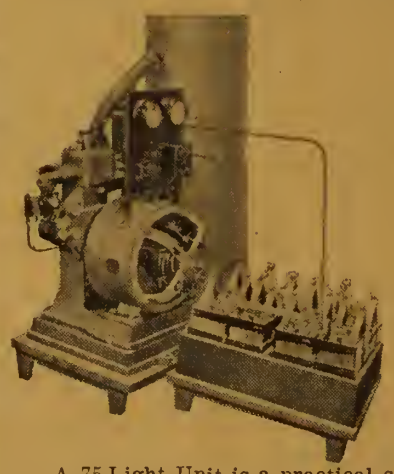

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S. C. BROWN LEGHORNS, EGGS 15 $1.25—100, $7. Mrs. E. L. Zeiner, Ramona, Kans.

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S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

L. D. GOOCH, SEWARD, KANS., WILL SELL R. C. Brown Leghorn cockerels $2 each if taken soon.

FANCY SINGLE COMB BROWN AND WHITE Leghorn cockerels, $2.00 to $3.00. H. N. Holdeman, Meade, Kan.

HEWITT'S S. C. BUFF LEGHORNS, BLUE ribbon winners. Eggs $2.50 a setting; $6.00 per 50. Mrs. Philo Hewitt, Lexington, Neb.

ROSE COMB BROWN LEGHORNS; STATE winners, roosters, $1.50. Prize eggs, 7c. Rufus Standiferd, Reading, Kan.

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

SINGLE COMB WHITE LEGHORN COCKERels, $2.50 each. Eggs, 5c, chicks, 15c. Mrs. C. C. Cole, Levant, Kan.

STATE PRIZE WINNERS, SINGLE COMB White Leghorn hen-hatched chicks, 15c each, $12 per 100; fine layers. Carrie Parker, Parkerville, Kans.

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A FEW OF KULP'S STRAIN OF R. C. BROWN Leghorn cockerels at $2.50 each. Prices reasonable on eggs from both range and selected pen. Mrs. Griswold, Tecumseh, Kans.

FAMOUS YOUNG STRAIN SINGLE COMB White Leghorns costing $20 setting, $7 hundred, $2 setting. Elsie Thompson, Mankato, Kans.

EGGS—SINGLE COMB WHITE LEGHORNS, Ferris highest laying strain; $5 per hundred. Chicks, 15c each. Mrs. Anna Hege, Sedgwick, Kans.

PURE BLOOD SINGLE COMB BROWN LEGhorns. Setting eggs from healthy range flock. $1 per 15; $6 per hundred, prepaid. Order today. C. O. Johnson, Boyero, Colo.

WINTER LAYING SINGLE COMB WHITE Leghorns, standard bred and Hoganized, 250-egg hens. Flock laid Jan, 1917, 91¼ per cent. Eggs and chicks. Barlow & Sons, Kinsley, Kan.

BARRON'S ENGLISH WHITE LEGHORNS, winter layers. 248 to 308 eggs per year. Baby chicks. Eggs. Royal Oaks Poultry Farm, Jas. Dickey, Cahool, Mo.

SINGLE COMB WHITE LEGHORNS. 95-96½ scores. Winners, layers. Finest eggs, cockerels. Reasonable; honesty. Mrs. Albert Ray, Delavan, Kan.

SINGLE COMB WHITE LEGHORN EGGS from excellent laying strain of vigorous, farm range fowls, bred especially for high egg production. $1.50 per fifteen; $6.00 per hundred. Ellen M. Donahue, Inland, Neb.

EXTRA GOOD SINGLE COMB WHITE LEGhorns, pure white, low-tailed, males mated to heavy laying females. Eggs $6.00 per 100; setting, $1.50. Order now. E. D. Allen, Inland, Neb.

S. C. BUFF LEGHORN EGGS, 15 FOR $2.00; 120 for $10.00. Six pens trapnested at $3.00 and $5.00 setting. All prepaid. Few cockerels. Free "Book of Buffs." Pearl Haines, Rosalia, Kan.

"RUSSELL'S RUSTLERS," AMERICA'S FAmous Single Comb Brown Leghorns. Free catalog. Winners at lsrgest shows. Eggs prepaid, $2.00 per 15 snd up. Geo. Russell, Chilhowee, Mo.

BREEDING OF BRED TO LAY SINGLE COMB Brown Leghorns in large quantities a specialty;; 50 for $4.00; 100 for $7.00; 150 for $10.00, prepaid. Cockerels, $3.00 to $6.00. Chas. Bowlin, Olivet, Kan.

HATCHING EGGS FROM SINGLE COMB White Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Order now for future delivery. Robert Shumway, Fountain, Colo.

BUFF LEGHORNS—BEST LAYERS ON EARTH. Baby chicks. Hatching eggs now ready—$1.50 for fifteen, prepaid. Book orders early. Number of customers disappointed last season. Classy cockerels. Champney, 25 South Logan, Denver, Colo.

SINGLE COMB WHITE LEGHORN CHICKS, 15 cents; from world's best strains, Young Smith and Ferris, from hens that pay $8 each per year from eggs. Layers, winners and payers, $5 to $25 each. Clara Colwell, Smith Center, Kans.

SINGLE COMB WHITE LEGHORNS—OUR Leghorns are bred to lay more eggs at all seasons than common hens and especially in winter. It pays to get eggs and chicks from a heavy laying strain. Fourteen years in the business. Hatching eggs and chicks. Riverside Poultry Farm, H. D. Walker, La Junta, Colo.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and fscts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Colo.

PLYMOUTH ROCKS

BARRED PLYMOUTH ROCK EGGS FOR hstching, $1.50 per setting of 15. Mrs. C. J. Davidson, Fort Lupton, Colo.

WINTER LAYERS, BARRED PLYMOUTH ROCK eggs, $2 for 15. Mrs. Lon Edwards, 1105 Garfield Ave., Loveland, Colo.

BIG-BONED WHITE PLYMOUTH ROCK COCKerels for sale at $2.00 and $3.00 each. Mrs. John Rhudy, Pilger, Neb.

PARTRIDGE PLYMOUTH ROCKS—THE beauty and utility breed. Eggs for hatching, $3.00 for fifteen eggs; after May first $1.50 for fifteen eggs. Satisfaction guaranteed. A. R. Stover, Msnzanola, Colo.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Blunt, Route 1, Greeley, Colo.

"LAYMORE BARRED PLYMOUTH ROCKS"—eggs, $3-5 for setting (15), $12.50 per 100. Prize-winning stock. Buy eggs of this stock and you buy the best. I also have a few 100 Rhode Island Reds for sale at $20 per 100. J. R. Anderson, Fort Morgan, Colo.

THE HENS IN OUR YARDS ARE LATE LAYers. The pullets in our yards are all winter layers. Probably no one in Colorado has bred White Rocks longer or made as careful selection year by year. Eggs—$3 per setting, $6 for 50, $10 per 100. Have also a few choice cockerels. W. E. Vaplon, Fort Collins, Colo.

ORPINGTONS

BUFF ORPINGTONS—EGGS, $2.00 PER 15, $7.00 per 100. L. C. Moon, Fort Morgan, Colo.

PURE BRED BUFF ORPINGTON ROOSTERS, $2.50 to $5.00 each. Mrs. H. Swan, Hugo, Colo.

BEST WINTER LAYERS, WHITE ORPINGTON eggs, $1.50 per setting of 15. Mrs. W. H. Persyn, McClave, Colo.

S. C. BUFF ORPINGTON COCKERELS FOR sale. Eggs for setting. Pens now mated. Chas. I. McKee, Wood River, Neb.

FINE BUFF ORPINGTON COCKERELS, $2.00 to $5.00. Eggs, $1.50 for 15, or $6.00 per hundred. Mrs. Frank Neel, Beverly, Kan.

EGGS—BUFF ORPINGTON EGGS, MAILED to you in Frost Proof Cartons. Setting of 15 worth $5.00—only $2.50. C. R. Wilson, Herman, Neb.

"SHANKS ORPINGTONS" S. C. BUFF. EGGS for hatching, utility, $2.00 per 16; $6.00 per 60, and $12.00 per hundred. Exhibition pen eggs at $3.50 and $5.00 per 15; $12.00 per 60; 30 per cent fertility guaranteed. A few good males and females to sell at bargain prices. F. M. Shank, Route 2 A., La Junta, Colo.

WYANDOTTES

COLUMBIAN WYANDOTTE EGGS, $1.50 PER 15. Orvel Sharits, Newton, Kans.

WHITE WYANDOTTES—EGGS FOR HATCHing, $7 per 100, $4 per 50, $1.50 per 15. Miss Anna Lansdown, Fort Lupton, Colo.

BUFF WYANDOTTES—PRODUCERS, HEAVY laying Missouri Egg Contest Stock; heavy laying qualities; wonderful soft golden color. L. E. Jones, 2227 Mapleton, Boulder, Colo.

WHITE WYANDOTTE EGGS FROM TRAPnested stock. $3.00 per 15 eggs, $5.00 per 30 eggs, $12.00 per 100 eggs. Mrs. Mary M. Wright, Route 2, Box 205, Boulder, Colo.

WHITE WYANDOTTES—THIS STRAIN WON first year before last, average 245 eggs each, and third last year, at the National Egg Laying Contest. Also first honors at Storrs Contest. Why wait longer? Lewis Jones, Boulder, Colo.

RHODE ISLAND REDS

REAL RED, PUREBRED, BIG-BONED S. C. Reds, heavy winter layers; eggs $1.50 per 15. R. L. Keever, Noel, Mo.

ROSE COMB RHODE ISLAND WHITE COCKerels, $3. Eggs, 15 for $1.50. C. D. Baldwin, Granada, Colo.

ROSE COMB RED EGGS FROM WINNING DENver Stock Show strain. Get my prices now. C. E. Dewey, Fort Morgan, Colo.

CHOICE ROSE COMB RED COCKERELS, "dark," $3; won third on cockerels at Hooper Poultry Show. Julia Baxter, Blair, Neb.

HIGH-CLASS SINGLE COMB REDS. GET MY price on hatching eggs. Three pens 250-egg strain. Nels W. Peterson, Mason City, Neb.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize-winning, heavy laying strain. Write for mating list. E. A. Miller, Alma, Nebr.

SPLENDID ROSE COMB RHODE ISLAND Reds. Eggs, 15 for $1.00, 100 for $5.50. Baby chicks, 15c. Lucy Ruppenthal, Lucas, Kan.

ROSE COMB RHODE ISLAND RED COCKerels from Beans Blue Ribbon stock. John McCrory, Sterling, Kan.

PURE-BRED SINGLE COMB OX BLOOD RHODE Island Reds, 15 eggs $1.50; Mammoth White Peking ducks, 15 eggs, $1.50. Mrs. Chas. DeBrier, Aroya, Colo.

FINE CHICKENS AT THE TUCKER FARM; Rhode Island White, Rhode Island Reds; baby chicks; write me your wants; eggs in season. Mrs. Hattie M. Tucker, Pawnee, Okla.

EGGS FROM BUSHBY'S WINTER LAYERS. Single Comb Reds, $7.50 hundred, expressed from Pueblo. Flock established 12 years. H. A. Bushby, Rye, Colo.

ROSE COMB RHODE ISLAND REDS. EGGS for hatching from matings of dark brilliant red, large bone, winter layers. F. B. Morger, Fowler, Colo.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

ROSE AND SINGLE COMB RHODE ISLAND Red eggs for hatching, $3.00 per fifteen, or $15 per hundred. Good hatch guaranteed, exhibition stock. J. M. Woita, Weston, Neb.

DISPERSION SALE ROSE COMB RHODE Island Reds. Cause: death of Mrs. Huston. Mated pens, hens, cockerels, cocks sired by roosters costing $50.00 to $75.00. Sacrifice prices. W. R. Huston, Americus, Kan.

FOR SALE—S. C. RHODE ISLAND RED EGGS for hatching at $1.50 per setting of 15 eggs; or $5.50 per 105. The whole flock is headed by nice, large boned, dark red cockerels. Order early. Mrs. Joe Brandl, Route 7, Hartington, Neb.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and largest breeder of thorough bred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

ANCONA

ANCONA EGGS, SETTING $1.50 OR $6 PER hundred; exclusive Ancona farm. Mrs. D. D. Davis, R. D. 2, Littleton, Colo.

S. C. ANCONAS—FOR MORE EGGS TRY OUR Anconas, bred from the famous Sheppard strain which holds the world's records for egg production. They fill the basket with large white eggs. Price, $2 per fifteen; $8 per hundred. Mrs. J. B. Shenk, R. F. D. 2, La Junta, Colo.

ANCONA HATCHING EGGS FOR SALE; PRIZEwinning strain at the Heart of America and Kansas City shows; greatest winter layers from the largest stock west of the Mississippi river. Our best $3 setting; other settings, $12 per hundred, guaranteed 85 per cent fertile; now booking orders for baby chicks from March 1 and thereafter, $35 per hundred. J. E. Diveley, Diveley's Ancona Egg Farm, Excelsior Springs, Mo.

SEVERAL VARIETIES

FOR SALE—GOLDEN PHEASANT EGGS, $6.00 per dozen. J. T. Graves, Bentonsport, Iowa.

BARRED ROCKS—EGGS FOR HATCHING from 3 fine Pens, $5.00, $3.00 and $2.50. T. W. Drummond, Fairmont, Neb.

PURE BRED BARRED ROCK COCKERELS, $5.00; winter laying strain. Eggs, 15 for $5.00. E. Plessinger, Cheyenne Wells, Colo.

RINGLET BARRED ROCK COCKERELS. PULlet line, narrow barring, fine quality, $2.00 and $3.00. Mrs. A. Anderson, Greenleaf, Kan.

PURE BRED ROSE COMB RED EGGS, 15 FOR $1.00; 100 for $5.50. Mrs. B. F. Weigle, Winfield, Kan.

WHITE ROCK EGGS, $1.10 PER SETTING, $6.00 per hundred. Henry Luers, Columbus, Neb.

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

75 BLACK LANGSHAN COCKERELS. WON first ckl. at Illinois and Kansas state shows, 1919. John Lovette, Mullinville, Kan.

LARGE CHOICE ROSE COMB RED COCK erels, $5 each. J. W. Songer, Kearney, Wyo.

BARRED ROCKS—THE WINNING, USEFUL kind. Cockerels and pullets. Arthur Gillette, 4423 S. 16th St., Omaha, Neb.

LIMING'S HEAVY WEIGHT WHITE ROCKS. Eggs, $2 per 15. Quality Fruit and Poultry Farm, Manzanola, Colo.

WINTER LAYING BARRED ROCK AND White Orpington eggs, $5 per hundred. Myrtle Stuller, Bristol, Colo.

EGGS—BUFF ORPINGTON BARRED ROCKS, R. I. Reds, Black Minorcas. T. J. Pugh, Fullerton, Neb.

BLACK AND WHITE LANGSHANS; PRIZEwinners; eggs, $3 for 15, $5 for 30. H. M. Palmer, Florence, Kans.

PUREBRED BARRED ROCKS—EGGS IN SEAson, one dollar for thirteen; seven dollars per hundred. Peter H. Friesen, Lehigh, Kan.

EGGS FOR HATCHING, SILVER CAMPINES, $3; Barred P. Rocks, $2; Blue Andalusians, $2; Single C. R. I. Reds, $1.50 for 15 eggs. John L. Miller, Arvada, Colo. Phone Arvada 10J.

BARRED ROCK EGGS—PARKS PEDIGREED 200-egg strain. Pens headed by pedigreed cockerels, 15 for $3.00. Utility, 15 for $1.25, 100 for $7.00. Mrs. A. E. Huff, Lancaster, Kan.

EGGS FOR HATCHING—PURE ROSE COMB silver spangled Hamburgs, farm raised, $1.50 per 15 eggs. Write L. D. DeVeny, Box 2, Clifty, Ark.

EGGS—IVORY STRAIN WHITE ROCKS, NONE better; send for description and prices. A few cockerels to close out, $5.00 each. E. Kaselack, Lyons, Kan.

EGGS FROM BIG BLACK LANGSHANS. EXTRA good, in perfect health, great egg producers. $2.00 for 15; $10.00 per 100. Ollie Ammon, Netawaka, Kan.

EGGS FROM OUR WINNING BARRED ROCKS. Pens mated with State Fair, Omaha and State Show winners. Send for catalog. Schwegman Bros., Walton, Neb.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

SINGLE COMB RHODE ISLAND DARK RED, big-boned and Black Minorcas, blue ribbon prize winners. Either stock, eggs per setting, $3.00. Booking orders now. E. P. Gordon, Hardy, Neb.

TOLIVER'S PRIZE-WINNING WHITE ROCKS—won at Denver Stock Show. First and third hen, second cockerel. Setting eggs, also cockerels and pullets for sale. F. L. Roy Toliver, Box 144, Fort Collins, Colo.

SINGLE COMB BROWN LEGHORNS AND Barred Plymouth Rocks. Bred for winter laying. Eggs, $1.50 per setting, $6 per hundred, prepaid. Investigate our record. Mrs. W. A. Estes, School, Mo.

INVINCIBLE DARK CORNISH—I HAVE JUST been discharged from my enlistment in the service of the United States Marines and will again resume my poultry business. Write for mating list of my 1919 matings. Utility and exhibition eggs for hatching at rock-bottom prices. R. H. Jandebeur, Alma, Neb.

PRIZE-WINNING BARRED ROCKS, SIZE AND quality. Tested layers. Eggs, 15 for $2.00; 50 for $6.00; 100 for $10.00. Jos. V. Bersn, Verdigre, Neb.

BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

TURKEYS

WHITE HOLLAND TOMS, $6.00. Mrs. G. W. Combs, Fowler, Colo.

FIVE WHITE HOLLAND TOMS, $7.00 EACH. P. L. Kimler, Atwood, Colo.

ONE YOUNG BOURBON RED TURKEY TOM; a fine one; price, $10. Ida Stanchfield, Paola, Kans.

TURKEY EGGS FROM MAMMOTH BRONZE 18 to 20-lb. hens, 11 for $5. April delivery. Order now. William A. Draves, Lemoyne, Nebr.

MAMMOTH BRONZE TURKEYS. A FEW VERY choice ones. Toms, $10.00 to $15.00, hens, $6.00 to $10.00. Mrs. Viola Griblin, Virgil, Kan.

PUREBRED BOURBON RED TURKEY EGGS, 12 for $5.00; postpaid, fertility and safe delivery guaranteed. Vivian Anderson, Oswego, Kan.

BABY CHICKS

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatchery, Smith Center, Kans. Shipped anywhere, 15 cents.

YOUNKIN'S DAY-OLD CHICKS, BARRED Rocks, Reds, Buff Orpingtons, 17c; White Leghorns, 15c; live delivery 50 or more prepaid. Younkin's Hatchery, Wakefield, Kans.

UNIVERSITY PARK POULTRY RANCH—BABY chicks and hatching eggs. Single Comb White Leghorn chicks from 241 egg trapnested stock, $18 per hundred, prepaid. Write for circular. 2520 S. Clayton St., Denver, Colo.

COLUMBIA HATCHERY—ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

DENVER BABY CHICK CO., 2436 W. 43RD Ave., Box 1323 Denver, Colo. Booking orders now for quality baby chicks. White Wyandottes, Buff Orpingtons, White Orpingtons, Rhode Island Reds, White Rocks and Barred Rocks and Leghorns. Strong and vigorous chicks from carefully selected, heavy-laying stock. Live delivery guaranteed. Prompt attention to all orders, large or small. Write st once for prices.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have been making the Denver Incubators and hatching and selling baby chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18. Why not buy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live. Hatching eggs, $7.50 per hundred. Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

BRAHMAS

SETTINGS FROM PURE-BRED LIGHT BRAHmas. E. Grosser, 2238 Perry, Denver, Colo.

DUCKS

FOR SALE—TRIO PURE-BRED WHITE PEKIN ducks, $8. Mrs. W. E. Wheeler, Yampa, Colo.

RUNNER DUCK EGGS; $1.00 SETTING OF eleven; $3.50 for fifty. Mrs. Baker, Route 1, Arvada, Colo.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—Pure-bred Ayrshire bull calf; price $75. Box 15, Gurley, Nebr.

REGISTERED POLLED DURHAMS—LARGE, growthy, bony, quality bulls. Two years old next April. Mott Rathbun, Ord, Neb.

FOR SALE—HIGH GRADE HOLSTEIN OR Guernsey heifer calves, $24 crated or $30 prepaid. Herbert Taft, Whitewater, Wis.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLbred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

FRED DUTCHER, WHITEWATER, WIS. Dealer in nicely marked Holstein and Guernsey calves from 4 to 8 weeks old, selected from the best herds, at $30 each. Orders filled promptly.

HOLSTEINS—HAVING DECIDED TO QUIT milking, I will sell my 16 head of high-grade young cows, all real producers; also 14 head of yearling heifers. Prices right. W. P. Perdue, Carlton, Kans.

FOR SALE—SHORT HORN BULL, BETTER Goods 4th., 418157, four years old, color red, a prize winner at Denver Show in 1917 and 1919. Priced right. A good breeder. G. W. Ball, Pierce, Colo.

SHEEP

3,300 GOOD BREEDING EWES — 10-LB. shearers, 50 yearlings. 16,000 acres grazing land, all in Coconino, Arizona; with forest permit, plenty of water and well-improved ranches. For prices and terms apply to R. C. Croswell, Winslow, Arizona.

HOGS

REGISTERED, BIG TYPE DUROC JERSEY hogs for sale. Edgemoor Farm, Littleton, Colo., Caldwell Martin, Owner.

REGISTERED BIG TYPE DUROC-JERSEY hogs for sale; September gilts and boars; one fine July boar. R. C. Van Scoy, Highland Sta., R. 5, Denver, Colo. Phone Arvada 105R2.

FOR SALE—BIG TYPE POLAND-CHINA BOAR, 2 years old March 20; wt. 700; son of Gertsdale Jones and Mollie King 2nd. Second premium at 1919 Stock Show, Denver. A fine individual and sure breeder. I. L. Mathison, Fort Morgan, Colo.

HORSES

WANTED—A GOOD JACK NOT OVER 6 YEARS of age. Carl White, Amy, Colo.

IMPORTED BLACK PERCHERON STALLION for sale, 11 years old, weight 2,100 pounds. Sure breeder. John Gruber, Eustis, Neb.

FOR SALE—THE SURPLUS STALLIONS from small herd of registered Percherons. Lanyon Stock Farm, Gresham, Neb. Branch barn, Harrah, Okla.

FOR SALE—IMPORTED BELGIAN STALLION, Maurice de Frasnes, American No. 7926, coming eight years old. Sound, good producer. Address, Timothy Thut, Route 2, La Junta, Colo.

FOUR REGISTERED PERCHERON STALLIONS. Two, three and six years old. Weight 1,600 to 2,100 lbs., color black. Prize winners at Denver Stock Show. R. A. Chase, Box 185, Fort Morgan, Colo.

"KING," DAPPLE GRAY PERCHERON STALlion, foaled May 20th, 1911. Purebred and best of dispositions. Sire and dam weighing 2,100 and 1,800 respectively. Shows four seasons of large, heavy-boned, growthy colts. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CHOICE BLACK AMBER CANE SEED, $3.75 per 100. Gus Herfert, Julesburg, Colo.

DRY LAND SEED POTATOES, HAND PICKED, Irish Cobblers, for sale. Chris Heinke, Oak Creek, Colorado.

RED AMBER CANE SEED—CLEAN, PURE, $5 per cwt.; order from this ad. W. L. Scholl, Otteyville, Colo.

FOR SALE—HAVE ON HAND FIELD PEA seed. Sold in car lots only, F. O. B. car. Felix Garcia, Garcia, Colo. Phone No. 25W4.

CHOICE BLACK AMBER CANE SEED, Recleaned 1918 crops, $1.60. Sacks extra. J. L. Herrick, Beverly, Neb.

A SMALL AMOUNT OF CHOICE RED FODDER cane seed at $5 per hundred. H. E. Morton, Oberlin, Kans.

SUDAN GRASS SEED RAISED ON DRY LAND, 1918 crop, commercially cleaned. A. J. Tatman, Wiggins, Colo.

FOR SALE—LARGE WHITE BLOSSOMED sweet clover seed. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

ALFALFA SEED—I SELL IT CHEAPER THAN any Denver house. The free sample tells the story. Alfalfa John, Beaver City, Neb.

ALFALFA SEED—CERTIFIED GRIMM AND Common. Extra fine seed. Prices and catalog free. J. D. Long, Seedsman, Boulder, Colo.

WANTED, SEEDS—ALFALFA, SWEET CLOver, millet and cane spletz. Mail samples, advising quantity for sale to Mitchelhill Seed Co., St. Joseph, Mo.

SWEET CLOVER, WHITE BLOSSOMS, Recleaned, no hulls; sow now, 10 lbs. per acre; 30c per lb., F. O. B., sacks free. Pearl Haines, Rosalia, Kan.

ALFALFA SEED FROM NORTHERN KANSAS. 99 per cent pure, good germination; $8 per hu. Order early. Freight will be slow. Geo. Bowman, Concordia, Kans.

FOR SALE—WHITE SILVER MINE AND CATtle King seed corn. Guaranteed. 98 and 100% vital. $5.00 per hu., money with order. John Lichty, Axtell, Kan.

FLAXSEED—YOU CAN FIND A MARKET FOR large and small lots with Uncle Sam Breakfast Food Company, Omaha, Nebr., who will quote you full market price. Send samples and advise amount on hand.

SUDAN SEED FOR SALE—I HAVE FOR SALE Sudan seed in any amount; raised on dry land at an altitude of 6,500 ft.; seed all recleaned; price 10c in 500-lb. lots, 12c in less than 500 lbs.; no less than 100 lbs. sold. H. Bert Cave, Parker, Colo.

10 LARGE PACKAGES OF GARDEN SEED sent anywhere prepaid for 50c. Regular 10c size; one each of watermelon, muskmelon, cabbage, carrots, cucumbers, lettuce, tomato, pepper, pumpkin and onions. Catalog free. Home Nursery Co., McCune, Kan.

FOR $1.00 WE WILL SEND YOU POSTPAID 10 apple, peach or pear or 7 cherry or plum, all budded, or 20 grapes, gooseberry, currant or rhubarb, or 25 raspberry, blackberry or dewberry, or 50 asparagus, or 100 spring bearing or 50 Everbearing strawberry plants, or five 2-year roses or 50 seedling, or 10 transplanted red cedar or other evergreens. Many other bargains. Catalog free. Manhattan Nursery, Manhattan, Kan.

ONION SETS

FOR SALE—WHITE SILVER SKIN BOTTOM onion sets, run 10,000 per bu.; $4.75 f. o. b. G. C. Curtis, Hntchinson, Kan.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—TO HEAR FROM OWNER OF GOOD farm for sale; state cash price, full particulars. D. F. Bush, Minneapolis, Minn.

IF YOU WANT TO SELL OR EXCHANGE YOUR property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

320 ACRES IMPROVED NEAR BYERS, $18.00. 640 acres, fine section, raw, Byers, $17.00. 640 acres near Bennett, $15.00. Snap. States Realty Co., 207 Century Bldg., Denver, Colo.

320 ACRES OR 160 ACRES, 8 MILES FROM Denver, $17.50 per acre; 10 acres adjoining Littleton for $2,500; 40 acres, half in alfalfa, well-improved, bargain for quick sale; 1,100 acres, good place for cattle, $15 per acre. Sydney C. Osmer & Co., 308 15th St., Denver, Colo.

IRRIGATED AND DRY LAND NEAR DENVER, Colorado, 480 acres non-irrigated, 200 summer fallowed and ready for Spring crop. Immediate possession, choice level land, $28.00 per acre. 160 acres irrigated, first-class water right, immediate possession, $125.00 per acre. Sun Land Co., 309 Century Bldg., Denver, Colorado.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

RAILWAY MAIL CLERKS GET $92.00 TO $135.00 month. Men, women, 18-35. Common education sufficient. Sample examination question free. Write immediately. Franklin Institute, Dept. D 171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St Louis, Mo.

WRITE FOR INFORMATION ON CANNING. Address C. W. Alexander & Co., Plattsmouth, Nebr.

BUY RICH, RIPE AND MELLOW OLD KENtucky leaf tobacco, direct from producer to consumer; no doping or doctoring, just tobacco; 50c per pound, postpaid. Francis-Qualls, Dukedom, Tenn.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

AUTO

WANT A BELT POWER TRANSMITTER FOR your Ford? Then don't pay more than $15.00 for it. Buy the Simplex; simplest, handiest and most practical. Information free. Frank R. Weisgerber, Salina, Kans.

KODAKS

KODAKERS—SAVE MONEY ON YOUR FINishing. Send me two negatives for free samples and prices. Saunders, Box A-308, Boulder, Colo.

KODAKS, CAMERAS, PHOTO SUPPLIES—Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

PURE EXTRACTED ALFALFA HONEY. 60 lbs. in can, $13.50. One case, two cans, $26; guaranteed. J. Van Engen, Producer, Crawford, Colo.

DELICIOUS EXTRACTED HONEY ON APPROVal; quality guaranteed. Thirty pounds, $7.85; 60 pounds, $14.90; 120 pounds, $29.75. Sample, 15c. Wesley Foster, Producer, Boulder, Colo.

LUMBER

LUMBER—SHINGLES—POSTS SOLD DIRECT. Karlot Lumber Co., Tacoma, Wash.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

BICYCLE SUPPLIES

FREE CATALOG OF BICYCLE SUPPLIES. Everything for the bicycle; prices very low. Write today. William Mullin, Box 4, LaPorte, Colo.

TYPEWRITERS

REBUILT TYPEWRITERS OF ALL MAKES, $15 up. Salina rebuilts make good. Write for price list of typewriters and office supplies. Salina Typewriter Co., Dept. F, Salina, Kans.

FARM MACHINERY

ONE-MAN SLING. CHANGES HEAVIEST HAYracks. F. Lovering, Fremont, Nebr.

FOR SALE—HAPPY FARMER TRACTOR, 12-24. L. A. Engle, Wiota, Iowa.

WANTED — THREE OR FOUR BOTTOM lister, 40-80 Avery. Kelly Ambler, Stapleton, Neb.

CABBAGE CUTTERS—6 KNIVES—SLICES all kinds vegetables rapidly; fine for potato chips. Prepaid, $1.00, three for $2.00. Agents wanted. Lusher Bros., Elkhart, Indiana.

MOTOR CULTIVATOR AND PLANTER FOR sale. Avery make; good as new; only used to plant and cultivate 100 acres last season. Will sell for less than one-half the original cost. Addres J. M. M., care Western Farm Life.

Raise Hares for Us

IMMENSE PROFITS easily and quickly made. We furnish stock and pay you $2.00 each and expressage when three months old. Contracts, booklet and full information 10c. Nothing free. Address

Dept. 24. THORSON RABBIT CO. Aurora, Colo

PLANS for Poultry Houses

ALL STYLES, 160 ILLUSTRATIONS. Send 10c, Inland Poultry Journal, Dept. 42, Indianapolis, Ind.

"In certain communities of the state there seems to be some question as to the advisability of using formaldehyde in preference to bluestone in the treatment of small grains to prevent smut," says James Godkin, of the Colorado Agricultural College. "Before continuing this discussion further, we would like to have it understood that it is not the intention of the State Agricultural College or the United States Department of Agriculture to create a prejudice against bluestone in favor of formaldehyde in our smut control work now well under way in Colorado. However, we do wish to emphasize some points which we now know to be facts. Formaldehyde has several distinct advantages which would seem to offer sufficient proof to warrant its use in preference to bluestone.

"1. It is simpler in its application, because it does not need to be dissolved, and the treatment does not need to be followed by an application of lime water to the treated seed to prevent seed injury.

"2. It is not nearly so apt to injure the grain. On the other hand, bluestone causes injury to the germination and development of seedlings of barley, oats and wheat.

"3. Any grain treated with formaldehyde which happens to be left over after the treatment may be safely fed to stock after the grain has dried. Grain treated with bluestone is poisonous to stock.

"4 Formaldehyde is cheaper than bluestone. It is true that formaldehyde costs more per pound than bluestone, but one pound of formaldehyde is equivalent to about eight pounds of bluestone in the treatment of the same amount of grain.

Amounts of formaldehyde to use:

16 ounces (1 pint) sufficient for 40 bushels.

8 ounces sufficient for 20 bushels.

4 ounces sufficient for 10 bushels.

2 ounces sufficient for 5 bushels.

"Whether you favor formaldehyde or bluestone, be sure you treat and use recommended methods in your treatment.

"Treat every season—it pays."

The Grange

(Continued from Page 13)

struction of the James Peak tunnel, backed by the credit of the State of Colorado. The following resolutions embody the important matters taken up at the session:

Believing that it will be of great interest to all of the people of Colorado and of special interest to Western and Northwestern Colorado, and realizing that it will open up for settlement and development one of the most productive areas of the United States;

Therefore, be it resolved by the State Grange, in 45th annual session assembled, that we urge upon your honorable bodies the necessity for the passage of House Bill No. 206, by Mr. Steele. This bill provides for the construction, ownership and operation of the Moffat tunnel and railway, and for the condemnation of such property as may be necessary to carry out the purposes of this act, and to put the credit of the state back of this proposition.

Be it further resolved, that we feel the time has come when it is of vital importance to the development of the natural resources of this state, that the junking of railroads should cease, and that the Steele bill provides the means for preventing such injurious practices.

Whereas, the Colorado farmers during the past season increased their acreage of pinto beans at the request of our government, so much so that at this late date there remains in their hands from 50 to 60 per cent of the crop, with no market whatever; and,

Whereas, Congress having voted $200,000,000 for needy Europe; therefore be it

Resolved, That the Colorado State Grange now assembled solicit the aid of our newly appointed representative at Washington, asking his assistance in bringing this matter before the Food Commission, to the end that the present stagnation in the pinto bean market be relieved.

Resolved, That we recommend the appointment in every subordinate Grange of a legislative committee who shall study and report on legislative matters, nation and state, at each meeting, and make such recommendations as they may deem necessary in order to secure favorable action on all matters affecting the farmer's interest.

Resolved, That the State Grange endorse and urge the General assembly to pass the anti-discrimination law, being House Bill No. 126, by Mr. Noonan. This bill prevents the unfair discrimination of buying and selling commodities of any kind, and is necessary to protect co-operative institutions from unfair competition.

Believing that the farmer should have a fuller and better representation in making and administering the laws of our state and nation, and realizing that this may best be secured by co-operation between all farm organizations;

Therefore be it resolved, that we favor the idea of federated farm organizations in state and national affairs and in co-operative enterprises of all kinds, and to this end we recommend the appointment of a committee of three on co-operation, by the State Grange, one member of which shall be the Master of the State Grange, who shall formulate plans for true co-operation, and report their recommendations to the state and local organizations.

Whereas, the shippers of livestock have not been receiving satisfactory service from the railroads, and whereas, such lack of service is causing much loss to livestock shippers,

Therefore be it resolved, that this organization favors the passage of the bill now before the legislature, compelling railroads to make at least twelve miles per hour with livestock shipments.

Whereas the Federal Land bank officials have ruled that no loans shall be made upon irrigated lands whose water rights have not been adjudicated, therefore be it resolved by the Colorado State Grange that we request that such rules be waived and that applications for loans now pending be passed upon regardless of the water rights.

From a Colorado Banker

I am much taken with Western Farm Life, for which paper I have a subscription. It strikes me as the very best farm paper the Colorado farmer can get to help him with the peculiar conditions under which he desires and must work to be successful. This applies especially to the Colorado farmer who does not depend and does not have to depend on irrigation for success.—E. F. Tighe, Assistant Cashier, State Bank of Raymer.

Majestic Sunbeam Herefords

Herd headed by "Majesty Sunbeam" hy "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" hy "Statesman". Dam, "Armour Sunbeam" hy "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM weighs 2,500 pounds. He is the higgest boned Hereford bull in the country.

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Will sell 20 head of Majestic Sunheam heifers, from two to four years old, all bred to "Beau June," guaranteed to be in calf, at private treaty.

Also have several head of big-boned yearling bulls sired hy Majestic Sunbeam, and a few yearling bulls sired hy "Beau Andrew" from Majestic Sunbeam heifers.

If you are looking for best blood and quality and the biggest honed bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and hulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards DENVER, COLORADO

FOR SALE

I also have for sale two registered Airedale dogs three months old. The best bred Airedale dogs in Colorado. Price, $15.

Forty head of full-blooded Poland China gilts hy my great head boar, 'Wonderking," bred to my great hoar "Standard Darkness," the higgest boned Poland China boars in Colorado. Get in the hog business. Fifteen head White Leghorn cockerels one year old; Tom Barron and Ferris strains. Show birds, $3.00.

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyoming
406 New Live Stock Exchange Building
Union Stock Yards, Denver, Colorado

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent JAMES C. ADAMS, Salesman

FOR SALE Purebred Shorthorns

10—COWS AND HEIFERS—10

(Some with calves at foot)

6—YOUNG BULLS—6

REPRESENTING MOST OF MY SMALL, SELECT HERD

J. F. WELBORN, DENVER, COLORADO

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd. and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Duroc's, am sold out of boars, have one or two bred yearling sows at right prices, bred to a son of "Top Sensation."

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

Glendale Stock Farm

Breeders of

Belgian horses, Polled Hereford cattle.

Irvindale Rowdy
Grand Champion, Chicago, 1918
Grand Champion, Denver, 1919

Young Stock Always For Sale.

J. D. BRUNTON, Aspen, Colo.

THE L. G. DAVIS HEREFORDS

ANXIETY BRED
Beau Carlos 2nd No. 352001
The Greatest Living Hereford Sire

SIRES IN SERVICE
Bonnie Weston No. 558495
Son of Bonnie Brae 15th

Wyoming 4th No. 603868—Champion Senior Yearling Bull of the 1919 Show. Sired by Grand Champion Wyoming.

Yearling bulls and heifers for sale at Colorado ranch, 2309 S. Federal Blvd.
Ranches near Saratoga, Wyo., and Denver, Colo. Visitors always welcome.
Address L. G. DAVIS, Saratoga, Wyo.
Hotel Wellington, Denver, Colo.

300 Head Choice Quality 1, 2, and 3 Year Old Steers for Sale

These are the best string of steers that I have seen together for several years. Mostly white faces. They are dark reds and most all dehorned The good, wide back, heavy bone kind. Buy some of these good cattle in Iowa and note the difference in the gains than what you get from those light bone cattle from the Southwest. These steers are priced to sell. If interested, wire me when to expect you. Cattle located near here.

HARRY I. BALL, Jeffeffrson Co., Fairfield, Iowa

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

DUROC-JERSEYS

We have the finest crop of Duroc-Jersey pigs that we have had in a number of years. They are sired hy a son of Orion Cherry King, a grandson of Orion Cherry King, who is by a Grand Champion boar at National Swine Show two years ago, and hy a boar of Golden Model breeding. We can give you as good a selection as can be gotten in the West. Write us your wants.

COLORADO AGRICULTURAL COLLEGE
Animal Husbandry Department Fort Collins, Colorado

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Puehlo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

THE HOME OF BIG SENSATION, Weight 1,204 Pounds

LARGEST HOG IN THE WORLD

Big type Poland Chinas, choice bred gilts for sale at all times. Call or write.

A. J. ERHART & SONS
Ness City, Kansas

KING RAG APPLE SUPREME

a son of RAG APPLE KORNDYKE 8th, the greatest bull in the world today, heads my herd.

I have some registerd Holstein hull calves for sale, ranging in age from six months to three years. These calves are mostly white and are richly bred, Pontiac Korndyke and King of the Pontiacs, two of the greatest Holstein bulls that ever lived, appear on both the dam and sires' side of the pedigree of these calves. They are fine individuals, absolutely straight and tuberculin tested. Send for pedigrees and prices.

F. M. KING, 1117 West 43rd Street, Kansas City, Mo.

FIELD SEEDS

SPRING WHEAT — OATS — FEED BARLEY — SPRING RYE — ALFALFA SEED—BEARDLESS HULL BARLEY—BALD BARLEY

Tell us your wants. We can save you money.

The F. C. Ayres Mercantile Company
Denver, Colo.

DUROC JERSEY HOGS

I have for sale tried sows and gilts bred to "I Am a Pathfinder," the senior grand champion Denver, 1919, also a few Pathfinder gilts to be bred to my Orion Cherry King Jr. boar. The pigs from this breeding will have the richest blood lines to be found in a Duroc Jersey.

Write me for prices and further particulars,

J. W. BRAUR, Breeder of Pedigreed Duroc Jersey Red Hogs, The El Paso Herd, Colorado Springs, Colo.

Montair Durocs

We have a good March boar, the growthiest in his litter, at a price that will surprise you. Only two or three July boars left. We are sold out on bred sows and gilts

GEO. E. MORTON & SONS
Route 5, Box 84, Fort Collins, Colo.

HOLSTEINS. Several choice, well bred calves ready for shipment. Also cows and heifers. Bred for production. Write, W. C. Kenyon & Sons, Holstein Stock Farms, Box 39, Elgin, Illinois.

Registered Hampshire Boars

For sale at reasonable prices. Sired by Culbertson Senator, a great son of the Grand Champion boar "The Senator" at the National Swine Show, in 1917.

RABELER BROS., Leigh, Neb.

JOINT OFFICIAL SALE OF REGISTERED CATTLE

DENVER, COLORADO, APRIL 29 AND 30, 1919

120 head of registered Hereford Bulls and Heifers. 85 head registered Shorthorn Bulls and Heifers.

These cattle are all consigned by members of the two associations.

Write for catalogue and full particulars. Address—

FRED P. JOHNSON, Manager
1828 Curtis Street DENVER COLORADO

'Chain' 'Usco'

Keep the Home Fields Earning!

This year, your car should be a more profitable proposition to you than ever. Europe is still looking to American farmers for food. And there's a ready market for everything you can raise.

Your car's a time-saver—a distance cutter. It will help you keep the home fields earning. But to get its best work, you must give it good tires.

You'd be surprised to know how many hundreds of thousands of folks—both in the cities and on the farms—have decided that United States Tires are the best tires they can buy.

This year the proportion of United States Tire users is even greater than ever. War and war work taught the good judgment of putting good tires under a car or truck.

There is a United States Sales and Service Depot in your neighborhood. There you can get good tire service and sound advice as to the best United States Tires for your own individual use.

United States Tires are Good Tires

UNITED STATES RUBBER COMPANY
US
RUBBER SYSTEM
AND ASSOCIATED COMPANIES

WESTERN Farm Life

Vol. XXI Denver, Colorado, April 15, 1919 Semi-Monthly

"Farmer" Dudley, Who Is Beginning Young as a Pig Raiser. H e Is a Member of the Apache Pig Club in Huerfano County, Colo.

REO

"Oh! You'll Get There All Right —With That Reo!"

A CERTAIN LADY—you know a large percentage of Reo owners and drivers are women—a certain Reo Lady was making a long, cross-country trip accompanied by three other ladies.

WEATHER WAS AWFUL—no other word would describe it. Roads accordingly.

AT MANY PLACES there were detours where modern roads were being built.

YOU KNOW THE KIND—a mile to the south, then a mile to the west, north a mile again to the main road.

HEAVY TRAFFIC on what was never a road, but only a trail, cut ruts hub-deep in the slippery clay and sticky mud.

AND IN THE RUTS were chuck-holes that, concealed from view by mud and slush, had to be ever guarded against.

TO HIT ONE at speed were to throw the passengers out of the seats. To drive at more than a snail's pace were to take risks.

TO MAKE MATTERS WORSE, she frequently had to drive off the road and into the ditch in order to pass other cars that were hopelessly stalled.

AT TIMES OUR LADY was dismayed by the look of things ahead, and as she plowed through, drip-pan awash and gears in low, she would stop and ask other wayfarers if it was any worse ahead.

INVARIABLY—so fond are most folk of imparting bad news!—they would say, "Oh, yes—what you have gone through is good beside that next clay hill!"

THEN, CRITICALLY LOOKING at the car, the informant would exclaim confidently, "But you'll get through all right—with that Reo!"

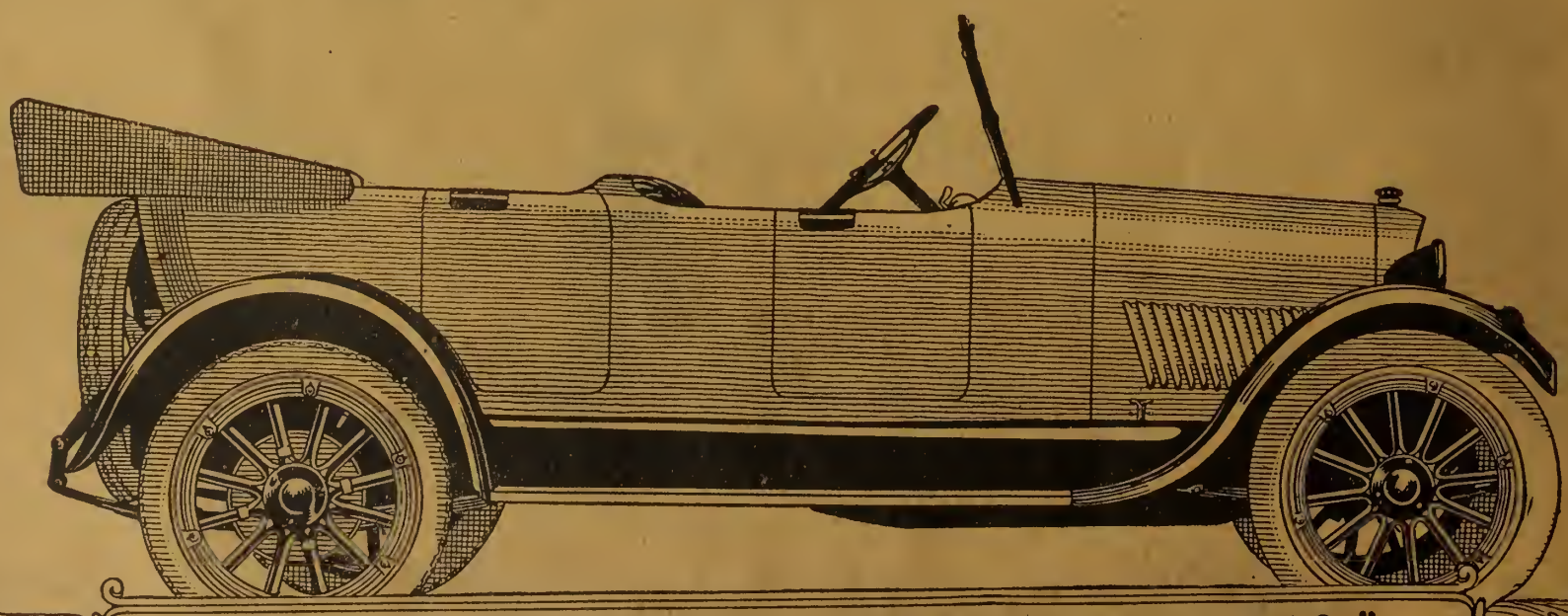
EVERY ONE SHE ASKED knew the Reo on sight—and every one voiced the conviction that, with her Reo, she'd get through all right regardless of how great the distance or how bad the roads.

AND SHE DID, which is merely to chronicle what every Reo owner knows and every owner of every other car concedes.

YOU'LL ALWAYS GET THROUGH—if you have a Reo.

"THERE ARE LOTS of good automobiles —but the man who owns a Reo is lucky."

Reo Motor Car Company, Lansing, Michigan



"THE GOLD STANDARD OF VALUES"

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

Entered at the Denver Postoffice as Second Class Matter

WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Aay Farm Magazine in the West

Volume XXI | DENVER, COLORADO, APRIL 15, 1919 | Number 8

Breaking Prairie Sod Demands Thorough Work

FUTURE OF RANCH OFTEN DEPENDS ON FIRST SEASON'S SUCCESS

E. R. PARSONS

CARVING a farm out of the raw prairie is some work, but after all not nearly as bad as settling in the wooded country which has to be cleared and stumped. The roughest part of it is breaking the sod, but when this is done properly the rest is easy, The whole future of the ranch depends largely on the good or bad work of the first year, for settlers of small capital need returns for their labor as quickly as possible, and delayed profits cause discouragement and loss of confidence.

The old method of breaking sod which came to us from the east was to plow anywhere from two to four inches deep the first year, raise a few nubbins on it and try to get down a little deeper each succeeding year, until about the time the baby was old enough to go to school the ranch began to support the family. This method is bad enough anywhere but it certainly was not nearly so disastrous where it came from, as it is here, for the reason that in a country of bounteous rainfall even shallow plowing will raise something; but in the dry farming country the farmer is distinctly up against it if he finds himself stranded on the prairie with his land broken three or four inches, and he cannot get any deeper. The trouble is that the shallow plowing of soil provides too little protection from drouth to the soil underneath, and the surface of this becomes so hard if the weather is at all dry that the point of the plow, with nothing above it to hold it down, skids along the surface and refuses to go in even with half the family sitting on it. This has been the experience of hundreds of farmers who have had to content themselves with meager crops, and hand to mouth living until such time as an extra wet season came along and the plow went in. There is a way out, but it costs in money or labor.

Favors Eight Inch Breaking

Land in this fix can be worked deeper, and put into shape by heavy disk plows pulled by a tractor, by a road plow with sufficient horse power, or by a plow of the Spalding type with four or more horses; but the question is, why not save all this trouble and expense by proper breaking in the first place? I have always recommended the breaking of sod at least eight inches, because this depth is the minimum in the dry farming country that will protect the subsoil from our regular drouths, so that at almost anytime it can be plowed another two or three inches deeper. A field broken this depth comes into action at once as a producer, and will raise good crops just as soon as a little moisture has been conserved in it. The writer broke his first sod in Colorado about thirty-eight years ago, eight inches deep with three heavy horses and a twelve-inch walking plow. A ten-inch plow would have been easier on the horses, but could not be obtained at that time. The land was disked and harrowed alternately after plowing until the surface was quite fine, and planted to corn and navy beans, which brought the top price in Denver for seed. If the farmer has plenty of power the best breakers are the disk plows of the type which run two disks in the one furrow, one cutting five or six inches and another following cutting another five or six inches, making a total depth of anywhere from 10 to 15 or 20 inches. While an ordinary plow cuts through the sod these disk plows tear it up and mix it with dirt, leaving a relatively smooth seed bed which needs little further working to reduce it to good tilth.

When a walking plow and three horses are used for breaking it will be found to work more easily if the sod is first given a good disking, which loosens it up by cutting the surface roots and stringers which bind it together and not only makes it lighter pulling for the horses, but affords a better seed bed, for when it is turned under with the plow and the other side uppermost, another disking pretty well disintegrates it, for it is now cut to pieces on both sides, and nearly through to the middle.

The best time to disk sod is during a rainy spell, for any short grass sod is tough enough to prevent miring in the wettest kind of weather, and will cut up much better at that time. After plowing, a good roller comes in very handy to flatten out the sod and level off the field before disking, but rolling may be dispensed with if the driver can stand the bumping while the disk rides over the clods. Alternate disking and harrowing will finally reduce the surface to a fair tilth, so that row crops can be planted and cultivated.

Don't Delay the Harrowing

If sod is allowed to lie in the rough after plowing land dries out and it is a very difficult matter indeed to reduce it. The time to catch it is just as it comes from the plow, for it disintegrates easily and the moisture contained in it is largely saved. If the farmer has only one team he should unhitch from the plow and disk every few hours. The old method of breaking sod shallow and waiting for it to rot may, to some extent, be condoned in the days when the plow and harrow were the only implements to handle it with; but the present day farmer wastes no time in this manner, he tears it all to pieces, rots it with the disk and raises a man's crop from the start. Deep breaking saves all the humus, whereas shallow breaking destroys it. This humus from the sod is often the only fertilizing element that a dry farm ever gets, and if it is plowed under deep at the start and not left in the surface to waste into the atmosphere, the soil will feel the benefit of it for many years to come.

The Old Eastern Idea

There are some agriculturists yet who still advise the farmer to break a few inches at the start and then get down an inch or two more every year. They have read this idea in some agricultural book of eastern origin and do not understand the practical side of dry farming. If a farmer does this it may require six or seven years to get down eight inches, provided he can accomplish it at all. In the meantime, what is he going to live on? In the early days of dry farming, hundreds of settlers who tried it quit and went back east unable to answer this question. It is a good idea for any farmer who is short of horse power to hire his sod broken as deeply as possible by a tractor, and since sod does not pack and become solid in a single year like old ground, because of the humus in it, the following season he can plow the surface 6 or 8 inches, cutting above the main body of the sod, which lies next to the subsoil and in this manner raise good crops for a year or two more without having to plow very deep.

IT TAKES POWER TO BREAK THE SOD EIGHT INCHES DEEP

Some twenty years ago the writer hired a man with a steam tractor to break twenty acres nine to ten inches deep. The owner of the outfit wanted to break it four inches, his regular depth at two dollars an acre; but after some parleying it was finally arranged that he should do it nine to ten inches at five dollars an acre. The engine as usual kept breaking down and running out of coal and water, so that the two teams disking and harrowing were able to keep up with the plowing and the sod was converted into a good seed bed as fast as it was turned. This land raised three tons of sorghum feed to the acre, while other land in the neighborhood, broken four inches, raised only about half a ton. It is true that deeply plowed sod requires lots of work to reduce it, perhaps three times as much as would be needed to plow three or four inches and plant a crop after running a slanted harrow over it; but after the first breaking the agony is over and the returns will be satisfactory from the start.

Does Not Need "Sweetening"

A favorite argument against deep breaking used to be that the soil needed turning up to the sun to be aerated and sweetened. It was not supposed to be fit for planting. An old farmer acquaintance always would say "leave it to rot and get the Indian out of it." This absurd idea is derived from the fact that in the humid country the soil often gets too much water and when the drainage is poor the result is sourness, which has to be neutralized by aeration or by liming. There is no such thing in our dry farming areas, for even our clays hundreds of feet below the surface have dried out and become jointed. The spaces formerly occupied by water are now filled with air and it is no uncommon thing to find formations at depths which, bulk for bulk, are fifty per cent air. Therefore, our soils are already well aerated and sweet and ready to raise crops as soon as the necessary moisture is supplied.

After the prairie has been worked up into a mellow, disintegrated sod seed bed, what is the best crop to

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What Apple Rate Thermometer Tells Grower

A STUDY OF ZONES FOR MARKETING WESTERN SLOPE FRUIT

ALFRED M. WILSON

HOW many growers ever saw a fruit rate thermometer? I would suggest that growers who have not seen such thermometers should immediately provide themselves with the same and carefully study them. Even though they be only rate thermometers, yet they should, by means of the rate data on which they are based, throw a flood of white light upon the marketing problem and, at the same time, illuminate the road which we should travel if we would find a more satisfactory and a more profitable market for our fruit.

Fruit rate thermometers, however, are not on sale, but any grower can, with the help of his local freight agent, construct a fruit rate thermometer that will answer every practical purpose. For the courtesy shown me and for the service rendered in helping me to get together the rate data used in the preparation of this article, I want, in this connection, to make acknowledgment to W. H. Meek, the local agent at Clifton, Colo.; to D. F. Payne of the Denver & Rio Grande freight office in Grand Junction, and to W. M. Lampton, the general freight agent of the Denver & Rio Grande railroad.

In regard to fruit rate thermometers two things must, however, be kept in mind: (1) A fruit rate thermometer that would be of value in one fruit section of the country might not, except for purposes of comparison or for the inferences to be drawn from it, be of any value in another fruit section; and (2) A fruit rate thermometer that would answer for one kind of fruit might not answer at all for other kinds of fruit. In this article I have in mind only apples. The rates given are therefore the rates on apples, not the rates on pears and peaches.

The folowing rate thermometer for apples is primarily of interest and value to Colorado apple growers.

A Grand Valley Apple Rate Thermometer

Tampa, Fla.	$1.35	Raleigh, N. C.
Atlanta, Ga.	1.32½	Rome, Ga.
Knoxville, Tenn.	1.29	
Montgomery, Ala.	1.27½	Wilmington, N. C.
Augusta, Ga.	1.26½	
New York City	1.25	Toronto
Syracuse, N. Y.	1.24	Birmingham, Ala.
Jacksonville, Fla.	1.23½	
Jackson, Miss.	1.22½	
Chattanooga, Tenn.	1.21½	Savannah, Ga.
Pittsburgh, Pa.	1.15½	Buffalo, N. Y.
Cleveland, O.	1.12½	
Columbus, O.	1.10	
Grand Rapids, Mich.	1.09	
Nashville, Tenn.	1.07½	
Fort Wayne, Ind.	1.07	
Cincinnati, Dayton	1.06½	Louisville
Indianapolis	1.04½	
Lafayette, Ind.	1.04	
Chicago, Mpls.	.94	Texas-Oklahoma
		Ill.: Galesburg,
Iowa Common Points.	.87½	Quincy.
Kansas-Nebraska	.75	N. Mex. to Santa Fe
Cheyenne, Wyo.	.62½	
Denver and other	.56½	Colo. Common Points
Clifton, Palisades	.0	Grand Junction

The above rates are, of course, the rates per hundred in carload lots on apples for the apple growers at Clifton, Palisades and Grand Junction. These rates are, moreover, as are all the rates referred to in this article, the pre-war rates, plus the 25 per cent increase imposed by the government after the railroads had come under governmental control. There is, furthermore, no probability that these high rates will be reduced in the immediate future. At any rate, there will be no reduction in these rates as long as the conditions that forced them up, i. e., high wages and the high cost of living, prevail. The significance of these statements will, I think, appear when we come to consider the competition, in common markets, of the apple growers of Colorado with the apple growers of the Northwest.

Sell Near at Home

That Colorado apples should be sold as near as possible to the place of production is an assumption which, I am sure, all growers will grant. If so, then the development of the nearby markets should be of prime concern—that in these markets, other things being equal, we should dispose of as many of our apples as possible; but my contention is that all Colorado apples should be sold in Colorado, Nebraska, Kansas and northeastern New Mexico. A careful examination and study of the apple rate thermometer will, I am confident, confirm this contention. For the sake of clearness and simplicity we will divide the rate territory into definite apple zones according to the apple rates prevailing therein. For the sake of the purpose in view we can afford to ignore, in this classification, the intermediate markets, however important, in certain emergencies, those markets might be.

Table 1.

Apple Zones, with the rates therein from Clifton:

Zone 1.

Rate per bundred, .56½. Rate per car of 30,000 lbs., $169.50. Denver and other Colorado Comon Points.

Zone 2.

Rate per hundred, .75. Rate per car, $225. Council Bluffs, Omaha and other Nebraska common points; Kansas City and other Kansas common points; Northeastern New Mexico.

Zone 3.

Rate per bundred, .87½. Rate per car, $262.50. Iowa common points; two towns in Illinois: Galesburg and Quincy.

Zone 4.

Rate per bundred, .94. Rate per car, $282. Chicago, Peoria, Milwaukee, Oshkosb, La Crosse, Eau Claire, Ashland, Minneapolis, Duluth, Rochester, and other Minnesota common points; Aberdeen, Deadwood, Hot Springs, and other S. D. common points; Memphis New Orleans; Oklaboma-Texas.

Zone 5.

Rate per bundred, $1.25. Rate per car, $375. New York City, Brooklyn, Washington, Providence, Boston, Montreal, Toronto.

Zones 4 and 5 look very attractive and inviting. The people are there, millions of them. In New York City alone there are a million more people than there are in all Colorado, Kansas, Nebraska and New Mexico. The money is there, plenty of it; and the markets are there, the big markets of the country. There is also another thing there, the keenest, fiercest, most ruthless competition imaginable—competition from the barreled apples of New York, Maryland and Virginia, competition from the boxed apples from Hood River, Wenatchee and Montana-Idaho points. We might, we should be able to meet the competition from the growers of barreled apples, but could we meet the competition from the Northwest? Up to this time we have not been able to meet it in our own home markets; but if, with the rate handicap of the Northwest working in our favor, we are not able to hold our own in Colorado in competition with the Northwest, on what grounds, pray, can we hope to meet successfully competition from that quarter in Zone 5, where the rate handicap against Northwest apples, as we shall see presently, no longer exists? In other words, it costs, in freight, as much to put a car of apples from Colorado into New York City or any other market in Zone 5 as it does to put a car of apples from Hood River, Wenatchee, Montana, or Idaho into the same markets.

If, however, we are thinking only of the big markets, we shall send all our apples into Zones 4 and 5; but I ask Colorado growers to note, as shown in the following table, how much more freight they would have to pay on their apples if they should dispose of their apples in those zones than they would have to pay if they should sell them at Denver or any other Colorado common point.

Table 2-A.

Increase in Freight Rate on Apples when Sold in Zones other than Zone 1, or Colorado common points.

Zone	(1) Per Car	(2) Per 10 Cars
2. (Kans.-Neb.)	$ 55.50	$ 555
3. (Iowa)	93.00	930
4. (Chicago, Okla-Texas)	112.50	1152
5. (New York City)	205.50	2055

Table 2-B.

Increase in rate per box over the rate to Denver or other Colorado common points.

	(1) Rate Per Box	(2) Increased Rate Per Box
Zone 1 (Denver	.27	
Zone 2 (Kans.-Neb.)	.36	.09
Zone 3 (Iowa)	.42	.15
Zone 4 (Chicago, Fort Worth)	.45	.18
Zone 5 (New York City)	.60	.33

The rate increase, whether on a car or on a box, as shown by the above table, is the rate handicap which Colorado growers must reckon with when they seek to sell their apples in markets outside of the state. The rate increase into Zone 2 is very marked; how much more so into Zone 5? It costs in freight $169.50 to put a car of apples into Denver, but into New York $375, an increase in freight of $205.50. That, indeed, is a serious rate handicap, one which can be overcome with profit to the grower only when apples are selling in New York at a price in excess of the price at which they are selling at Denver. What is more, unless the price of apples in other zones is high enough to meet the Colorado price, plus the difference in rate, the Colorado grower would lose by selling in the markets in those zones. The following table is intended to show at what price, when Colorado apples are selling, for example, for $1.50 per box in Denver, they would have to sell in markets in other zones in order that the Colorado grower may break even:

Zone 3.

Zone 1.—Colorado Common Points	$1.50
Zone 2.—Kansas, Nebraska, Northeastern New Mexico	1.59
Zone 3.—Iowa	1.64
Zone 4.—Chicago, Oklahoma-Texas	1.68
Zone 5.—New York City	1.83

Remember, also, that the rate handicap with which Colorado growers have to contend when they seek a market for their apples outside of the state applies to apples, boxed or in bulk; to all grades of apples, extra fancy, fancy and choice; and to all varieties of apples, to Bens and Ganos as well as to Winesaps, Jonathans and Rome Beauty.

The Logical Conclusion

The facts stated in the above tables, as well as good common sense, would seem to indicate that Colorado growers should, first, sell in Colorado as many of their apples as they can sell profitably; second, sell all the rest, if possible, in Kansas, Nebraska and northeastern New Mexico; finally, they should not, unless compelled to do so, send their apples into the territory with the $1.25 rate, not even into the territory with the 94-cent rate. Even Iowa, with the 87½-cent rate, should, in an emergency, be able to take care of the overflow.

But where are Colorado apples sold? In what markets? I do not know, except in a general way, what the facts are as to Delta, Montrose, Paonia, Canon City and Boulder; but so far as the Grand Valley is concerned, fully 90 per cent of the apples raised in this valley are sold in Texas and Oklahoma, i. e., in Zone 4, with the 94-cent rate. And that, too, notwithstanding the fact that the increase in freight is $57 on every car of apples that is shunted across the Kansas border into the Texas-Oklahoma territory. In other words, $57 is the freight toll that the Grand Valley grower pays on every car for the privilege of having his apples sold in Dallas and Fort Worth instead of in the markets of Kansas, Nebraska and northeastern New Mexico.

Fifty-seven dollars, the freight toll on every car of apples that is sold at Fort Worth instead of being sold at Omaha or Kansas City—that looks good to me. It is worth saving. Five hundred and seventy dollars, the freight toll on every ten cars—that looks even better. I know that for the grower on a ten-acre orchard that amount would many a season spell all the difference between profit and loss. And $57,000, the freight toll on every 1,000 cars, is a toll that even the robber barons of the Hohenzollern type would hardly, even in their most covetous moods, have dared to exact. The railroads, however, are not robber barons, but rich beneficiaries of the futile, inept, unbusinesslike way in which in the past we have been accustomed to dispose of our apples. If, on the other hand, Grand Valley apples could be sold in Kansas, Nebraska and New Mexico as far down as Santa Fe at the price at which they could be sold in Texas-Oklahoma markets, the $57,000 saved in freight on every 1,000 cars of apples could be used, in part, to increase the returns to the grower, the rest to build up stable markets in Nebraska, Kansas and New Mexico.

Should Advertise Our Apples

This brings us to the crux of the whole matter. Can Grand Valley growers get for their apples in Nebraska and Kansas a price as high as they can get for them in the market territory south of Kansas and west of the Mississippi river? Without a doubt, provided our people will go after the markets and not wait for the markets to come to them; provided they shall develop the markets in those two states in an intelligent, up-to-date way. Let them advertise their apples; let them put salesmen on the road, and they will get the business at prices entirely satisfactory. The people are there, approximately 3,000,000. The wealth is there; no people are more industrious and prosperous. Kansas, for example, is a dependable, wealth-producing state. What is more, the wealth of Kansas is more generally and more equitably distributed than is the wealth in some other states with a large population and with a larger volume of wealth.

We naturally think, first of all, of the larger towns: Kansas City (Wyandotte county), 120,000; Wichita, 68,000; Topeka, 50,000; Hutchinson, 25,000; Leavenworth, 25,000; Coffeyville, 20,000; Pittsburg, 18,000; Emporia, 18,000; Atchison, 18,000; Parsons, 17,000; Rosedale, 17,000, and Fort Scott, 12,000. But these towns are not the whole of Kansas. There are thirty-three towns ranging in population from 3,000 to 5,000, and ninety-nine ranging from 1,000 to 3,000. Nor is that the whole story. There are over 400 towns with a population ranging from 200 to 1,000. All these small towns are potentially important trade centers. In each of these small towns is a bank. The ratio of deposits in the banks in the towns with a population ranging from 200 to 1,000, to the amount of capital invested(as a rule 7 or 8 to 1) is such as to show that the communities in which these banks are located are in a healthy, prosperous condition. And what is true of Kansas is, I am sure, equally true of Nebraska.

Is it, then, at all strange that I should affirm that our own state and Kansas-Nebraska are for the apple growers in the Grand Valley the natural outlet for their apples, the apple zone in which they should find a profitable and constantly expanding market for all their apples? Can any other inference be drawn from the fact that there are in these three states approximately 4,000,000 people, prosperous, progressive and contented? Nay, more. What I claim for the apple growers of the Grand Valley I claim for the apple growers in all the apple producing sections of the state. In Colorado, Kansas, Nebraska and northeastern New Mexico there is room for all of us; in these three and a quarter states are potential markets for all the apples grown in Colorado. What we Colorado apple growers need to do is to get together and to market our apples in these states on a co-operative basis that shall cut out cut-throat competition between ourselves

Considering Outside Competition

But what of outside competition? Of the competition from Watsonville? Of the competition from Hood River? Of the competition from Wanatchee? From Montana? From Idaho? The facts set forth in the following rate information should, it seems to me, suggest the correct answer.

(Rate tables worked out by Mr. Wilson showing the freight handicap against Northwest growers cannot be used for lack of space, but the figures are summarized in the comment which follows.—EDITOR.)

Competition from Watsonville with a freight handicap in Colorado, of 36 cents on every box, and, in Kansas, of 28 cents, should not be a matter of serious concern to Colorado growers; but competition from Hood River, Wenatchee, Montana, and Idaho can not be dismissed so

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Growth and Development of the Dairy Heifer

HOW THE CALF SHOULD BE HANDLED FROM BIRTH TO MATURITY

CHARLES I. BRAY

THERE are three ways of acquiring dairy cows: buying them, raising them or stealing them. Owing to the activities of sheriffs and vigilance committees, the latter method is losing whatever popularity it may have had in Colorado, leaving only the first two methods for those whose love of excitement is not as great as their desire for a respectable social standing in the community. There are some advantages in buying dairy cows ready made. Dairymen on small areas of high-priced land in some states think it an advantage to invest their available capital in cows that are producing milk, rather than tying up part of their land and a proportion of their time and money in the handling of dairy heifers. Such dairymen generally market their calves for veal at an early age; but this way of operating is not practiced much in Colorado.

There are several strong objections to the system. While a good dairyman is always on the lookout for good cows, the chances are he will have to buy three cows to be sure of getting one that is profitable. People who have cows to sell have an unfortunate habit of selecting kickers, shy breeders or parsimonious milk producers for that purpose. The buyer is lucky if he only gets stung two times out of three. What is worse, such cows may be affected with tuberculosis or contagious abortion, and the latter especially will cause a serious amount of harm in a dairy herd. The buyer can guard against these to only a certain extent. Last but not least, even good-grade cows will cost more at present than it would cost to raise them. The man who raises his own dairy heifers has a chance to keep them free from disease, can often produce better stock than he can buy, and at a reasonable cost. At least he has the chance of getting first choice instead of someone else's second choice.

Much is said about breeding and selection of purebred sires and cow testing, silos and balanced rations, but little attention is paid to the problem of developing a good dairy cow from birth to maturity. Of course, it is not possible by methods of feeding or management to make a good dairy cow out of a Hereford or Angus or a simon-pure scrub. Good cows are born and not made; but it is our opinion a heap of fairly good ones are spoiled in the making, or at least are somewhat handicapped in their climb to fame in the local testing association.

The proper development of the dairy cow may be considered under three headings: the growth and development of bodily size and vigor, the retention and cultivation of the dairy temperament and the proper control of the disposition. Good cows cannot be produced without sufficient food or food of the right kind judiciously fed. Insufficient food stunts and arrests development. Animals so fed may grow in height, but at the expense of stamina, width of chest, depth of body and the proper development of the vital organs and the mammary system. A ration lacking protein may produce a smooth, fat cow that is also lacking in the proper development of internal organs and dairy temperament. There is little danger of insufficient protein in sections were alfalfa or clover is produced, but it may be a real problem on the dry farms of the Colorado plains. Injudicious feeding causes digestive disorders which may also impair growth and produce permanent weakness of the digestive organs. One week of indigestion may retard a calf's development for months. Unless a dairy cow has large capacity for food she is unlikely to prove a good buttermaker.

The first six months of a calf's life are usually the most expensive as well as the most important. The following is a record of the amounts of feeds given to a group of dairy calves by the Indiana Experiment Station in testing separated milk against prepared calf feeds for six months. The prices given are average Colorado prices for 1919:

Whole milk,	131 lbs. at	3c....	$ 3.93
Skim milk,	2,022 lbs. at	½c....	10.11
Grain,	179 lbs. at	3c....	5.37
Alfalfa,	456 lbs. at	¾c....	3.42
Silage,	61 lbs. at	½c....	.30
Cost of feed for 6 months....			$23.13

A calf fed this kind of a ration should gain at the rate of about one pound a day, or slightly more, and will be in condition to continue these gains for the rest of the year on somewhat cheaper feed, especially if it is a fall calf, and has the run of good pasture through the summer. Nothing is better for a dairy calf than good pasture which contains all the elements for best growth. For this reason an acre or two of first-class pasture should be left near the barns for the calves, and this should have good shade and water. A dairy calf standing out in the sun in a dry lot fighting flies is a pitiable object.

The Milker the Cow Likes Is the One That Gets the Milk

When the calf is brought in in the fall, three provisions should be made for its well-being: adequate shelter, protection from older animals and good feed. Under ideal conditions the calf at a year old will do well on alfalfa hay alone, or its equivalent, but as a rule it is best to feed some grain. Two pounds a day at this age is recommended by the best dairymen, or more if the roughage is not of the best character. Feed all the good roughage the calf will eat. For five or six months this amounts to about $10 worth of grain feed, which will add two or three times that much to the value of the calf. If alfalfa is the roughage it will not hurt the calf to be fed a corn ration. Some oats will be a great improvement, and if a legume hay cannot be fed it will be better to use ground oats or bran almost altogether, or at least in a large proportion. Three hundred pounds of grain and twelve hundred pounds of hay will add about $20 to the previous cost for the year. Nothing can improve the ration so much as silage, which tones up the system, improves the digestive organs and gives a thrifty appearance to the coat.

One important factor sometimes forgotten in raising calves is that of comfort. Whether a calf is comfortable or uncomfortable affects not only the growth but the disposition of the calf as well. I know some people will say, "It is easy for that fellow to talk; if I had lots of money to put into barns like the State College has I could have the calves comfortable too." I know it is easy to think so, but it is not exactly true. I have seen calves happy and contented under a straw shed, well bedded and ventilated, and have seen calves hot and thirsty and uncomfortable in a brick barn with patent steel fittings. The writer took charge of a large dairy herd in a southern state a number of years ago that had what was supposed to be a fairy good barn for young stock. There were few windows in it. Large pens for the younger calves were arranged along each side and opened into the center, where the older heifers ran in bad weather. The calves and younger heifers had to be shut in these large pens at night and kept in till after feeding time the next morning, or else turned out to take their chances with the older stuff. If the calves were turned out there might come up a storm in the night, and the morning would find the calves humped up in the rain outside with the large heifers in possession of the barn. If left in and the night proved warm the small stock would be thirsty and hot and their bedding damp and

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The Woody Aster

Woody Aster Poisonous in Spring Only

PERIL ON WYOMING SHEEP RANGES NEEDS WATCHING NOW

T. S. PARSONS

UNTIL the poisonous properties of the woody aster of the mountain states were studied by the chemistry department of the Wyoming Experiment Station thousands of sheep died every spring from eating the plant. The woody aster probably caused more losses than all of the other poisonous plants combined.

To avoid such losses, however, it is only necessary to keep the sheep away from the localities where the plant grows in the early spring. Sheep may eat the plant later in the season without the least danger. They eat the dried plants readily in the fall and apparently derive considerable nourishment from them.

The woody aster is abundant on gumbo clay soils, usually growing on the slopes near low places where there are temporary ponds or lakes. It is also occasionally found growing on the ridges. It has a strong, woody root and branches quite extensively just at the surface of the ground. Tufts of short branches spring from the woody crowns, and these bear narrow green leaves one or two inches long. Growth starts early in the spring and the plant forms a tuft or clump several inches high.

Usually by the first of June the plant produces a large number of daisy-like flowers with white petals and yellow center. Beginning about the middle of June the plant gradually dries up and takes on a yellowish-brown color. Sheep seem to suffer no ill effects from eating the plants after this time. It is only from the time the leaves begin to appear until after the period of bloom that the plant is poisonous. Sheep should be kept away from the aster patches at this time.

In the spring the sheep are often brought from their regular feeding grounds for the lambing and shearing periods. Places are selected for their convenience to water, and these are usually the places where the asters grow. As sheep are kept during lambing and shearing time on rather restricted areas, the vegetation is closely cropped. The aster, starting growth early in the spring and being green and succulent, is, therefore, readily eaten by the sheep. This is probably why there is so much poisoning in the spring. Small quantities of the plant probably would not be poisonous at any time.

In studying the poisonous properties of the woody aster, sheep were allowed to feed freely on the plants in the open and others were confined in pens in which asters were growing. Others were confined and aster plants fed to them directly as part of their food. In all cases where the young plants were eaten the sheep died, the animals showing all the symptoms of acute poisoning.

The animals affected soon showed weakness in the leg muscles and fell down. Later there was a weakening of the neck muscles, with rising temperature, the pulse becoming very rapid but weak. Breathing became labored and the animals appeared to be in much pain. There was increased secretion of urine and bloody froth was discharged from the nose and throat. The pupil of the eye became dilated and usually there was unconsciousness and complete prostration before death. Death ensued in all cases in from a few hours to several days. No remedy or antidote for the poison has been found, but poisoning can easily be prevented by avoiding the aster patches in the spring.

How Mountain Farms May Supply Resort Trade

COTTAGERS WILL PAY WELL FOR QUALITY AND GOOD SERVICE

GORDON KENT, The Mountain Farmer

THE summer resort trade begins with the coming of fine weather in June, and the opening of the fishing season. It reaches its climax in August. It drops with a bump about the first of September, when the kids —and consequently the teachers—have to return to school, and peters out in the middle of the month.

The stuff most in demand is milk. Business in the other products fluctuates, but people want their milk every day. It is the foundation of the summer business. A good many of your customers will be afraid of a cow, but thoroughly alive to the value of milk in their diet. Professional and business people want to build up as well as rest up and there are often young children and occasionally an invalid. You do not need many families taking four quarts a day to have quite a business.

Another good seller is eggs, then come fryers and fat hens, and last fresh garden stuff, the slowest sale, the least pay, and the most bother.

Say you are located within four miles of a summer resort, will you take up the business of supplying them? The questions that will decide this are these.

Can you produce the stuff?

Are you willing to undertake the work of retailing?

Have you the business ability to make profits in transactions?

Have you the social qualities that will enable you to keep the good will of your customers?

Catering to a summer resort involves specialized farming—as much as fruit-growing or poultry-keeping. Everything on your farm has to be done with the summer trade in view. Your cows must freshen in April or early in May, so the calves can have a fair start before the milk has to go to human babies. Your garden has to produce not only the stuff for your own table in summer, and enough to go into the cellar for your winter use, but enough onions, lettuce, spinach, radishes, carrots, turnips and beets, to supply from ten to forty other families. You will need several dozen eggs a week, and must keep hens enough to lay them. You will also need fryer chickens, and must raise enough to supply the demand, besides providing your own table in the fall.

To undertake all this you will need certain equipment all round. For instance a wheel-hoe is a necessity for so large a garden. In order to have early vegetables you must have a cold-frame, and a capacious one. You must have the facilities for hatching, brooding, and housing chicks, on a larger scale than is necessary for your family needs.

It is simple and easy enough to kill and dress one fryer, to gather and scrub clean a bunch of radishes, to rinse a head of lettuce, or to wash and scald a milk bottle. But suppose you have to deliver not one fryer, but one to each of six families, a pair to each of two families, and fat hens to three other families, and that these eleven families require from one to four quarts of milk apiece besides other families that didn't buy poultry, and that four dozen eggs are ordered for the day, and two pounds of butter, and some vegetables.

It Means Lots of Work

Kill, pick, and dress the thirteen head of poultry, wash and sterilize forty one-quart milk bottles, wash and count out the eggs, pack the butter, gather a tub full of vegetables, wash them all, scrubbing them clean with a brush where necessary, and tie them into five, ten and twenty cent bunches.

Apart from the regular routine of farm life, a resort trade will keep quite a large family out of mischief. So don't undertake it without reckoning with the work it entails. And during the summer you need hardly plan to do anything else, Sundays or any other day.

A few people have not the business ability to make money at transactions. Somehow they lose. They fail in collecting the cash; they cheat themselves in making change. They make wrong moves and never can show a profit. Still more get discouraged if they do not have uninterrupted success. A bad day throws them down. If they don't sell out they jump to the conclusion that there is no sale for their stuff, and they are going to quit. A woman told me her experience in selling butter. The storekeeper was not offering a satisfactory price, so she decided to sell from house to house at market price. She asked the first woman she called on, "Do you want some butter?" "No," snapped the prospective customer, and slammed the door. The butter vendor abandoned her attempt right then and there.

To such pleasant rebuffs the salesman pays no heed. He counts it all part of the day's work. It is something to laugh about at the end of the day. But it is not easy to take refusals, especially rude refusals cheerfully at first, and many never learn to do it. To such it will never be pleasant to sell direct to the public.

One thing more. The farmer who can meet the customers every day, keep their good will the season through, take their complaints, reasonable or otherwise, with positive cheerfulness, and on his part give no occasion for offence, is the exception. The man less happily disposed socially, quick-tempered or grouchy, will abandon the work. "I wouldn't take the grief for ten times that much a day," he says.

Apart from all this the road to the summer resort is a path of roses.

Nothing is more conducive to volume of business than variety. If early in the season you have only a few vegetables it helps to have different kinds of radishes, for instance. "I want the white icicles for the table, and the little round red ones for a salad," says the lady. Or if you offer her lettuce she may or may not take it, but if you offer her her choice between a dark green, a light green and a red-tinged variety she will take one or the other. She may feel that fried chicken comes a little high, but if you suggest a fat hen at 8 cents less a pound she will respond, "All right, I'll take one. What weight are they?"

Sometimes you will have vegetables left over. Take them back home. Never give them away to somebody that did not care enough for them to buy. It will demoralize your sales.

The milk bottle proposition is a wide open trap. The bottle costs you more than the milk it contains. And you can lose dozens in the course of a summer's trade. If somebody breaks the bottle at your expense, or goes away leaving your bottle locked in their cottage, you are out of pocket, while they are not a cent better off.

Charge people for their milk bottles as well as for the milk. If your customer has paid 10 cents apiece for them she will take that much better care to return them to you and get her 10 cents back. Insist upon this, and keep strict account of every bottle. It is your only protection from a serious loss.

I hinted at trouble between you and your customer. Suppose a lady comes to you and says, "The milk I got from you was sour." It is up to you to find out if she keeps it in a cool place. The chances are she kept it in the kitchen or some place where the sun got at it. She has no ice-chest, of course. Persuade her to have a hole dug in the ground, about two feet deep, like a post hole ,and keep her milk there.

Keep Your Temper Sweet

That the milk soured was no fault of yours. But your customer apparently thought it was. Do not resent the accusation, but help her to a way to keep her milk sweet. Even in dealing with the very nicest people it is always necessary to keep one's temper buried in a hole at least two feet deep, in order to keep it sweet.

On the other hand, if a customer says, "Some of those radishes I got from you were pithy," your move is to hand her a fresh bunch gratis, with a smile, and say you hope these will be all right and you are glad she mentioned it.

Use every precaution to sell no pithy radishes, no seeding spinach, no soiled eggs, no blinky milk. Have everything fresh, spotless and perfect. Your trade consists of the kind of people who appreciate the best.

We drive to the station each day, arriving just before train time. This is a rendezvous anyway. People come to meet the train, get their mail and buy supplies at the stores. So they come to the buggy and get our stuff, too. We have a list of people who take milk and check two columns each day, one column for the milk bought, the other for the empty jar returned We use Mason jars with screw lids for milk bottles.

Your business will be small at first. The main thing about it season by season is not how much it amounts to, but is it growing? If it is growing it will get you somewhere. Then there are off days in any business. If you make the trip for 40 cents you will be repaid with a $20 day later on. Keep going.

No matter what the moisture conditions during the coming growing season, a silo will make your crops go farther.

Big Profit in Eggs From A Little Farm Flock

NET INCOME FOR JANUARY FROM 108 DOZEN OVER $50

ROY M. FOARD

ON a small ranch two miles west of Alamogordo, New Mexico, lives a very enterprising and successful chicken raiser in the personage of J. T. Layton. Mr. Layton is a farmer by occupation and raises a few purebred chickens as a side line. And by the way, this side show of his threatens to become a strong competitor with the main circus insofar as the financial returns on investment and labor are concerned. But it is probable that his success may be attributed partly to the energies of Mrs. Layton and their son, Vivia, who is an interested student of agriculture in the Alamogordo high school.

Mr. Layton raises the Ancona breed of chickens, and has a flock of about ninety purebred hens which are only about two or three generations from the famous hen "Bess," who holds the record of 331 eggs in one year. It seems that "Bess" just naturally turned herself into an egg factory with an annual output of 331 eggs; at least she did that for one year. That must have been a hard year on worms and other natural prey of the feathered tribe, for it took a great deal of raw material to produce such a large quantity of the finished product. These hens on the Layton place seemed to have inherited the same tendencies of their productive ancestor.

Most of us are inclined to sanction a vacation for the hen during the winter months. But these hens took their vacation in August and September when the weather was good and they could enjoy it, and incidently when eggs were comparatively cheap. But the records show that in the month of January when eggs where fifty to seventy-five cents per dozen these ninety hens produced 108½ dozen eggs. These eggs—all except enough for home use—were sold on the local market for fifty to seventy-five cents per dozen, with a total valuation of $75.40.

Pen of J. L. Layton's Ancona Hens

The actual cost of the feed for these hens for the month of January was $24.55. Thus we have the following simple but impressive problem in arithmetic: 108½ dozen eggs @ ave. of $0.69½ cents gives a total of $75.40. Cost of feed:

Maize and Bran chops	$23.25
Meat Scraps	.80
Oyster shells	.50
Total	$24.55

$75.40—24.55=$50.85, pay for care and profit.

That looks like pretty good business for a small flock of hens. It simply goes to show the value of a little care and selection of the laying flock to the average farmer, as well as to the town or city backyard chicken raiser.

Below is given the daily ration fed these chickens and the cost of each during the month of January:

9½ lbs. Maize @ .04½c	$0.418
2¾ lbs. Shorts @ .02¾c	.075
5 lbs. Bran @ .02⅝c	.12
3¾ lbs. Corn Chops .04½c	.17
Total cost per day	$0.783

In addition a small amount of alfalfa, soaked in water. Meat scraps and oyster shells are fed to balance the ration and supply shells for digestion.

Prefers Yellow Sweet Clover

I have just read the answers Dr. V. T. Cooke gave to someone in Western Farm Life, March 1. Dr. Cooke is certainly an ardent admirer of the white variety of sweet clover. In the twenty-two times he mentions that particular variety he uses the adjective white every time. If there were more men like him there would not be so many worn-out farms all over the United States and Canada. But it seems to me from this distance that Dr. Cooke sadly overlooked the yellow variety of sweet clover. That variety will put just as many tons of humus into the soil as will the white. It will make a hay equal to any alfalfa and a whole lot more per acre on dry lands. I have handled the two varieties for years, and I have found for silage, the white is very good, but anyone that is suited with the hay he can make out of it is easily suited. I think for all practical purposes the yellow has the white beaten at least a mile. I will here mention its advantages over the white:

First, it is about three weeks earlier than is the white; it stands close cutting and close pasturing. I have pastured it so close with horses that everybody thought if that didn't kill it, it would live forever. It can be and should be cut for hay when in full bloom. The white, on account of its woody coarseness, has to be cut before it blooms. In that stage it is hard to cure, and when cured is only a green, washy, unripened product.

Field of Yellow Sweet Clover on Worn-out Grain Land

Stock like it, but they eat two tons while they ought to eat but one. On moist, rich land the white grows larger than does the yellow, but on poor, dry land that is not the case. Dr. Cooke thinks for hay all that is required is a good thick stand. I have had it so thick it would have been very difficult to stick a 10-penny nail between the stocks. The result was millions of fine stems, no branches and few leaves. The stems in that case are not coarse, but they are stems just the same, but at best the percentage of leaves on the white is exceedingly small. If Dr. Cooke wants feed and fertility both he ought to give the yellow more consideration. Some think the yellow grows so ridiculously small that they would have to use a vacuum sweeper instead of a rake to get it in windrows. We have grown it here on dry, worn-out grain land from five to eight feet long. I will here inclose two pictures. Picture No. 1 was taken after a windstorm blew the yellow clover down. We straightened up two stocks, tied them together on top, and I stood under them, and against the down clover. The artist stood where the clover had been cut for hay. Had the artist got on the ground a week sooner the background in that picture would have resembled an African jungle. This picture was taken when the clover was pretty well out of bloom. Picture No. 2 is a stock of yellow clover over eight feet high. It was then just about out of bloom. Dr. Cooke is doing a lot of good. Any sweet clover is better than none, but a dry-land farmer ought to plant the most desirable variety, a variety that will produce fat, milk, cream and honey. All these things he can have and is entitled to them, and fertility he gets whether he wants it or not, so here is hurrah for Dr. Cooke! Long may he live and investigate further. I want it understood the yellow clover I have here mentioned is not the yellow Trifoilmor (Melilotus Indica), but the Mammoth Yellow (Melilotus Officianalis).—J. D. Kaufman, Kalispell, Montana, Route 1.

Potato Growers Cooperate

The Costilla Estates Potato Growers' Association is a new one, organized March 3, 1919, at Mesita, Colorado, in Costilla county, and covering the southern half of the county. There are four districts, each with a vice-president, and a general president and secretary-treasurer.

The organization has already purchased nearly 150,000 pounds of seed potatoes from the Monte Vista and Carbondale districts, and the members will have several hundred acres in potatoes this year. Last season there were probably twenty farmers who grew potatoes, and the results were so encouraging that they have decided to go into the business on a larger scale.

The organization contemplates cooperation in seed buying and in marketing, and also the encouragement of the use of good seed and business methods, and the discouragement of the seeding of unreliable varieties and the use of isolated and individual methods in the handling of the business side of the venture.

There are now about fifty members, but the membership will be doubled in a very short time. We purpose to make the old potato fields sit up and take notice, and we hope, by profiting by our own mistakes and the mistakes of others, to become recognized as a real factor in the agricultural development of this section of Colorado.—E. T. Child, Secretary The Costilla Estates Potato Growers' Association.

Hotchkiss Shippers Organize

In your issue of March 1st I notice you have a great deal to say about livestock shipping associations. We recently completed such an organization here, which takes in the east half of Delta county and a small nook of Montrose county. The organization of a similar association is under way at Delta, which will cover the west end of the county, thus making it possible for every farmer in Delta county to ship through a cooperative association and cut out the middle man. Our association will make its first shipment this week of one car of cattle and one car of hogs. Besides the marketing of live stock, the association has already started a move for the improvement of shipping facilities, and in this we have secured the co-operation of the range men, both cattle and sheep. Hotchkiss is the home of a live co-operative creamery, and Delta county supports the biggest co-operative telephone in the state, if not in the west.—H. B. Fetz, Hotchkiss, Colo.

It is encouraging to note that prices of hogs, cattle and sheep were higher five months after the armistice was signed than they were during the war. This means continued prosperity for the farmer

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These are but a few of the many very good reasons for Studebaker value—why Studebaker can and does produce cars of sterling high quality at low prices. If real economy is your consideration—if you want to get the most for your mouey—investigate the New Studebaker Cars before you buy. And if you purchase your motor car on the same basis as you do your blooded stock or a piece of farm machinery—as an investment—then Studebaker should be your first choice.

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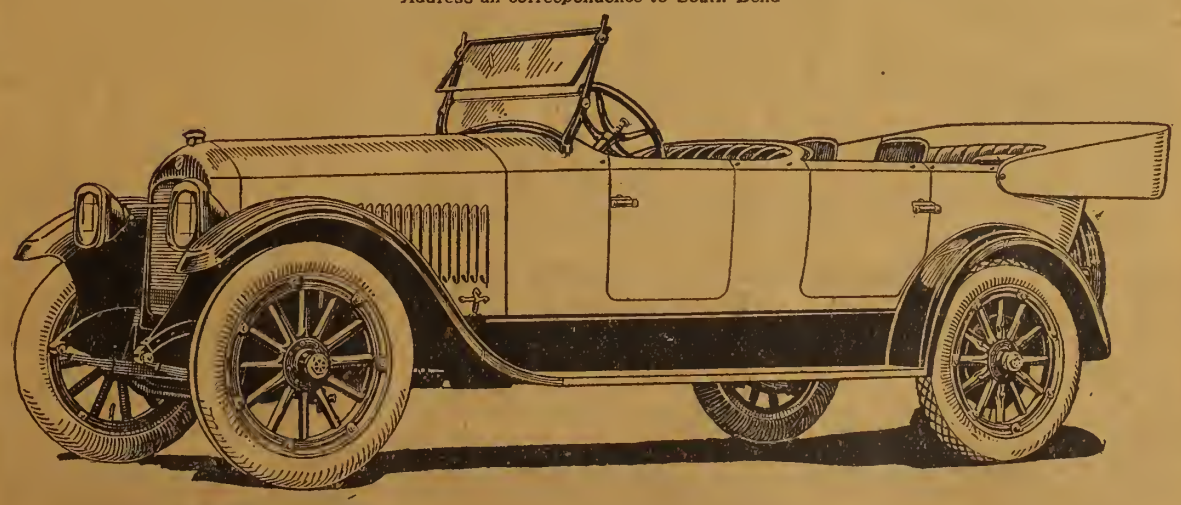

THE NEW BIG-SIX—*The Only Car at its Price with Cord Tire Equipment*

Agricultural High School Class Judging Herefords on the S. L. W. Ranch

Learning to Judge Stock

Practical farm training is given students in the agricultural department of the Greeley high school who, among other interesting subjects, also study the judging of livestock. Prof. F. A. Ogle, who is in charge, takes his class out to community and county fairs and to farms and ranches to give the young men opportunity to exercise the technical knowledge which they acquire in the classroom. So proficient have these young men become in stock-judging that they won in the students' judging contest at the National Western Stock Show in Denver, and also in a contest at the Farmers' Congress in Fort Collins. One of the young men made a better grade in judging horses at the Denver stock show than any college student.

The class is made up of juniors, with occasionally a senior or a lower classman. The first thing taken up is the study of the score cards of various classes of livestock. This finished, the young men are then given an opportunity to score farm animals. After some practice at scoring, they take up comparative judging.

Students of the class furnish autos and the entire class, accompanied by Mr. Ogle, then visit breeding farms within a radius of 30 miles of Greeley. The breeders are always enthusiastic supporters of the work. They gladly give of their time and experience for the benefit of the young men who come to the farm to test their theoretical knowledge. Among those whose farms have been visited are Painter's Lakeside Hereford ranch at Roggen, Warnock & Sons Shorthorn breeding farm at Loveland, the S. L. W. ranch at Kersey, the C. V. Owens ranch, the H. D. Parker Guernsey herd, Henry's Poland China farm and McClenahan's, the home of the Majesty Jersey herd. A number of the big feeders of beef cattle and lambs also have been visited, where the students had opportunity to judge and compare fat stock.

At the Johnstown dairy show this year members of Mr. Ogle's class helped pick the show animals, and they also judged the calf club class.

This season 27 bred gilts were bought for the boys in the class, 18 of them being fine registered Poland Chinas from the McKelvie farm at Fairfield, Nebraska, and nine registered Duroc Jerseys out of Burke's famous Blue Ribbon herd, Pueblo. These animals are to be shown at the Weld county fair in Greeley next fall. More than 30 bred gilts are now in the hands of the pig club and these, with their offspring, will be shown next fall.

This is the kind of work that is making first-class farmers out of the young ranch boys in the Greeley district, who have the privilege of attending a county high school where thy get not only the cultural studies, but farm theory and practice as well.

Pasturing Sweet Clover

Sweet clover is the one legume which may be pastured rather satisfactorily with cattle and sheep when seeded alone. It has just started to come into prominence as a forage plant in Nebraska, and the extent if its value is not fully known, although it gives promise of possessing considerable value as a pasture crop. Its advantage over alfalfa lies in its being far less conducive to bloat in cattle and sheep. It cannot, however, be pastured with absolute safety, since occasional cases of bloat are reported. It is commonly believed that bloat may be largely avoided by keeping the stock off when the sweet clover is wet with rain or dew. The natural life time of sweet clover is not reduced by grazing as is that of alfalfa.

To make good pasture the plant should be grazed sufficiently close to prevent coarse growth, especially the second year. At the same time, if permanent pasture is desired, care must be taken not to graze the plant so closely after the first year that an insufficient quantity of seed will be formed to reseed for the following year. The permanence of a sweet clover pasture depends entirely upon its ability to reseed, because the plants die at the end of the second year when they have produced seed. Under judicious handling, this natural reseeding appears to be quite dependable, and a number of sweet clover pastures in the state are known to have been pastured for a period of six years. Seeding during two consecutive years at the start has been recommended, to provide for annual reseeding and also for continuous late and early pasture.

Sweet clover has an unusually wide adaptation. It thrives on both relatively wet and dry soils, fertile and infertile soil, sandy and clayey soil, and both when seeded alone and when seeded in a mixture with other pasture plants. It may be expected to grow wherever alfalfa grows, and in addition upon land that is too infertile or too wet for alfalfa. It is also better suited to soils which are rather alkaline than is alfalfa.

Since sweet clover grows tall and makes a rather coarse growth unless grazed closely, it is commonly undesirable to include small quantities of sweet clover seed in pasture mixtures. Our rather limited experience with this crop at the present time leads us to recommend, as a general practice, sweet clover for pasture either alone or not at all. Unless properly managed, cattle are apt to dislike sweet clover and may treat it as a weed where other palatable legumes and grasses may be had. However, if one's cattle are known to have acquired a taste for sweet clover, it may be included in pasture mixtures.—Nebraska Bulletin No. 169.

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E. E. CLARK, Nurseryman, Ridgedale, Idaho

Denver Automotive Exhibition

MOTOR VEHICLES AND MACHINES INTEREST FARMERS

THAT there is a tremendous change at hand in transportation is dawning upon both the urban and the rural dweller. Everybody is aware of the great development of the automobile which is becoming almost the universal means of locomotion, but the public has hardly begun to appreciate the strides that are being made in tractor and truck building. This development affects rural life to a far greater extent than city life, hence such an exhibition as that held in Denver the first week in April under the title of Denver Automotive Show, was naturally of great interest to farmers, many hundreds of whom were in attendance.

The show was held under the auspices of the Automobile Trades Association and it brought to Denver nearly a thousand dealers in automobiles, tractors, trucks and accessories, besides a vast number of users of these machines, and prospective users. The Stockyards Stadium, where the show was held, had been decorated to afford a fit setting for the exhibit of pleasure cars, which covered that floor. Trucks were shown in the horse building, the entire second floor of that structure being utilized for that purpose and there was a large overflow to the grounds outside, where everything in the automotive line was shown in action to prospective buyers, or demonstrated for the benefit of dealers. A number of farm tractors also were shown. It is estimated that the value of the exhibits was about $3,000,000. That it was held on the Stock Show grounds was evidence of two things; first, that it takes sizeable buildings to accommodate a big show and second, it was a recognition of the close connection between automotive power and agriculture.

There was a time—and some people haven't forgotten it yet—when it was popular to criticize the farmer for investing in automobiles. Some bankers, in fact many of them, urgently advised against "spending money foolishly." Editors went so far as to declare that the "era of extravagance" which the auto seemed to usher in was the beginning of the "decline and fall" of the great American empire, because the conservative farmer had gone mad by discarding the red wheeled buggy and buying a gas car, with which he was "sporting" around over the country.

These shortsighted prophets of evil have been proven false. It is admitted by all today that the automobile has done more for the development of rural life through its socializing influences than anything that has happened to agriculture since the beginning of time. And that is only the beginning. Following the automobile comes the farm tractor and the truck, through the use of which production is increased many fold and marketing difficulties, the greatest drawback to farming, are minimized. The spectator at the Automotive show had only to keep his ears cocked to the conversation of farmers viewing the show, to learn that it is the rural dweller and not the town men who is getting the greatest material benefits out of motor vehicles and machinery.

The city man buys pleasure cars, and gets health and contentment, two of the greatest factors in enlarging his life and making him a better customer for the food that the farmer produces. In turn, the farmer who uses modern motor driven machinery and vehicles is thereby enabled to produce greater quantities of foods and feeds and is prepared to take care of the quick distribution of a large percentage of his crop. The latter feature—that of farm trucks—was particularly popular at the Denver show. The exhibits made by the leading manufacturers of the United States included everything from 1 ton up to 7 tons capacity. Questions from farmers indicated the popularity of the smaller capacity trucks, ton and a half to two tons, for the reason that these would be serviceable the year round, while the big trucks were needed only during the period of grain or beet hauling.

There has been considerable development in the establishment of rural motor express lines, as a result of the war, which overtaxed railroad facilities and found one farmer with greater production of foodstuffs to haul to market. The motor truck line did its part in winning the war and its development during the normal period now approaching will be watched with interest, particularly by sections of the west that have always suffered from inadequate transportation.

The Automobile Trades Association is to be congratulated for the manner in which the exhibition was staged and carried out. A twenty-five cent admission proved distinctly popular; in fact, the attendance was so large during the evenings that it was difficult to spend much time investigating individual exhibits. It was up to the spectator to keep moving, or cause an impassable jam. The committee responsible for the success of the big event was composed of Thomas M. Ray, chairman; S. N. Hicks, John Foster, L. E. Kelton, F. C. McDonald, Charles Hendy, Jr., Charles C. Collins, E. C. Edson, A. M. McCarty, Arthur Heiser, and L. R. Bach.

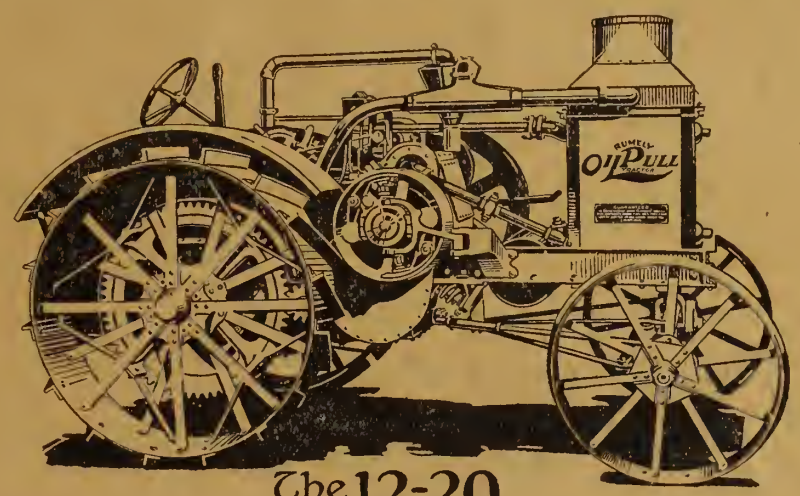
The Trade's association is officered by S. E. Norton, president; Harrison Goldsmith, secretary and manager; Frank Easton, associate manager and John E. Miller, supervisor of installation.

Netherton Leaves the College

At the close of the 1918-19 school year at the Colorado School of Agriculture at Fort Collins, Principal T. M. Netherton resigns his position with the school and will assume management of his farm. Professor Netherton has been with the school for ten years, having been its first principal. During this time more than 3,000 young men and women have been in attendance. Many have completed the course and a considerable number have finished the four years' college work. Nearly all have returned to the farms and are becoming leaders in their communities. During his ten years with the institution Mr. Netherton has made a splendid record, and the state in the future will owe much to him for his assistance in establishing practical education.—E. M. Ammons.

New Text Book on Agriculture

"Farm Science" is the title of a new text-book on agriculture by W. J. Spillman, former chief of the Office of Farm Management, U. S. Department of Agriculture. The volume presents scientific agriculture in a way that the farm boy or girl can understand. It attempts to explain reasons for things that the farm boy or girl knows to be true. It deals with fundamental principles which are the same everywhere and thus the volume is adapted to all sections of the country. The material is arranged for convenient use in the classroom. The volume is well illustrated and couched in plain English. Dr. Spillman is one of the most widely known agriculturists in the United States, and aside from long teaching experience he had had opportunity for personal observation all over the continent. This gives his text book a flavor of freshness and originality. The book is published by the World Book Company, Yonkers-on-Hudson, New York. Cloth. Illustrated. 344 pages. Price, $1.28.



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Fuel—Guaranteed to burn Kerosene successfully under all conditions.

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Car Window Reflections

Seated on Pullman plush, with a broad window as a vantage point, one's reflections are apt to be tinctured by a satisfied philosophy, especially if it be an early spring day, when the snow-covered peaks stand out in their white glory to the westward and the plains on the right are beginning to show a bit of color and freshness in emerging from the drab of the cold season. Leaving Denver thus in a mood for observation and comment, the first thought suggested by immediate surroundings was that city planners and landscape architects who are building here one of the beautiful capitals of the world, with a matchless sky and a mountain background as a setting, are forgetting the ugliest spots which, unfortunately, are the most apparent to the through-passer or the casual visitor. Only a little care and energy would be required to beautify the succession of shanties that line the tracks of the transcontinental lines entering and leaving Denver. These shacks are picturesque in themselves, but they are in a hideous setting of refuse, cinders, trash and tin cans. Remove the debris, build a few tall screen fences, run up some vines and the shanties, with their unique bird houses, perched on poles higher than rooftops, would become a part of the landscape in keeping with our parks. How different is this first—and last—impression one gets of "Denver the Beautiful" from that given the traveler whose train skirts Palmer park along Monument creek in Colorado Springs. Let us leave the suggestion for city folks to act upon and go into the country.

Our train is passing a work train, which suggests swarthy Mexican track laborers, peons from the war-torn republic to the south, descendants of Spaniard and Indian. But what's this? A sudden and brief glimpse of a work car that has curtained windows shading a cage containing two canaries; in the next window a tumbler holding tooth brushes, sure signs of a higher civilization than we might expect among track laborers. The world is progressing, in spite of—or shall we say, because of revolutions in Mexico and war in Europe?

Now we get a view of the Brighton concrete road; again we make a mental note of progress, because concrete is the thermometer of advancement, whether seen in the paved roads, the permanent granary, the silo or the artificial stone house built to last generations. The dairies that cluster about Denver's northeast environs are nothing to look at, but as we go farther into the country there unrolls a panorama of agricultural activity that makes the heart glad. Everywhere the winter wheat has come through fine and it is showing green, with a promise of ample harvest of bread for a hungry world. Windmills, these landmarks of the plains, without which the settler's life would be burdensome and often impossible, swing their huge arms to the breeze and ceaselessly raise and lower the plunger that draws water for man and beast, and sometimes for a farm garden as well. Silos show up here, there and everywhere; and many other silos we know are there, but they are in the ground, with nothing showing above the surface but the rigging, by means of which the succulent feed is drawn up for the farm animals. Big red barns are numerous. Why do they paint them red? Because they are proud of them. Red is the color of life. No matter whether the prevalent tone of the landscape be the green of summer, the brown of autumn, or the white of winter, the red barn always stands out in strong contrast. For my own taste I would have the barn roof red, but the structure of a less vivid hue, merging its angular lines with the general landscape—but then, I am no farm architect.

Now we pass a thrifty farm; two outfits drilling spring wheat in the corn stubble; several hundred head of beef cattle in the feed lots and two big stacks of alfalfa still left on hand to carry them along till June, if need be. This is the final turn in the meat-making process, the last operation before the cattle go to the packer, and they look fat, with glossy, sleek coats over which one would like to run a hand to get a touch of their fleshing qualities.

The train approaches Barr lakes, a succession of reservoirs, paradise of the duck hunter, who thinks they were put there for the sake of satisfying a primitive human instinct for the chase. But they serve a greater purpose. There is more potential wealth in the murky water held back by huge concrete dams and then gradually led out through canals upon the lower plains, than in any other natural resource about us, except in the land itself. Let the duck hunter have his sport; the reeds conceal him well from the flocks of canvasback and teal and the water waits for the floodgates to open, so that it may do its duty in increasing the yields thirty, fifty, sixty and even an hundredfold.

Here is a wheat field already fit for pasture and a fine bunch of ewes running over it. Or maybe it is rye, which the farmer is not so fearful of having tramped into the ground as I would be with wheat.

We are nearing Fort Morgan. I recall the first time the train took me through the country hereabouts. Fort Morgan was then a cattle loading station. Many cars of cattle still originate at Fort Morgan, but today's are different. When I first saw the station it was a range point where grassers were shipped out. Now it is a feeding station. The sugar beet industry is largely responsible for the change that has come in the last fifteen years. It was twenty years ago that I first saw this country, then a vast cattle range, with unirrigated land considered practically valueless for agriculture. Five years later, at the behest of the late Senator T. M. Patterson, I made my first trip of investigation over the dry farming sections of eastern Colorado. The Union Pacific lands were being opened to settlement; sales were made at from $5 to $8 and $10 per acre. These values ruled for several years. Today the lands are rated from $30 to $75; here and there a quarter section has sold for $80. Do we realize the tremendous addition to the wealth of the state that has come about through this development?

In those earlier days I found the pioneer dry land farmers full of faith, but mostly with slender bank accounts, if any. Only the exceptional one among them was farming with a vision for the future. Most of them had come to "take up a homestead," live on it their allotted time and then sell out. Others were buying railroad land for speculative purposes. Some came with the determination to overcome obstacles; others were forced by circumstances to remain on the land. Today any traveler who uses his eyes may see that the land has been subjugated and that, henceforth, nature's moods will always be met by sound agricultural practice; which means that the natural rainfall once lost in the run-off, is being made to do its full duty in production of crops to feed and fatten livestock of all classes.

Seeing irigated farms away on the left and dry land farms on the right and intimately familiar with practice, yields and cash returns on both, this conclusion forced itself upon the observer: irrigation water is not quite the factor that we have been led to believe it is in giving us high crop yields. Our native fertility, plus hours of sunshine during the growing season, are of equal importance, and these two factors are present on our so-called dry lands, where we conserve the natural moisture and make it do full duty. What we need is more vegetable fertility—more humus in the soil. We get it on our irrigated farms in the manure. We need more livestock on the dry land farms, although we can grow green manuring crops. Witness the sweet clover which lines the right-of-way of the railroads from Denver hundreds of miles eastward. In that legume, sometimes despised and railed at on the irrigated farm, because it spreads from the ditch banks, there is a tremendous undeveloped resource; fertility for the soil in a root growth that opens the pores of the ground, makes the precious nitrogen available to succeeding crops and gives us a protein rich feed for our livestock.

Going eastward over the Burlington and coming back via the Union Pacific there was apparent a remarkable difference between the farm improvements in northeastern Colorado and those seen in daylight at the other end of the journey along the Missouri river. There the rich bottom land, which, though leached by heavy rains, is replenished by occasional deposits of new silt from overflows, would lead one to expect farm buildings of superior character. The reverse is true. Dwellings and barns in the richest bottoms are usually weather beaten and illkept, one reason perhaps being that these are the homes built by the early settlers, who have failed to keep abreast of progress in agriculture. Inland, however, there is a better class of improvements and the farms are better kept, though everywhere at this season (the latter part of March,) spring rains gave the stalk fields a particularly bedraggled appearance. In contrast, one could not help but note that at the same time Colorado farmers were doing their spring work in mellow fields with a dry top soil to support the plow or drill. We seldom fail to have that welcome early spring period, before the season of late snows and rains, when our farmers get in the small grain and prepare the ground for row crops, to be planted after the middle of May. At the same period the average condition in the river country is a wet and soggy soil, with frequent interrupting rains to halt the work. Again was the fact emphasized that, no matter where one seeks to farm, nature places obstacles that keep man on a fighting edge, if there is any pep in him, and if there isn't, why he had better not try to farm anywhere, for success will not come to him. It never does without effort.—A. T. S.

* * *

Marketing Colorado Apples

On another page of this issue will be found an article by Alfred M. Wilson, a Grand Valley fruit grower, regarding defects in the marketing of Colorado apples. It is showu by freight rate quotations that our growers have been attempting to sell their product in territory too far removed from the point of production and overlooking markets nearer home which have been captured by growers of the northwest Pacific states. As Mr. Wilson points out, there is something radically wrong. He suggests remedies among which may be mentioned publicity for the Colorado apple. It is a remarkable fact that the Denver market seems to be more favorable to northwest apples than to apples grown in this state. This situation can be corrected by judicious salesmanship and the application of modern publicity methods, reaching the dealer as well as the consumer. Fruit growers should give Mr. Wilson's article careful study. He has given much time to the development of this topic and has succeeded in presenting information which, if acted upon, means a tremendous saving to the fruit industry.

The Branding Iron

Applied by Elias M. Ammons

The owner of the Grand Junction sugar factory a couple of years ago purchased a site for a second Western Slope factory at Delta. It has been difficult, however, to induce the farmers to grow enough beets to supply more than the present factory at Grand Junction, and the construction of the second plant has not yet been commenced. This year's increased prices have induced a greater acreage, so that in 1919 eight thousand acres will be planted as compared with six thousand acres planted last year. If the price keeps up to the present figure of ten dollars a ton the crop will probably increase sufficiently to warrant the building of the Delta factory.

* * *

Wheat market conditions in the northwest present a peculiar aspect. The price fixed for Portland and Seattle is $2.20 a bushel. Shipping facilities are wanting and elevators are overloaded with tens of millions of bushels seeking an outlet. In Montana, mills are producing a superior flour and underselling the coast mills, because they can use the by-product to greater advantage in feeding livestock.

* * *

Kansas has a bright prospect for the largest wheat crop in its history. Throughout the state fall wheat has wintered well and fields are universally looking well. Kansas is already boasting not only the greatest crop it has ever raised but the largest ever grown by any state.

* * *

In the effort to reduce the cost of living it is a mistaken notion that all the reduction can be placed upon the farmer. He uses more of the manufactured goods than any one else. He employs a great amount of labor. He keeps transportation alive, and can furnish the exports most needed to insure a return to peaceful conditions and profitable trade relations. To cut his price below the cost of production, or even to take all the profit out of it, is to kill the goose that lays the golden egg.

* * *

The coming school year there will be eighteen high schools in Colorado giving vocational training. When the legislature authorized the work two years ago there seemed to be little interest in it, and considerable trouble was experienced in inducing schools to meet the requirements of the federal government. After two years' experience schools are applying faster than funds can be supplied. From the present outlook it is likely that all country and most city high schools will furnish this sort of education within the next five years.

* * *

Colorado never faced a more critical situation in its irrigation development than is presented at the present time. Because of the claims of the bondholders the legislature has found it a difficult problem to untangle the irrigation districts involving 1,500,000 acres of land. The committee appointed by the late council of defense is urging the appointment of an official arbitration board, with the governor at its head, believing that such an organization will be able to adjust the disagreements in many of the districts and enable them to complete their plants. As to the others, it is hoped that investigation will point out legislation needed to untangle those which cannot be arbitrated. Under this plan the bondholders might as well make up their minds to take their share of the loss, and safeguards should be thrown around the organization of new districts to prevent any such condition as now exists under the present law.

* * *

A few days ago an Indian was arrested for forgery. One by one the redmen acquire the white man's standards of modern civilization. Some day a big lazy redskin will sue his squaw for lack of support and alimony, and then his civilization may be considered complete.

Purebred Livestock for Sale. See Breeder's Announcements on next to last page this issue.

Comment by Farmer Putnam

JOSEPHINE TAKES PEN IN HAND AND WRITES IN THE ABSENCE OF TOM, WHO HAS GONE TO BUY CATTLE

LAND alive, it do be a pleasure to set down and write fur the paper with nobody to bother me. Tom has gone to Wyoming to buy some cattle and he won't be back fur a week or ten days, and he sez fur me to write his article, providin' I don't git too pussonel. Well, folks, we've had a hard winter. I reckon you-all don't know we sold out our Stove Prairie ranch. Tom didn't want me to say nothin' about it in the paper because he sez folks would think he didn't make a success of farmin'. Well, I don't know as it hurts his reputation as a farmer any; you cain't hurt somethin' you hain't got, and Tom and farmin' is mostly strangers to each other. T. J. Putnam kin write all about them different kinds of crops, etc., but when it comes to raisin' 'em it's different. Back in Missouri he was allus the first feller to take up any new idees and he spoke about 'em in meetin' and recommended other farmers to do the things that the institoot lecturers recommended, but when it come to doin' 'em hisself why he wasn't thar. If anything was done it was Josephine and the boys that done it. Tom was allus a great organizer. He belonged to everything that had low dues and few duties and he was allus gittin' hisself elected on the executetive committee by risin' up and makin' a motion at the right time. Onct he come near bein' elected to the Missouri legislater. I reckon he would-a made the race if I hadn't put my foot down and told him to remember that I come from a self-respectin' and honest family and that if he didn't care, he should think of me and the boys and not disgrace us.

What put that political bug in his head was a letter signed by Champ Clark addressed to "My Fellow Democrat," askin' him to remember his party's great services to the nation in times past, from Jefferson down to Bryan. Tom bein', named fur Jefferson, the founder of the party, and havin' a letter from Champ Clark and one from Bryan onct, thought it meant somethin' so he decided to try his hand at politics. I told him he could choose—either give up his fool notion to become a great statesman, or give up his home and family. He decided to let politics alone, but I sometimes think I made a mistake in not lettin' him go ahead. We might-a been rich now. When people git rich at it they kin stand a lot of disgrace, but I reckon it's turrible to be poor and dishonest.

Yes, we've sold out at Stove Prairie. It was too fur from the railroad and we got a place rented fur the year in Arapahoe county. It's a dry farm, as they're called. Tom's got a option to buy if he makes a good crop, but I told the feller that give him the option he might as well keep it, because Tom was too busy writin' to even pray fur rain, let alone plow deep. or summer faller, or build a pit silo, or do a dozen other things that he's allus tellin' you folks to do, if you want to succeed. It it warn't fur our farm in Missouri bringin' us in good rent I reckon Tom would have to quit advisin' and go and take some advice hisself and put it in practice. —Wait a minute—here comes the mail man.

Later: He brung me a letter from Tom and a marked copy of the Casper, Wyo., paper. Here's what the letter sez:

My dear Josephine: I reckon you'll be surprised that I'm a writin' from Casper. This is a fine city. I never seen so many rich people in one town in my life. Everybody has got money up here. My, I never thought there was so much money in the world. I wired to that man at Sheridan that I wouldn't come this week to look at the cattle. Josephine, my ship has come in. I been a-waitin' all these years fur just the opportunity knockin' on my door and now she's here and I've opened the door to her. I met the nicest man on the cars comin' up here. I got acquainted with him right after the train left Fort Collins and he took a likin' to me. He said he seen I was a broad gazed man of the world. Them fellers sure kin read character. He is the president of some kind of a Subsidiary Consolidation Co. (capital stock $1,000,000,) headquarters, Oklahoma City, and Dallas, it sez on his card. He smokes 50 cent cigars by the dozen and he handed me one five minutes after I met him. He was what you call democratic; nothin' stuck up about him and he invited me to go in the diner and have supper with him. I kicked that shoebox with my lunch under the seat and I felt ashamed and a-feared that he might see it.

Well, while we was eatin' supper he went and ast me where I was figgurin' on buying cattle and I told him and a sad look come to his face and he sez: "Mr. Putnam, I want to show you somethin'. You're a stranger to me, but no man that tills the soil and raises cattle kin be long a stranger to Frank Henderson Randall—that's my name; here's my card. I was born and raised on a ranch in Texas. I've gone through drouth and flood and prairie fire. I made money and I lost money in cattle. I know that tremenjous burdens is on the farmers' shoulders. I've carried my end of them, but now I'm through. I'm on Easy Street and I didn't make it farmin'. No man ever got rich farmin', Mr. Putnam, it cain't be done. You've toiled and sweated and labored. I dare say, many years; you've served longer than Jacob served fur the daughters of Laban—I say it reverently, fur I am a God-fearin' Christian man—but you hain't no nearer the goal then you was thirty or forty years ago. Now, lissen, I've put two other good, honest hard-workin' farmers on the road to wealth and I'm goin' to make you No. 3 if you're willin' to join our organization. Everything is open and above boards. The other two is in my office up to Casper and you kin stop there and talk to 'em before you give me your decision."

Then he leaned over and whispered to me: "We've struck a new pool in the ——— field. It's a secret yet. This thing is goin' to be split four ways—I'll take my share, and you three farmers that's a-goin' in with me, gits yours. I work altogether by hunches. When you got on the train at Fort Collins somethin' sez to me—there's number three and I knowed you'd be interested. Now lissen, you don't spend a dollar in Casper. You'll be my guest at the hotel; my tourin' car will be at your service; you kin look over our leases with your own eyes. And when you've spent a week satisfyin' yourself and you are perfectly sure that the game is worth the candle then you give us your word of honor as a gentleman and farmer and we tend to the little preliminaries, etc."

Josephine, Mr. Randall is a prince. He showed me his father's picter—and lo and behold it was old Cels Randall of Clay county! I been havin' the time of my life. Now, Josie, the deal's all ready to put through. The other two men is plain farmers like me—both from Sedgwick county, Kansas, and they have got their money ready. I want you to send me a draft on your St. Joe account fur $3,500—that's all it takes—and inside of three weeks you and me kin retire. The stock takes a jump on the 26th, as soon as Mr. Randall lets the cat outen the bag. You git the draft in the mail and wire me at onct, about like this, so's the telegraph company won't git onto our secret—"Opportunity beckons; I am opening the door. Documents by special delivery today."

Say folks, don't that sound just like him? Did you ever see a more innercent old fossil than my Tom? Goin' to Wyoming to buy cattle and then let's

(Turn to Page 16)

The REDLANDS

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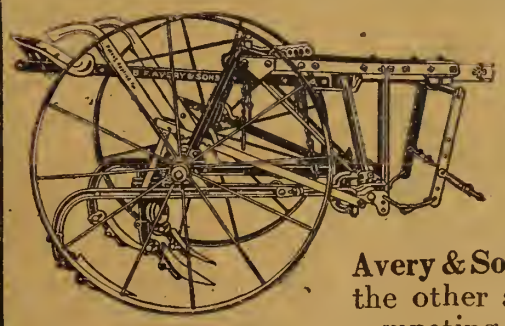
This Happened at a Farm Auction Sale

In February, 1919, Mr. Martin Thompson, a farmer living near Millard, Neb., auctioned off his farm implements, household goods, etc.



He had on hand two lever-less riding cultivators, both bought last Spring. One of them was a **B. F. Avery & Sons Leverless**; the other a well-known competing cultivator.

The opening bid for the Avery was $40.00, and it was sold for $53.00 to Mr. Gus Biels, whose address is Station B., Omaha, Neb. The other cultivator was sold for $25.00.

Moral: Do as Mr. Biels did—get an Avery Leverless for this Spring's work. If your dealer does not carry the Avery, write

B. F. AVERY & SONS, Founded 1825 Incorporated 1877 **Louisville, Ky.**

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Points on Silage Feeding

Answer to R. W., Idaho:

Silage is not a complete feed. It must be balanced with grain of some kind to complete the ration. Thirty to forty pounds of silage to a dairy cow is generally the way it is fed, but grain or cottonseed meal, or some other feed rich in protein is fed with it. Unless a silo is air tight the silage will spoil. When it is properly packed down in filling it seals itself and remains palatable through the feeding season.

Irrigating Potatoes

Give a little more information on the proper time to water spuds. Some say wait until they are in bloom; others, wait till they begin to set, etc.—J. E. D., Sagauche county, Colorado.

To properly answer that question it would be necessary to know your soil and your water conditions, whether you irrigate direct from the ditch, or rely on sub-irrigation. We find that potato growers usually work this point out through experience, as not only soil and water conditions vary greatly, from section to section, but there are such great differences between seasons in Colorado that what might be good practice one year would be bad the next. However, there are a few general principles regarding potato irrigation that are worth considering. They are summed up in Bulletin No. 243, "Potato Culture in Colorado," by E. P. Sandsten. We are attaching an extract from that part of the bulletin relating to irrigation, and would suggest that if you do not have this bulletin, you can get a copy free by writing to the State Experiment Station at Fort Collins. There is so much difference of opinion and practice in potato irrigation in the West that the safest advice is to watch the best growers in your own neighborhood and talk with them about it. You will generally find that the men who have had the best luck with spuds year after year are the ones who, by long experience, have gotten this watering proposition down to where they know what to do. Most of the growers just guess at it. The potato is such a peculiar plant and our climate is such a variable one, that fixing rules for irrigation is a job we don't want to tackle. Remember this: if you have a good potato soil, well drained and fertile, you are more apt to spoil the crop by using too much water than by using too little. But don't let them wait when they need water—keep the plants growing.

Soldier's Homestead Questions

If a special limited service man or a man in the draft awaiting his call has taken up 160 or 320-acre homestead and is under the impression he does not have to make his improvements because of being in the draft and understanding a soldier's claim is uncontestable, and expecting his call at any time and does not put his improvements on for those reasons, can he hold his claim though the armistice came before he received his call?

Answers to S. J. S., Wyoming.

Answer—Our understanding would be that the soldier entryman must have been in actual service. The amended draft law makes the following provision: "That any person under the age of 21 years or who shall serve in the army or navy of the United States during the present war" shall be entitled to soldier's homestead rights. This law further provides that selection of lands "can be made by those called in the draft and entry made prior to departure for service or before their commanding officer wherever serving." We have seen no ruling on this point, but the law, as we understand it, extends the privilege only to men in actual service.

Question—Is it necessary to cultivate a claim of 160 or 320 acres for three years to prove up, or is only one year's cultivation required?

Answer—Cultivation of land for a period of three years is required.

Question—Is a good habitable cabine enough to hold a claim or do you have to erect other buildings?

Answer—The following is quoted from the law: "The homestead entryman must have a habitable house upon the land entered at the time of submitting proof. Other improvements should be of such character and amount as are sufficient to show good faith."

Question—Is a man entitled to absences of a week or two or three weeks for the purpose of helping others at ranch work?

Answer—The homestead absence privilege was a war measure. It provides that any person who settled on land before December 20, 1917, or whose entry was filed before that date, could leave a claim for the purpose of doing farm work, but he must file notice at the land office of such absence fifteen days after leaving it, also on or before February 1 of each year during which such absences occurred; he must file written statement corroborated by two witnesses, giving dates of leaving and returning and names and places where employed. Also cultivation and habitation requirements were not changed by this absence privilege.

Original Color of Farm Animals

Answer to J. R. G., Otero county, Colorado:

We are in receipt of your card of the 1st in further reference to the bulletins on breeds of farm animals. We note what you say regarding the information you ask for, which is not the present color of farm animals, but the original—the color of wild animals from which our present domesticated species have been developed. You are asking a question that opens up a very interesting field for speculation, but does not lead us to any definite conclusions, for the reason that present breeds of domesticated animals are as old as humanity itself. In fact, history does not go back far enough to give us any definite indication concerning the original color and type of these animals.

Take the sheep as an example. In excavations of what are known as the Swiss Lake Dwellings, which are believed to date back to the Neolithic age, bones and other evidences of a tribe of sheep have been found. We also note that woolen cloth was manufactured in Asia at least 2,000 years before the Christian era, consequently the ancients in China and other Asiatic countries were in possession of herds of wool bearing animals of the sheep family. What their principal color characteristics were and from what wild species these animals have been developed, is a matter of conjecture.

When we look into the history of cattle development we are not quite so much at sea, because there are still in existence in Great Britain a few small herds of wild cattle which have been preserved in their native state on several of the big estates. Thus, we have, for example, the black cattle of Wales and specimens of the pure white. The latter are found in Chillingham Park, Lynne Park, Chartley and Chazow Forest in Great Britain.

Thomas Shaw in his "Study of Breeds" describes thewhite cattle, giving that as the prevailing color and stating that a few of the bulls are cream, but that the whole of the ear inside and one-third outside from tip down is red or brown. These white cattle, however, have a black muzzle.

At the National Western Stock Show in Denver a year ago a mounted specimen of white wild bull was exhibited

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HERE is the improved Steel Fence Post you have been waiting for. Bigger, better, stronger. Thicker material. Drives easily in any soil. Anchors solidly. A labor saver. Heavily galvanized inside and out after forming. A post that will settle your fence-post problem for good. See it at your dealer's and you will be enthusiastic.

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Tell us your wants. We can save you money.

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Leading veterinarians recommend spring clipping for keeping horses healthy. Unclipped horses get overheated from spring work and their long hair takes hours to dry. While wet they are liable to catch cold and get sick. Long hair also attracts vermin, causing itch and mange. Clip with a Stewart Machine. Only $9.75. $2 down—balance on arrival. Write for catalog.

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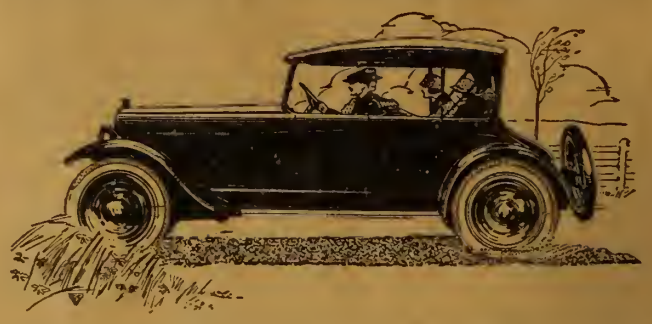

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When you really know the Chandler Six, no "competitive" car will interest you. Cars for which you are asked to pay more will not interest you.

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Six handsome bodies are mounted on the one famous Chandler chassis.

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All prices f. o. b. Cleveland

If the Chandler is not sold where you trade, write for name of dealer who can serve you. Catalogs on request.

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THE "good old days" of a pick and shovel have become memories. Instead of spending a week on a mile of ditch, Mr. Farmer now completes the job in a few hours. He does a better job, too—and saves a BIG LOT of *valuable* time. He does it with THE Martin

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THE FARMERS LIFE INSURANCE COMPANY
Denver, Colorado

Assets, December 31st, 1918	$ 2,213,992.00
Liabilities, December 31st, 1918	2,008,046.00
Surplus to policyholders	205,946.00
	$ 2,213,992.00
Insurance in force	$12,912,042.00
Policy claims paid in 1918	226,620.00

42% Death Losses in 1918 caused by Spanish Influenza

by Eugene Grubb of Carbondale, Colorado. Mr. Grubb, while visiting on a Scottish estate several years ago, was privileged to shoot this animal, and the hide, hoofs and horns, all complete, were shipped to Colorado and were mounted. This animal is now part of the zoological exhibit at City Park museum in Denver.

The fact that British cattle trace their ancestry to wild cattle of solid black or solid white, does not prove anything regarding the general color of the ancestors of our present breeds of cattle.

Color is influenced by climatic conditions and natural environment. While modern breeding methods are capable of mixing or altering these colors to some extent, nature provided the original color, which was influenced, as stated, by the prevailing climate and to somee xtent by the necessity for protection against natural enemies. No one can answer your question except by speculating on the poor record that history has left us concerning the origin of our domesticated animals and fowls. I am not at all convinced that our modern writers are correct in classing the black and white so-called wild cattle of Great Britain as original native wild animals. It seems much more probable that these cattle were domesticated breeds brought to the British Isles during the Roman invasion from southern Europe and they there reverted back to a natural state for lack of care.—A. T. S.

Sudan Grass and Alkali

Answer to R. B., Delta county, Colo: Will Sudan grass grow on alkalied land, which has been drained? Sudan grass needs a well drained soil. It will not grow on wet land, but if the land has drainage so that the water does not stand Sudan will do well even if the soil is somewhat alkaline. It will not grow in a black alkali soil, but a medium quantity of common white alkali will not hurt it. Perhaps the best pasture or hay plant for alkalied land is white sweet clover. This does well in the San Luis valley, even on land that has considerable black alkali.

Castor Oil Production

Answer to T. J. P., Kiowa county: In regard to the production of castor oil. The castor bean cannot be commercially grown in this state. It is a good crop for Texas or southern Oklahoma, but our climate is not suitable to its production on a commercial scale. The plants thrive so well and bear so heavily of castor beans under southern conditions, that we could not compete with Texas in this state. As a temporary windbreak or an ornamental garden plant castor beans might serve a useful purpose. There are other shrubs, however, which are far superior to it for windbreak purposes, especially around a garden. Among these is the tamerisk which does well in your part of Colorado, under dry land conditions.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

No Cure for Barrenness

Will you please give your advice about my mare? She will not raise colts. Have taken her to a horse every year now and she was never in foal. It is not the stallion's fault. Is there any sure way to prove that a mare is in foal if you are in doubt? She is only a four-year-old and what can I do with her so she will raise colts?—A subscriber.

The mare is apparently barren, and probably always will be, since she has repeatedly failed to conceive. If she had ever had a colt there would be some hope that by surgical interference, or otherwise, the fault might be corrected and the mare again become fertile. For the first eight months of pregnancy there is no sure way to determine pregnancy save by examination through the rectum or the vagina. The latter method is the most satisfactory, but there is always some danger of causing a miscarriage. One of the first signs of pregnancy is the absence of the period of heat. Then the mare tends to become more quiet, to take on fat, and to be cross to other animals. As pregnancy advances the belly becomes more pendulous and the movements of the fetus can be seen, especially on the right side and after the mare has had a drink of cold water. The mare in question is probably congenitally sterile (barren) and nothing can be done to make her breed. However, before deciding this matter definitely, she should be examined by a competent veterinary.—G. H. G.

Pneumonia Probable Cause

Will you please tell me what is the matter with my pigs? When they were about four days old I noticed one morning one was panting. By night it had its mouth open and squealing. That night it died. Two days later another one took the same way. I gave it a few drops of zenoleum in a spoon of castor oil. The next morning it had quit panting but would stand around with its nose to the ground. I gave it another dose and followed up with oil. It lived four days and died. A third one bas been panting a little two days but does not seem sick yet. They are fat; in fact the fattest ones are the ones that die. The sow is healthy; in good condition but not too fat. I feed her twice a day cooked potatoes and beets, scraps from the table, always fresb and all the alfalfa bay she wants. I have a warm house for them at night, and they run out in the day time. I have lost several in the last two years the same way.—I. E., Nevada.

Your brief description of the disease in pigs is not sufficient to enable me to diagnose the disease definitely. Panting is not a symptom of "thumps" but does indicate inflammation of the respiratory organs—probably pneumonia. There is no doubt but that pneumonia in little pigs may be infectious. Again it is not uncommon to see a whole litter of pigs affected at about the same time, the presumption being that the same conditions that have induced it in one have caused it in all of them. The sow should farrow in a clean pen and much bedding is objectionable. The management of the sows as to exercise and feeding would seem to be satisfactory, unless it be that a little grain for pregnant sows up to within two weeks of farrowing makes the pigs stronger. Most farmers these days can identify the internal organs and it pays to make a practice of "posting" all animals that die on the farm. Especially is this true where a description is given for the purpose of seeking professional advice. Long distance diagnosis based purely upon a statement of one or two ante mortem symptoms is not in accord with professional ethics or common sense. However, even though it be largely guess work, if a full statement is given of the symptoms, conditions of feeding, shelter, and if, in this wise a fairly good history of the case is followed by a statement of what was found on post mortem, an attempt at diagnosis is really worth while, in most cases. In this case I will guess that the pigs died of pneumonia, but I am not sure.—G. H. G.

Calf Diphtheria Suspected

I am enclosing a bead of grass that I would like very much to know what it is, as I bave lost several head of calves from the sore mouths it causes, some of the beards working clear through. It is a bunch grass with long head. Seems to grow on low ground and bigh ground. It has seven or eigbt seed stalks, about two feet high, to the bunch. Stock seems to like it fine.—D. M., Jefferson county.

The grass specimen which you sent is known as Lyme grass, but in the West is more commonly spoken of as Canada wild rye or nodding wild rye. Botanically it is known as Elymus Canadensis. It is one of the grasses that is classed as mechanically injurious. However, among mechanically injurious plants it is far from being as bothersome as fox-tail grass, three-awned grass, barley-beards and porcupine-grass. In this connection it may be well to call attention to the frequency with which the wild rye is infested with ergot. A considerable ergot in wiid rye hay will cause abortion and other serious consequences. Sore mouths in calves (stomatitis) might easily be caused by the wild rye, but since you have lost several calves I suspect that calf diphtheria may be the cause and if so it will be more serious. Examine the mouths carefully and if another calf dies make careful examination of the throat for croupous membranes and deep-seated ulcers. The grasses mentioned, including the wild rye, transmit, actinomycosis (lumpy jaw), by carrying the infection into the deep tissues of the cheek, neck, tongue, and other tissues.—G. H. G.

Chicken Cholera

The poultry in this vicinity are dying from some strange disease. They are fat, but appear weak and fall over easily. Wings drop and tremble when you pick them up. Only live a few hours. Fall off the roost dead. Some are found with heads erect as if sitting on the nest, some with head under wing. I opened one. Dark green inside of big intestine; almost black. Inside of gizzard ligbt green. Have been feeding cooked bald barley. Do not think it is the feed as the whole neigbborhood has it. Affects turkeys also.—J. W. L., Conejos county.

Your trouble is chicken cholera, at least you have described the symptoms accurately. This is a specific contagious disease of birds caused by the bacillus septicus. Bacteria of this same group cause swine plague and hemorrhagic septicema in horses, cattle and sheep. Many lambs are dying in the feed lots of hemorrhagic septicemia, as has been fully demonstrated in northern Colorado, and swine plague as a complication of hog cholera has caused much trouble in the San Luis valley. Be it understood, however, that the different strains of this organism are seldom intertransmissable, so that there is little likelihood that the disease in chickens was contracted from the hogs. Chicken cholera bacterins seem to be quite successful in controlling the disease. The same can be purchased from the American Veterinary Supply Co., Kansas City, Mo., and from other biologic firms. The healthy chickens should be removed immediately and placed by themselves in clean quarters. Corrosive sublimate (Ito 2000) may be dissolved in the drinking water. Chickens that are visibly sick should be killed and burned, along with the litter and scrapings from the yard. The soil should be turned over and the woodwork whitewashed. If the chickens have had the run of the barnyard the problem becomes doubly difficult.—G. H. G.

Horse Has Sore Neck

Would like to ask in regard to a sore neck on a horse. Last summer there was a small boil came on his neck and it kept getting worse until there was a sore half as big as your hand. Nothing I did for it seemed to help so I turned him out and let it heal up, but as soon as I started to work him it got sore again, and I repeated it and it was just the same. It heals over with a bard scab and suppurates underneath. Have changed collars, but no use. I worked this horse for six years before his neck got sore.—H. B., Idaho.

In regard to the horse with the sore neck, it seems likely that the denuded skin has never been replaced, or if so has not had time to become normal before the collar has again made it sore. Skin grafting is not practicable. Try a heavy breast collar for a year, then bathe with alcohol frequently and begin using the other collar, with a metal pad. At first use under conditions where there will be very little weight on top of the neck and otherwise in such way that the neck will have time to toughen, without repeating the injury.—G. H. G.

Hail insurance by the silo route costs nothing.

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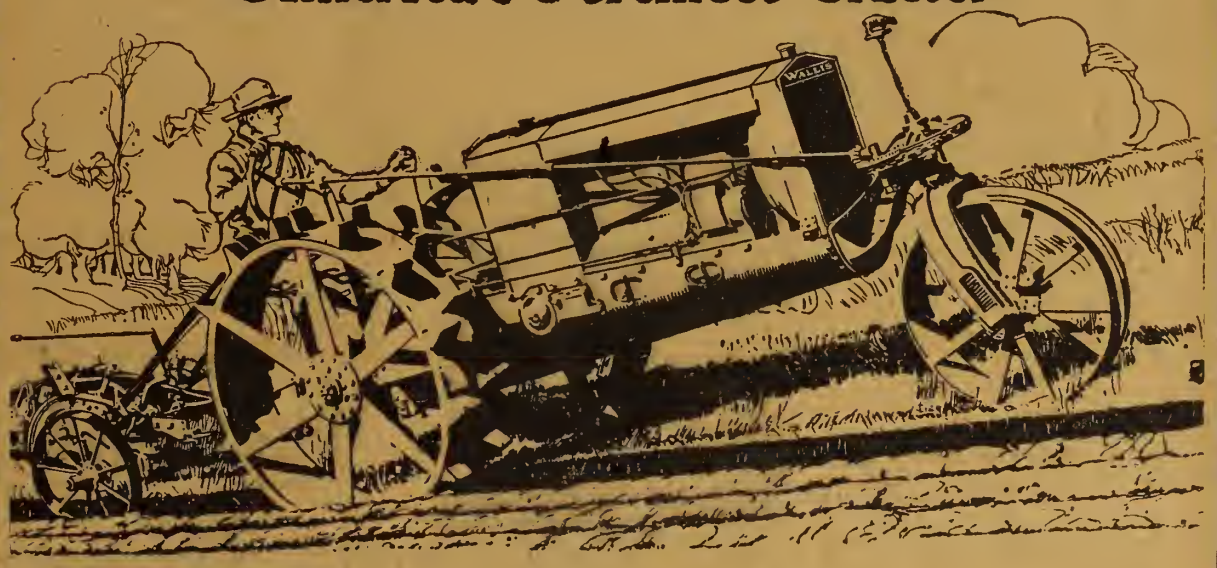
America's Foremost Tractor



WALLIS first combined great power, light weight and durability in a tractor.

The Wallis "U" frame is an advanced idea—the strongest, yet lightest construction known to mechanics. The Wallis weighs 1,000 to 5,000 pounds less than tractors of equal drawbar power.

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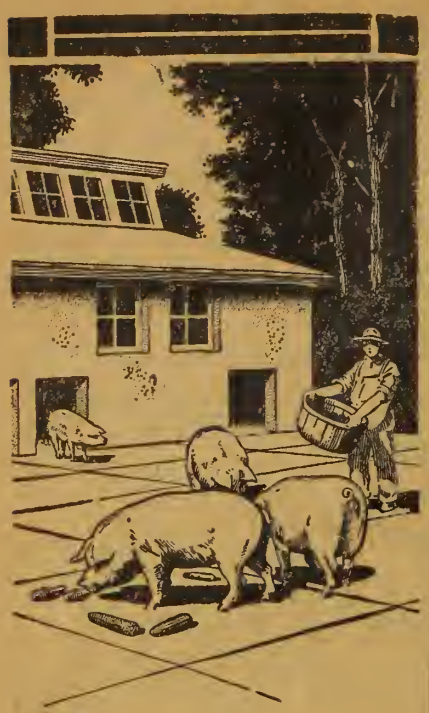

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Clifford and Everett Hodgin

Letters of Appreciation

Western Farm Life donated the prizes for the State Potato club contest for the season of 1918. The awards were announced at the National Western Stock show and published in the issue of February 15th. We have since received several letters of appreciation from the winners, and three of them were kind enough to forward photographs, which appear in this column, together with the letters:

Fort Morgan, Colo., Feb. 22, 1919.

Dear Mr. Steinel:

I am writing to thank you for the playground ball and the flash-light which I received as premiums for the potatoes I exhibited at the stock show in Denver. I should have written sooner, but Mr. Hale wished to put them on exhibition in one of the stores, so I only received them the first of the week. I feel very lucky in winning such nice prizes and all I can say is, thank you.

Yours sincerely,
ELDEN SALLEE.

Colorado Springs, Colo., Motor Route 3.

Dear Sir:

I received my prize. Thank you very much. I have about 200 pounds of seed potatoes to plant this year. I am going to school now. I am going to help papa farm next summer. I will write you a story about my potatoes.

I picked out the heart shaped potatoes, planted them about three feet apart. The rows were about three feet apart, too. I plowed them right in as the others planted them. My potatoes turned out good. I sold about 1,600 pounds of potatoes this year.

I will send you a picture of Everett and I and our dog.

Yours truly,
CLIFFORD HODGIN.

Colorado Springs, Feb. 7, 1919.

Dear Sir:

I received my potato prizes and thank you very much for them. I am going to plant some potatoes this year. I will write you a little story about potatoes. I am going to plant about 200 pounds of potatoes this year. You want to pick out

Emsley Linton

heart shaped potatoes for seed. We are supposed to plant potatoes the 14th of May. I sold $33.10 worth of potatoes—about 1,600 pounds of potatoes.

I am sending you a picture of Clifford and I and our dog.

Yours truly,
EVERETT HODGIN.

Longmont, Colo., Feb. 22, 1919.

Dear Mr. Steinel:

I received your prize you gave for potatoes and think it is very nice. I play with it at school and at home.

This is my third year in the potato club. I sure like it. I raised one acre of potatoes last year, yielding 183 1-3 bushels. It cost $40.60. I am sending you my picture.

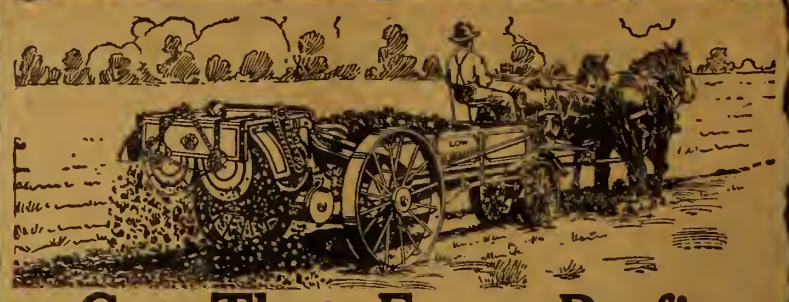
Your friend,
EMSLEY LINTON.

Fort Morgan, Colo., Feb. 7, 1919.

Dear Sir.

I am informed by the Assistant State club leader that you are the donor of the prize won by my potato exhibit. I wish to thank you for the camera, won as state champion prize in potato club work, and also for the ball, which was the prize for first place in the long white varieties. I am especially pleased to know that these prizes were given by a Colorado paper which is also actively in touch with the club work in this county. My work has been most enjoyable during the summer and I assure you that I am enthusiastic for the extension club work.

Yours sincerely,
C. WILBUR SCOVILLE, Jr.



Get That Extra Profit

SAVE stable manure. It's worth a lot of money now. Either spread it when it's fresh and contains all its fertility, or pile it where the losses will be smallest, and spread it as soon as you can. Balance it with phosphate if necessary, spread a little on many acres rather than much on a few, but don't waste a single lump. Stable manure is working capital. With it you can get bigger, better crops off the acres your present help can handle. Waste it, or neglect it, and you are losing an easy, handsome profit, probably more than enough to pay for a new

Low Corn King, Cloverleaf, or 20th Century Manure Spreader.

These machines do the kind of spreading that has been proved most profitable. They are all low, light draft, narrow box, wide spreading machines, made in three handy sizes, small, medium and large. They spread a full load in from three to five minutes, in an even coat that extends well beyond the rear wheel tracks.

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Packer Regulation Bill

An explanation of the Kendrick bill, now pending in Congress, was given by Senator John B. Kendrick of Wyoming at a recent meeting of the Missouri Livestock Producers' association in Kansas City. This measure provides for governmental regulation of the packing industry, segregation of stockyards ownership from the packing houses and control of refrigerator cars by the Interstate Commerce Commission. The measure has the indorsement of the American National Livestock association and other organizations of producers. The following is quoted from Senator Kendrick's address:

Your president suggested that you might be interested in a discussion of the legislation proposed for the correction of our market conditions, known as Senate Bill No. 5305. I need hardly tell you that in passing judgment on this industry as a legislator I have been mindful of its great and far-reaching importance and have endeavored to approach the task with an unbiased and unprejudiced mind. As it has seemed to me from the beginning, the purpose of legislation should be twofold:

1. Without any regard to the records of the past and present, to remove once and for all time, not only every vestige of suspicion and distrust as to the integrity of our markets, but all grounds upon which such an attitude of mind could be based.

2. To remove artificial barriers calculated to interfere in any way with full and unfettered competition.

In dealing with the first condition, we employ a twofold provision, the first of which is a licensing system, with the governmental supervision and the fullest publicity of all the agencies of the market, including packing houses, stockyards and commission firms. Incidentally, the bill provides for an authorized agency, acting under the direction of the secretary of agriculture, to examine the records of the different firms and make such reports not only to the secretary, but to the Congress as well. A plan of this kind, under which the facts might be obtained by an authorized agency, and the imports be sanctioned by the integrity of the government, would do more than anything of which I have knowledge to dispel any doubt as to the correctness of the situation.

Under the present conditions one of the chief bones of contention over which we have been wrangling for many years is the ownership on the part of the packers of the stockyards, the places in which our livestock is watered, fed and sold, and, whether correctly or not, it has been claimed that such ownership has been used as a form of discrimination—and without any prejudices in the matter whatever, I am confident that as long as this situation exists there will exist along with it a suspicion as to the equity and fair-dealing of our market centers. The terms of this provision are, in effect, that beginning at the end of two years after the passage of this act, the railroad or transportation company shall not unload livestock at a stockyard owned and controlled by those operating packing houses in conjunction with the same. Because of the danger of working a financial hardship on those who now own these yards in compelling them to dispose of their property during a period of reconstruction, the bill has been further amended to allow a further extension of time when the proper showing is made for a period of not to exceed four years altogether.

The last and final provision of the bill refers to the employment of refrigerator cars and provides that railroad companies shall furnish, on reasonable time, refrigerator cars to anyone requiring the same for use, fixing a penalty for failure to furnish such cars in reasonable time and without discrimination. It also includes a provision that no transportation company shall hold or transport privately owned refrigerator cars employed for the transportation of meat and meat products without having an agreement with the owners of such cars under which they can furnish them to the public on demand and without discrimination. In other words, the effect of this provision is to place the refrigerator cars intended for hauling meat and meat products under the control of the Interstate Commerce Commission. This, in brief, represents an outline of Senate Bill 5305, known as the Kendrick bill.

Personally, I am not impressed that it will prove entirely adequate, but in the main I am convinced that it will prove reasonably corrective, with a minimum of disturbance to the industries. I need hardly say that I would refuse both my sanction and my vote to any form of the bill calculated to seriously disturb or even work the hardship of inconvenience upon the present system of marketing our products. Furthermore, I would not knowingly afflict upon any industry in the nation any kind of legislation that I would be unwilling to have imposed upon an industry that I owned myself. The question has been raised as to why any legislation was necessary for this industry that does not apply with equal effect to every other kind of business. So far as I know, there is no business in the nation that is on a parallel with this industry in either volume or characteristics. It may be news to you to be told that in volume it is greater than the business of the railroads of the country. It affects, for good or ill—not a part of the people part of the time, nor part of the people all of the time—but all of the people all of the time. It involves not the luxury of a few, but a vital necessity.

Hereford Shorthorn Sale

Farmers throughout the mountain states are looking forward to the opportunity to be offered at Denver April 29th and 30th for the purchase of registered breeding stock of the Hereford and Shorthorn classes. Announcement of the joint sale arranged by the Western Shorthorn Breeders' and the Western Hereford Breeders' associations was made in the previous issue. More complete particulars are given in a page advertisement which appears in the present number.

The best herds in Colorado and Wyoming will be represented in this sale, which will prove attractive not only to western farmers and ranchmen, but to breeders from states farther east, who often come to the Rocky Mountain region for new blood.

The Hereford association will offer 70 bulls and 60 females on Tuesday, April 29th and on the following day the Shorthorn association will sell 45 bulls and 25 females. There will also be some choice carlot offerings of bulls on hand, ready for inspection and sale if there is a demand.

No sensational prices are looked for. The backers of the sale are not after records in that line, but they are genuinely interested in the dissemination of good blood and they will be satisfied with moderate returns, as long as these are commensurate with the quality of the offerings.

The sales will take place in the Stock Show pavilion, where the accommodations for both sellers and buyers are firstclass. Col. P. M. Gross will be the auctioneer in charge of both events. Catalogues are ready for distribution and may be had on application to Fred P. Johnson, manager, 1828 Curtis St., Denver.

For sale, purebred Herefords, Shorthorns, Holsteins, Jerseys, Aberdeen-Angus, Galloways, Duroc and Poland China hogs. By Western Farm Life's breeder advertisers. If after reading advertisements, you do not find what you want, write our breeder's department and we will place you in touch with some breeder or breeders that have just what you want. Address Breeder's Department, Western Farm Life, 1400 Arapahoe, Denver, Colo.

Western Farm Life: I have received the sample copy of your paper and am well pleased with it, and I find plenty of good, practical sound sense in it. I am enclosing P. O. order for $1.60. I am taking advantage of your big family offer.—F. O. Ensor, Box 262.

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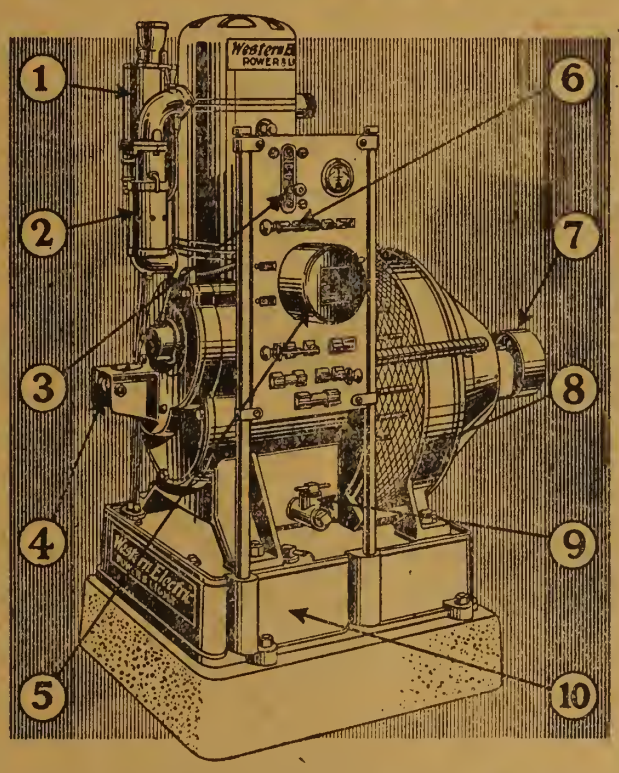

Ten Features that Make This Plant Dependable

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2. Air preheater; completely vaporizes the kerosene.
3. Pushing this switch down starts the engine.
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5. This device automatically stops engine when battery is fully charged.
6. Moving this switch makes all the engine power available for operating other machinery.
7. Pulley; for operating other machinery.
8. 1500 watt generator direct connected to engine.
9. Oil for splash-lubricating system supplied here.
10. Kerosene supply kept in this tank. Entire plant stands about 4½ feet high. Storage battery consists of 16 cells.

A fine piece of machinery

Fine quality is evident in every part of this Western Electric Direct Connected Plant. Its ten important features are outlined in this advertisement.

If you are any judge of machinery

—be sure to read these ten points. They will mean much to you: you will want us to tell you more about them and all about several others that make this plant distinctive in many ways.

If you buy machinery solely by name

—then consider that the Western Electric Plant is guaranteed by an organization of nearly fifty years electrical experience; one with unlimited resources for making you entirely satisfied long after the sale.

A Western Electric man near you will demonstrate this plant and explain how easy it is to have the safety and convenience of electric light and the dollars-and-cents help of electrical power for farm work.

Write for booklet No. WFL 15, giving full details

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814 Spruce St., St. Louis, Mo.

Don't Overlook Grain Sorghums

Approximately five million acres of land in the southwestern states is now annually devoted to grain sorghums, this designation including kafir, milo, feterita and other less known varieties of grain and forage producing plants introduced from semi-tropical regions of Asia and Africa and now a staple feed crop in sections where the rainfall is limited and where hot winds often prove fatal to corn. There is a place for grain sorghums in the agricultural plan in a number of sections of Colorado, New Mexico, Utah and Idaho. Southeast Colorado, particularly the dry lands, is better adapted to grain sorghum than to corn production. There are also areas on the western slope where kafir and milo seem to thrive much better than corn.

Ability to withstand drought and hot winds are the distinguishing features of the grain sorghums. The grain lacks very little of being equal to corn for feeding and fattening all classes of livestock. Tests made under the supervision of the United States Department of Agriculture show that the grain sorghums have a higher protein content than corn and that the carbohydrate content is practically the same. The fat content and fiber content are lower than corn. Digestibility tests show that the starch of the sorghum grains is somewhat less digestible than that of corn, the difference averaging about 10 per cent. This means that the sorghum grains have about 90 per cent of the feeding value of corn. As they outyield corn in all territory particularly adapted to their growth, the 10 per cent difference is more than overcome by the yield. In the last few years, also, grain sorghums have been handled on the Boards of Trade in the leading grain markets, such as Kansas City and Chicago, giving them a standing practically equal to corn as a cash crop. In Western Farm Life territory, however, the advantage is in growing them for roughage and for use in the silo. There is very little difference between first-class ensilage made from grain sorghums and that made from corn. For silage purposes the grain sorghums are cut just as the kernels are beginning to harden and while they may yet be mashed between the fingers. As to relative digestibility, Farmers' Bulletin 972 says:

"The total protein content of the sorghum grains is considerably larger than that of corn. Therefore, the total quantity of protein digested from a pound of sorghum grain may be fully as large as the quantity digested from a pound of corn, although the percentage digested is smaller. If the farmer growing kafir or milo is at a disadvantage in the relative value of his grain he has several advantages in compensation. His crop is grown on cheaper land. He is close to the source of cottonseed meal as a protein concentrate for his feeding ration. If he is himself the feeder, his stock is fed under milder winter conditions than those of the corn-belt feeder."

From Farmers' Bulletin No. 724 is taken the following regarding the feeding of grain sorghums:

"Horses, mules, cattle, sheep, hogs and poultry have been fed the grain of these nonsaccharine sorghums with very satisfactory results. Breeding animals, or those which are working or being fattened for the block, eat properly prepared sorghum grains with relish. However, as the grains are small and rather hard, grinding or crushing is recommended before feeding, except for sheep and poultry. Sheep masticate the small kernels well, thus rendering them readily accessible to the digestive juices, while poultry feed upon the unbroken grain, which is especially palatable to them in this form. If the grain is not ground for other stock it is less palatable and much of it passes through the digestive tract unbroken; thus much of the total feeding value is lost.

"Very often the entire heads are ground up, producing a feed of greater bulk. The resulting meal, called head chop, resembles corn-and-cob meal in food value. It is recommended especially where the supply of roughage is limited, and usually is economical for feeding stock not being finished for market. Head chop is valuable in producing a high finish when supplemented by a rich concentrate, such as cottonseed meal.

"The quantities to be fed to the different kinds of animals depend upon many factors, such as the amount and kind of roughage and of other concentrates available, the age, type and size of the animals, and for what purpose the stock is being fed.

"The feeder always should remember that sorghum grains alone do not form a balanced ration, and the same care which is exercised in feeding corn should be applied when feeding grains of the sorghums. This applies with particular emphasis to the rations for young and growing stock. Some feed which is rich in protein must also be given if favorable results are to follow heavy feeding of this class of grains."

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DOG DISEASES
And How to Feed
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118 West 31st Street, New York
America's Pioneer Dog Medicines

Speed Harnessing Contest

In a speed harnessing contest between high school boys of Denver and high school boys of adjacent towns, held at the Stock Show in Denver, January 20th, the city boys won the prize by a safe yet close margin. The winners were Eugene Gratton and Henry Carnahan, of the North Denver High school, who harnessed, hitched and climbed into the wagon seat in just two minutes and thirty seconds. The closest contestants were from the Arvada school, who did the same work in two minutes and forty-five seconds.

Eugene Gratton and Harry Carnahan, Winners of Harnessing Contest

The horses were large, the harness heavy, and the wagon big. Ten teams of horses were used in the contest, and twenty boys—two boys to each team of horses. Governor Shoup made the presentation of an elegant loving cup to the winners. The contest was the idea of the U. S. Boys' Working Reserve, principally through the suggestions and efforts of Mrs. Robt. C. Larkin, secretary.

In this contest a world-record for boys under 18 was probably established. The U. S. Boys' Working Reserve is identified with the State Council of Defense. Judge E. C. Stimson is state federal director of the Boys' Working Reserve.

Comment by Farmer Putnam

(Continued from Page 11)

one of them smooth oil promoters talk to him! Well, I reckon I don't make no mistake by keepin' that Missouri money in my own name. If I hadn't why he'd done spent it long ago fur auto or oil stock. Opportunity beckons—she does does she! Well, here's what I wired Tom:

"Josephine beckons; the ranch gate is open. Documents stay to home. Come at once.

"JOSEPHINE."

Prepare for the Victory loan.

It Pays to Read Advertisements

Advertisements are news. Good news—timely news—helpful news.

News of the great world of business.

Heralds of the world's improvements—builders of factories—makers of homes.

News of the latest styles.

News of comforts unknown when father was a boy.

News that is handy to your eye.

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News that will save you money.

Don't miss the advertisements.

No Risk to You—We Guarantee Satisfaction on

Carey-ized STOCK TONIC

If your hogs, cattle, sheep and horses do not show a cash-value improvement in health, vigor and general appearance, to your entire satisfaction—after 60 days' free access to Carey-ized Stock Tonic—the experiment will not cost you a cent. This "square-deal" guarantee is backed by the dealer from whom you buy it and whom you know.

The Mineral and Medicines Which All Animals Need

are contained in Carey-ized Stock Tonic Brick or Block. Its eight different ingredients are carefully selected and compounded to produce an unfailing worm destroyer and conditioner. Endorsed by veterinarians and big stock raisers who have used it for years.

Self-administered by the animals. Place brick or block where they can have access to it all the time and they partake of it as nature dictates. No bother to you; no overdosing, no underdosing, no waste.

TRY IT 60 DAYS AT OUR RISK

Carey-ized Stock Tonic 3 lb. bricks or 50 lb. blocks are sold by Grocers, General Stores, Druggists, Feed and Hardware Stores. If your dealer can not supply you send us his name (no money) and we will send him for you 12 bricks (35 lbs.) at $2.50 f.o.b. Hutchinson, or 50 lb. block $3; or if you prefer send us the amount and we will send goods direct to you, freight collect. If at the end of 60 days' trial according to directions you are not entirely satisfied we will refund all your money, including carrying charges. Your banker will tell you we are responsible.

Free Book "Making Live Stock Pay." Write for it.

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Denver is the Highest Market **Most of the Time** and the Best Market **All the Time** for Western Cattle and Sheep.

Time and again cattle have sold on the Denver market for higher prices than the same cattle would bring same days at the Missouri River.

Why don't you market your cattle and sheep at Denver, where they will bring you greatest net returns?

STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "Cowardice," "The Bondboy," "The Crucible of Courage," Etc.

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CHAPTER XIV.

A STEAMBOAT PASSES

Captain Gregg had given up his sounding for the whiskey perforce, a disappointed man. Yet he kept some hope that the shaft which Randolph was sinking, now down thirty feet, might yield more.
some liquid treasure in the end, lf nothing

The story of the lost gold, which had moved Gregg so strongly at its first recital, seemed nothing more than a false echo now. He didn't believe in it; he was a scoffer and a gloomy prophet. Nothing but the belief that there was a full barrel somewhere in that ancient cargo, and that they would uncover it In the end, brought him back to the work day after day.

Randolph found his force still sufficient, for Gregg was very well at one end of a windlass when there was a good man to counterbalance his light welght at the other. Two of them in the pit, two at the hoist, put the eight-feet-square excavation down slowly. The handicap to better speed was the necessity of curbing strongly every foot of the way. After they had gone down twenty feet Randolph found it to be as Moore had predicted, almost equal to sinking a shaft in water. The fine wet sand crawled under the feet and sucked at them wlth insidious gentleness to cover the dangerous down-drawing, and quaked like a gelatinous mass at the tread.

Arkansaw was a believer in the treasure. He magnified it in the ears of the Narris people who continued to come and stand round the work, grave as turtles on a log.

"If the money ever was there—and we have every evidence but that of our own eyes that it was—it's there yet, captain," said Hugh in tone of gentle reproof for the old man's deflection and almost seditious stand.

The romance of barren shores and bleaching wrecks, pirate treasure, Inca Temples of the Sun, was in the schoolmaster's eyes those days. He walked and worked like a man in a dream, standing inactlve sometimes with hands clasped on his shovel, looking far away as if trailing in memory some precious thing that he had lost out of his life long ago.

Arkansaw, on the other hand, was obliged to straighten from his digging now and then to laugh, when the recollection if some simple Narris dweller's attempt to compute his share of the treasure came to him. Randolph entered fully into the enjoyment of the humor with his jolly-grave young friend.

"Well, I hope for the old man's sake we'll hit onto a barrel of that blamed old booze, John. You know, for my own part, I ain't a carin' if we never open a barrel. One barrel for this crowd wouldn't be a start, but if we could git one apiece, then they'd be some roarin' around up here in the bresh!"

"A barrel apiece!" Randolph's amazement at Arkansaw's ingenuous confession of such an extensive desire for liquor was profound; he stood staring into the fuzzy countenance of hls fellow digger, who was as serious as a pan of corn-pone.

"Nothin' under," said Arkansaw.

"Well, I never thought you cared for booze, Arkansaw; you don't look like that kind of a man."

"Not to say I do care for it, John. I don't know, I never tasted a drop of the dang stuff in my natural borned life. I never thought there was any use to start in on a bottle or a jug of it. I tell you, if I lam in to drink, I'm goin' to do it like a man!"

Arkansaw's face was so droll, and his words so earnest, that Randolph was divided in his opinion whether the young man was serious, or merely working off one of his jokes.

"I guess you'll find enough to hold you a while if we hit that nest of barrels down there," he said.

"So you never tasted whisky,"

"No; not because I'm so dang good, I don't reckon, but because I never saw enough of it at one time to satisfy me if I got started."

"You're a queer genius, Arkansaw. I don't believe you'd drink any of it if you had all the Morning Star carried."

"Maybe I wouldn't, John. I reckon it 'd all depend on the things and circumstances, as the feller said."

It was Randolph's nightly custom to visit the old gray house on the hill-slope, sometimes after he had had his supper, frequently to take advantage of the standing invitation to make one at Caleb Moore's board.

On the evening of this day that he labored in the pit with Arkansaw, and heard that sage's reasons for his past abstinence, Randolph plumed himself as presentably as possible out of hls limited wardrobe and faced toward Moore's house as the shadows were growing long in the corn. Moore was walking the porch like a sentinel when Randolph entered the gate. The old man llfted his hand in greeting, contrary to his dignified and rather restrained manner, and even came down the steps to meet his visitor, clapping him on the shoulder warmly.

"Did you see her, John?" he asked, his face beaming, his eyes bright.

"Her?" Randolph inquired, his head in a whirl, thinking that Juliet had gone to meet him and that he had missed her unaccountably.

"The boat—the first boat on the river In more than twenty-five years!"

"No," said Randolph, his spirits sinking as if a cold hand had been laid on his poll. "Dld she go up to-day?"

"About four o'clock. I slghted her from the upper porch the second she rounded the bend."

"I was working below to-day," Randolph explained.

"You couldn't have seen her, anyway, from the old river-bed, only from the dock. That's the one point down there from which you could have glimpsed her stacks as she passed the lower end of the Narris, if you'd have had a glass. But you could see her smoke for miles from anywhere around here."

"I wish I'd seen her—it was an event that a man would remember."

"He would, and with reason. She isn't much of a boat, the Morning Star that you're digging ater would have made six of her, but it's the breaking up of the inactivity, the rediscovery of the Missouri, that counts."

Randolph roved his eyes about to find Juliet. She came out when she heard them talking, as animated and radiant as if the return of commerce to the river were a victory in which she bore more than a reflected part. And if there was a tenderness in her eyes all seemingly out of any need that the brown-faced young man in white bore any evidence of, and a smile which seemed to tell him more than her tongue could have been coaxed to confess, perhaps Caleb Moore did not see it. For age does not see as much of life's unfolding wonders as youth; age, surfeited of wisdom, dull of its desires.

At supper Moore had no words for anything but the boats, and he was strangely full of them on that head for one whose habit was so careful, judicial, grave.

"It means new life to twenty old towns along this river between Kansas City and the mouth, Jonathan," he said. "When I saw that little boat come walking up the river I wondered how the railroad pirates felt about lt, and I chuckled away down to my boots. They've had their way since the seventies up and down this river; they've killed many a live town and broke up many a good man. I tell you, Jonathan Randolph, if I'd heard of the organization of the company in time to have done lt, I'd have put every dollar that I could have raked and scraped into the venture."

"It will succeed; it's bound to succeed," Moore maintained. "The land carriers can't compete with water transportation; they're not doing it in any country on earth. Every pound the river bears is half a pound lifted from the back of the consumer, who must pay the freight in the end."

Moore was leaning back in his chair, his busy thoughts running ahead to the new life that was coming back to the Missourl's shores. His chin was lifted, his eyes were fixed in the gaze of one who sees visions. Now and then he nodded, smiling as if greeting an old comrade on the road when there was cheer in sight near the close of day.

They had eliminated Moore as completely as he had let down his wall of mists and visions between himself and them. Juliet was leanlng across toward Randolph, her elbows on the cloth; he was leaning across toward her, her eyes striking sparks out of his soul. Rhody was coming and golng, bearing off the dessert dlshes. She winked to herself and chuckled fatly like a kettle of mush as she moved their unconscious arms to brush away the crumbs.

Randolph felt the table start as if some some one had laid hold of it to upset it. He turned quickly toward Moore, to see the old man, hastily risen, bending forward in the direction of the window, which he had sat facing, a look of horror ln his face. He clenched his tumbler in one hand; his body shook, his face was whlte. One swlft glance Randolph turned on the old man, then faced sharply to the window. At the same instant Moore, with a cry as if blood choked him, hurled his tumbler through the pane.

Randolph had seen nothing in that moment his eyes had searched the window. As the glass crashed through the pane and rebounded into the room from the wire screen Juliet sprang to the old man's side with a pitiful low cry as if he had struck her.

Randolph, his senses blurred in the confused, quick action of that unexpected event, was on his feet, reaching out to support the old man, who was tottering as if to fall.

Moore sank back in his chair, his chest heaving, his face bloodless. His eyes were staring, and vacant of every expression but absolute fright; he breathed in gasps through his open mouth. Juliet clung to him, soothing him in meaningless little words, rubbing his hands, which lay still half shut and rigid on the cloth as lf some frightful thing that he had clutched in his terrible imagining had torn from his grasp and fled.

He said nothing, offered no explanation of his remarkable conduct. But presently he mastered his terror and took Juliet by the hand,. stroked it

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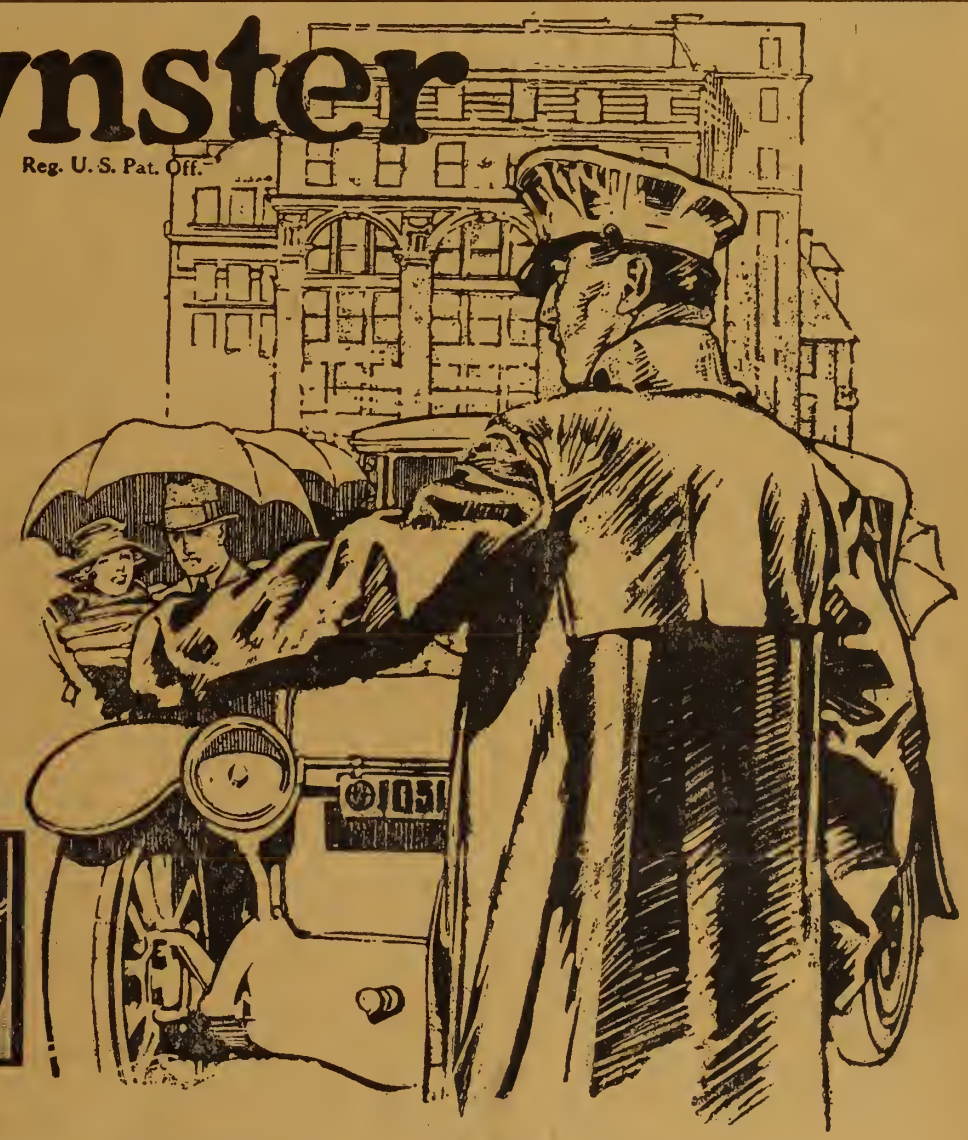

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with trembling fingers, shook his head as if in deprecation of the scene.

Randolph looked questioningly at Juliet, who met his eyes for an instant, shook her head, and turned again to her ministrations over the old man. There was again that pitiful appeal in her eyes, which seemed to Randolph to shut the door to any explanation, except such as he was in reason bound to place on the extraordinary occurrence himself.

Caleb Moore was insane. That was the only answer to his fantom-seeing fits. That Moore himself realized this was most certain, for he bent his head as if ashamed of the affliction which overmastered him in wild moments such as that, and murmured to Juliet: "It will pass, it will pass!"

"I owe you an explanation for this display of passion, Mr. Randolph," he said, "and in the right time it will be given to you. To-night, sir, I only ask you to have the charity to overlook an old man's weakness and consider, sir, that only the greatest provocation, the greatest provocation—"

His words seemed to wander from him there; a transitory spasm of fear or rage distorted his noble features again, passing in a moment.

"You owe me nothing, sir," said Randolph, moved by a strong pity for this rugged old man, breaking like a splendid ship upon the rocks. "Let me help you to your bed."

Gratefully the old man grasped Randolph's proffered hand and rose unsteadily from his chair. A moment he stood trembling, then he gathered himself and seemed to shake his weakness from him by a marshaling of his will. Rhody had come at the old man's cry and the crash of the breaking pane. Now she stood near the door fartherest away from the damaged window, which Moore was approaching, groaning, waving her hands, her homely face set in an expression of the deepest terror. She stared at the window, seeing nothing besides; she was trembling like a beaten dog.

Juliet offered the old man the support of her strong young body, which he seemed no longer to require. He stroked her hair as they went on, and petted her, trying bravely to drive the pain out of her eyes, and spoke comfortingly, assuring her that it was over and done and would occur no more.

In the hall Moore stopped abruptly.

"My glasses, child—I must have dropped them at the table—will you fetch them?" he said.

As she left them, Moore leaned and whispered to Randolph:

"Watch close, watch close, every minute of your life, sleeping and waking, watch! Work fast—day and night—there is not an hour to lose!"

Juliet came back with the spectacles. In her eyes there was the knowledge that something had passed between them while she was away. She seemed to be jealous of a confidence between them that she could not share; her reproachful glance told Randolph that.

CHAPTER XV

GREGG FORECASTS A MIRACLE

There was no moon, but a darkness almost palpable as Randolph left the mansion to seek his lonely tent. Blacker than the night were the thoughts that he carried with him as he passed through the field, where the wind prowled and shook the long blades of corn, whetting them like the swords of a blood-hungry army waiting in impatient ambuscade.

What was the meaning of this warning that Caleb Moore had given him? Why had the old man urged him to push the work on the wreck day and night, as if certain of some threatening power hovering to intervene.

Randolph turned this whispered warning over and looked at it from all angles for a crevice to insert his grouping key. His first and last conclusion was that Moore had uttered a warning against himself. The old man realized that his mind must soon flare up into raging and drive him to violent deeds. Twice within a few weeks Moore's malady had broken its curbing limits and surged over him like a destructive wave in Randolph's presence. He wondered what secrets Juliet kept, indexed by her fearful eyes.

Caleb Moore was insane. He had been intermittently insane all those years. The mysteries of the Narris, the dark warnings, the disappearance of those who had come to see the wreck; all the violence and dark deeds, in the end, must come back to the old man's frenzy. This Randolph believed entirely, unwilling as he was to admit the conviction. Out of the regard that Moore felt for him, a stranger who had won to his iron heart, he had spoken this warning, feeling himself to be upon the brink, facing his last plunge into hopeless insanity.

Clouds were banking in the south, seeming to compress the heat of the night ahead of them. Lightning pictured their peaks and shadowed valleys, still so far distant that the thunder could not be heard. Yet the force of the coming storm lowered through the night.

Randolph considered shaping his future course according to Moore's warning to guard himself constantly. The warning could not have stood without a foundation; too well that gray old man knew the nature of the danger that stood off waiting its hour, like the silent storm on the far horizon.

Randolph's tent was pitched near the site of his explorations, on the high ground of the old bank, its walls tucked up to let in the wind. He stood considering whether to sleep there or make himself a bed in the field among the rows of corn.

Caution urged the latter course, but the threat of the storm turned him at last to the tent.

He put his powerful flashlight under his pillow, and disposed his revolver under his cot where he could drop his hand to it on the first alarm. But he would not resort to the weapon except to preserve his own life. His first endeavor would be, if anything threatened him, to find out the nature of it. One thing or person only he would flee from—Caleb Moore himself.

There was assurance in the calm that spread out ahead of the rain. There would be no wind to wrench tent pegs, no getting up to haul and brace and make fast. But there was a feeling of oppression in his breathing, a leaping of the pulse, a straining of the senses in wild unreasoning confusion against the soft whispering of the night that all was well.

He had the feeling that there was somebody else in the tent, although he had not heard footsteps nor rustling to betray the presence of any living thing. The rain came crashing into the thirsting corn. He listened, straining, his breath held, hesitating between the revolver and light, moving to neither. In the concentration of his faculties to hear and feel out that suspected intruder he seemed to have no force left to direct the action of his hands.

This qualm passed in a breath, seeming to sweep upward through his body like a cold electric wave and die out of him in his hair, which had the sensation at its roots of settling down. He lifted to his elbow and fumbled under his pillow for the light.

With his movement there was a soft rush toward him like some quick-footed creature that had gathered itself, waiting; a whining sharp cry, as of a wild beast surprised. It came so suddenly and with such strength that Randolph was borne down again on his cot, which collapsed under the strain, and tumbled them in added confusion to the ground.

In a moment Randolph was on his knees, struggling for his life, for his assailant had a hand on his throat, a grip in his fingers that made the flesh ache. A man, nothing more terrible—or less—arms and shoulders bare, muscles as hard as leather; a man, reasonless, it seemed, and fiercely wild, driven by some mad passion that made him whine and snap like a dog.

Randolph was overmatched, for his assailant was a larger man, and the advantage had been with him from the beginning. If the marauder had been armed with club or stone he must have triumphed almost immediately, but he seemed to have only a wolf's reason, as he was cursed with a wolf's desire. A moment of black desperation, a turmoil of struggle. Randolph fought to his feet, knee to knee, breast to breast with the unreasoning creature, shaking off the hold it had on his throat.

With breath came confidence, furious resentment. For a little while the sane man was as much a beast in his wild desire to feel hot blood on his hands as that night-prowling terror of the Narris woods. They fought on equal terms now, for Randolph was dressed only in the trousers of his pajamas. Except that the mad creature of the woods did not strike like a man. He tore at Randolph's flesh with his long, hard fingers, and leaped like a leopard to lay him by the throat.

In the struggle the foot of one of them fell on the electric flash-light, pressing the contact, suddenly illuminating the tent like a lightning stroke.

At the first gleam of light the naked man sprang back with that same sharp, surprised cry. When Randolph flashed the light round the tent a moment later, revolver in hand, the creature was gone. Outside he heard for a moment the sound of fleet bare feet, but when he followed as quickly as he could there was no sound but the rain.

Standing there in the silence, the peace of the rain-soothed night around him, Randolph might have persuaded himself that he had sprung up out of a dream but for a throbbing sharp pain in his left wrist. When he bore the light on it he saw blood, and looking closer, the marks of teeth. The flesh was torn in one place, the skin punctured around the wound, but the injury was slight, aside from complications which might arise.

At that moment, and not before, the story told him by Arkansaw of the snap-

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The tool bar is of sufficient length so that by the proper selection and adjustment of tools, rows may be cultivated anywhere from 16 to 48 inches apart. The tool bars are attached to the frame in a pivotal position. These connecting pivotal bars are in the line of draft and distribute the pull directly to the tool bars, thus getting the draft point as low as possible and making it as direct as possible.

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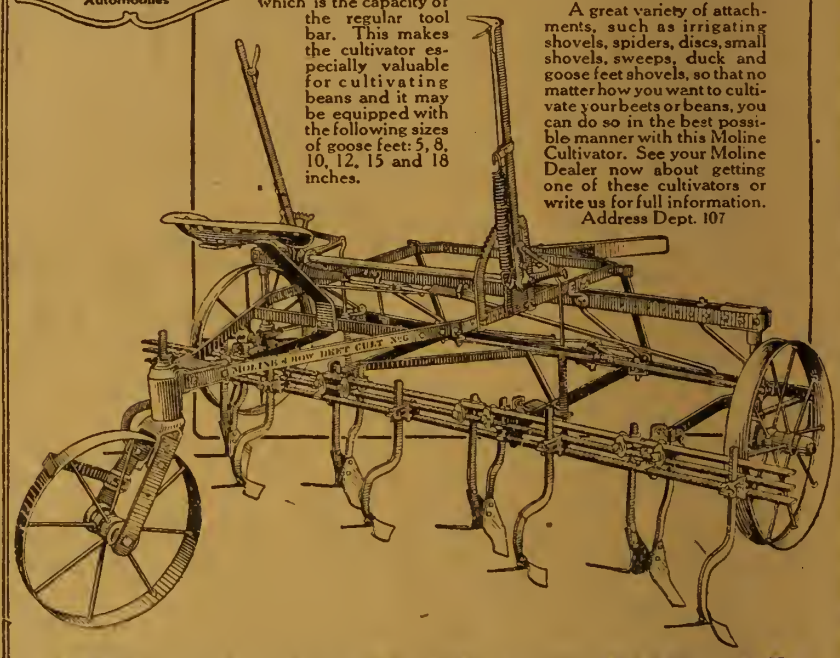

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MEAD Cycle Company Dept. W-304 CHICAGO

ping ghost that he had struggled with in the woods near the lake occurred to him. Arkansaw had been modest in his words and calm in his emotions, considering the terror that such an encounter must have set over him.

The snapping ghost was a reality, in everything but substance. Here was matter, living, and unreasoning except in the primitive sense of self-preservation such as the lowest living creature enjoys. The creature had fled at the first gleam of light, as a wolf would have gone from the tent. He had but glimpsed it in that flash—a tall, muscular man-form with hairy chest, one bent arm thrown quickly before its face as if it feared the light like some deadly thing. It had gone like the wind.

Te was sick in the revulsion that followed his shock of surprise and fright—for he had been frightened when he woke, and his fright had multiplied when he grappled with that snarling, whining, naked man.

There was no more sleep for him that night. He stretched on his cot in the dark and listened to the rain blend out like some sweet overture, dropping down to a whisper on the canvas, ceasing after a while, leaving the night more lonely for its going. There was a mournful drip from his taut canvas and the long corn corn blades, and at last the dawn widened out of the somber melancholy, with a clear sky growing from an eastward rift.

The phantoms of his night dimmed away as he kindled his fire, for daylight inspires a brighter courage. Only the thought of Mystery Gregg and her solemn appeal to him to abandon his search and go away, persisted when other vexing questions in that unsolved tangle had withdrawn.

Mystery had known of this impending danger; her appeal had not been based on the accumulation of old tales and superstitions. How had she known it? Why was this honest-eyed, open-souled woman an initiate into the dangerous gross mysteries which strong men could not penetrate?

It was beyond answering, except that this seemed impossible of having any point of contact with Caleb Moore. What it was that Mystery Gregg knew; what it might be that Hugh Atchison waited for and cast dark hints toward; the thing that wrote terror in virginal eyes—all this must come out to the healthy light of day before his work would be finished there.

Joel Langworthy rode over that morning, as he often did when setting out on a stock-buying expedition. He lopped over in his big Mexican saddle, one thigh across the seat, and talked with his usual volubility and keen way of getting down to what he wanted to know. Joel was curious this morning to learn whether they had come across any of the plate in the steamer's dining room.

"It's been said ever since I can remember that the sugar bowls, cream pitchers and spoons alone had silver enough in them to make a man independent," Joel said. "The old-timers who remembered it have told me that it was the finest silver set on the two rivers. The boat was the special pet of the company, it seems."

"I hope it will prove up to the specifications of tradition, all around," Randolph told him; "but up to this time we haven't uncovered even a pewter spoon."

Joel never was in a hurry. He met life with the composure of a man to whom things came as he ordered them, slowly in some instances, perhaps, but undoubted of their final arrival. So he lounged there in the hot sun on his horse, watching the earth as they hauled it from the well and poured it on the dump, as if he hoped to see a bit of treasure before he left. When he rode away to go about his cattle buying at last, Hugh stood inactive at the windlass, his big hands clasping the crank, heedless of Arkansaw's shouted instructions to hoist away. He was gazing after Joel as the corn swallowed him, a look of sternness in his face such as Randolph had never seen there before.

"Joel appears to stand the heat like a rattlesnake," said Randolph.

"He belongs to the genus said to be impervious to fire," said Hugh.

"Salamander?"

"Salamander," he said.

"But what is there about the man that throws a cloud into a woman's eyes when she looks at him, and troubles them with a confusion like a narcotic?"

"You have seen it, then?"

"In two cases, where the subjects were as far apart in temperament as such variation in women is to be expected."

Hugh did not reply immediately. They hauled up another tub of earth, emptied it, swung the vessel over the well's mouth.

"He is the devil's own," said Hugh. More composed in a little while, he continued: "I suppose you know he wants to marry Juliet Moore?"

"So I have heard."

Randolph laughed, untroubled by the prospect.

"He'll just about as soon marry Mystery Gregg," he said, meaning to give Hugh a little prod in a tender place, just to see how he would carry it.

"He doesn't want to marry Mystery," said Hugh, sententiously. "There are other wrecks in the Narris besides the Morning Star, but there shall be no more, not if I have to do murder."

"I'm sorry I said that, Hugh," he said.

"You can understand it better now why I've stayed on here," said Hugh, passing over the apology, no offense in his frank eyes, "and why I hasten back when I go away. He is a bad man, from core to rind he's bad. I've guarded her against him, I've labored with the fixed love of my soul to save her from his hand. I believe the little influence that I have in her life has been her salvation until now. How long it will last, I do not know, but I hope it may not be long enough—long enough."

Randolph was thinking of Langworthy skulking away from the kitchen door through the corn on his first evening at Moss Gregg's house. With this troubling him as it had never troubled him before, he spoke.

"When you're away, Hugh, I suppose he hangs around there to the full content of his scoundrelly heart."

"In the peril of his life he'd do it! He knows it—he knows it very well."

That stealthy visit to the kitchen door, his team hitched in some sequestered wayside thicket, his way hidden through the corn, was explained. Joel Langworthy was afraid of the serious and silent schoolmaster, as iniquity fears justice to the world's farthest rim.

Joel passed back at the noon hour, and paused long enough to tell them that he had read in the paper, just arrived on that morning's mail, that there was a big rise coming down the river.

"This time of the year?" said Arkansaw, with the Naris distrust of papers.

"Due to reach Kansas City today, it says," Joel declared. He went on, the paper that contained the remarkable news in his hand.

"Never come a rise this time of the year to amount to anything in my time," said Gregg, "and I'd bet any man seven dollars it never will."

"I saw something in yesterday's paper about the river being high at Omaha, on account of the heaviest rains in years in the mountains," said Hugh.

"It would be funny if it was to rise out of season, just like old man Moore said it would come up when the boats got back," Gregg commented, in thoughtful seriousness. "It 'd be a joke on the natives if it was to rair up and claw back into the Narris, wouldn't it?"

This phase of possibility seemed to excite the old man. He got up and looked around him, as if consulting the signs of the weather, his beard pointing to the horizon as he tilted his head back to sniff the wind.

To Randolph the news was even more moving than it had been to Gregg, although he said little and kept his feelings covered. Was it possible that the fulfilment of the old man's prophecy was at hand? Or was this but a flurry in the tide of the river that would waste in its dry sands before reaching the scar of its old highway?

"I'm going to take a dash up to the river and see," Arkansaw announced.

Arkansaw was not gone long, considering the distance. He broke out of the corn with burrs on his legs and morning glory vines clogged round his ankles, showing that he had set a beeline for his return and had held true upon it, turning aside for nothing.

"She's risin'," he panted, his eyes big. "Chunk drifts a floatin'—she'll be five feet higher by morning."

"It beats me," said the old man, rising to look toward the river, where the treetops at the head of the Narris could be seen.

"It'll never come high enough to climb back into the Narris, though," said Arkansaw. "It never done it yet, and it never will."

"Chunk wood!" said the old man, marveling at this sign of coming high water. "Any yeller foam?"

"Scads of it," said Arkansaw.

Captain Gregg buckled up his right suspender; reached across with fixed eyes staring away up the river, and trussed up the left. He took a chew of tobacco from his nibbled twist; he worked it well into the mill of his two teeth and chopped it to bits.

"Gentlemen," said he, looking about him like a man who sees a storm under the gentle face of an approaching cloud, "I'll bet you forty dollars it's a maycle."

(To be continued.)

The returns from poultry on the farm, for capital invested, are probably larger than the returns from any other farm enterprise.—O. S. Rayner, Colorado Agricultural College.

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To Dealers: Your territory may be open—WRITE.

Miller
GEARED-TO-THE ROAD
UNIFORM MILEAGE
Tires

Growth and Development of the Dairy Heifer

(Continued from Page 5)

foul before they could be turned out again in the morning. The writer spent considerable time building outside lots along both sides of the barn and cutting doors through the walls through which the younger stock could go in and out without molestation. Watering places were provided by cutting off the upper third of vinegar barrels, or molasses barrels, and setting them ,bottom parts close to the fence, eight inches in the ground. Until a water-pipe system was put in, water was carried in milk cans daily to fill these barrels. Hay was fed in racks fastened against the wall inside with the grain troughs underneath.

This arrangement made a most remarkable difference in the comfort and consequent growth of the heifers. In the first place, the calves were separated according to size, those from five to seven months of age in one pen, those from eight to ten months in another, and so on. If a calf was getting knocked around in one pen it was shifted to the next smaller lot. On the other hand, if one got too bossy it was turned in with the next older heifers, that generally gave it enough training to reduce it to a state of docility in a short while. During the daytime and on fine nights the calves could sleep on the dry ground outside and yet could be free to go under shelter in case of a storm. On the other hand, if the evening was stormy the calves were free to go out as they chose into the cool air. They also had all the water they wanted, which is often not paid enough attention to in raising dairy calves. It is surprising how even little calves appreciate a drink of water during the evening when getting milk night and morning.

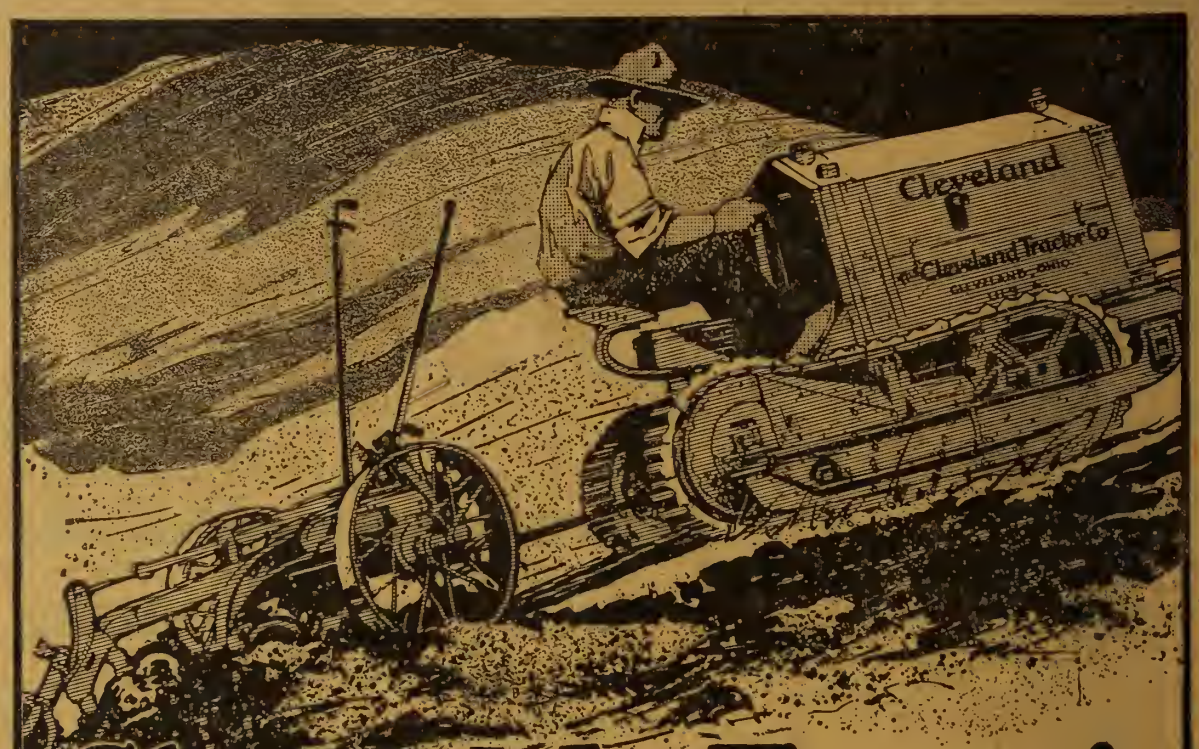
The system above described made a remarkable change in the appearance of the calves, as well as in their development. It was an easy matter to keep them clean and contented. The heifer shown in the illustration was a purebred Jersey raised under this system that gave over five gallons of milk a day testing 6 per cent with her second calf, and made her required production for advanced registration in less than five months instead of a year.

A good deal is said about the effect of heavy feeding or light feeding, and early calving or late calving on the dairy tendencies of the growing heifer. The few experiments that have been done along this line have not shown very clear results one way or another. I have seen two heifers that were full sisters and that dropped their first calves about the same time, one at three years and the other at two. The 3-year-old turned out to be a fine dairy cow, while the 2-year-old did not. With a similar pair the next year the younger cow was the one that proved the superior.

It is natural to suppose that in these cases the difference existed in the heifers themselves, regardless of the way they were handled. Our notion is that heifers of good dairy breeding with the dairy wedge shape strongly marked can safely be allowed a heavier ration and a later time of first calving than the heifer with tendencies towards coarseness or beefiness. Some strains in the dairy breeds seem to need to be bred earlier than others, as if allowed to run too long before they drop their first calves, they develop heavy necks and coarse shoulders. Others showing extreme thinness and refinement appear to do better if allowed a little longer to develop strength and size before calving. Extreme fattening will spoil almost any type of heifer. We remember three Jersey heifers in another college herd that had been allowed to run for two years with Shorthorns and Hereford stock that was being fed up for show. Although they were well bred they never amounted to anything as dairy cows, because they had had the fattening tendency too strongly fixed in these two years. It is well to remember, however, that probably three calves are spoiled for lack of sufficient feed and care for every one that is ruined by overfattening. Dairy heifers should always be sufficiently well fleshed and well cared for that their hair lies down smooth and their ribs do not show. The modern dairy cow is a highly specialized article developed to produce amounts of milk and butter never dreamed of by the wild cow that ran the plains, and she must be treated as such if she is to fulfill her new purpose.

Kind treatment goes a long way in producing a dairy cow. The man whose calves run like deer every time he comes around does not produce record cows. That is one reason that calves that used to be raised by the women folks often made such good cows. The boys that get calves to raise like the boys in the Johnstown Calf club contest, will raise good cows because they make pets of their calves. On the other hand, the work they put on the calves will not fail to make good dairymen out of the boys. In a state of nature the cow gives her milk only to her calf, who is the sole object of her affections, and the disposition to give milk is closely allied to her capacity for friendship. The first cow to make an advanced registry record in the state of Oklahoma used to greet her herdsman with a loud "moo" of welcome every morning as he unlocked the stable door. At the same time she would put a stranger out of the cow lot as quick as any Jersey bull when she had a new calf by her side. The milker that has won the affection of the cow will get much more milk from her. This capacity for friendship can be developed in a dairy heifer from calfhood. It is an especially good idea to handle the heifer regularly during the last few months before calving.

(Turn to Page 27)



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To begin with, I used my Cleveland Tractor to plow about 305 acres during 1918 and used double discs, two 60 tooth harrows and a heavy wooden drag on one load for fitting.

When I plowed I covered from eight to ten acres a day with a two-bottom gang and covered about 40 acres a day with the harrows.

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In July I used the Cleveland in loading hay, and got in the crop from 140 acres at the rate of about 35 tons a day.

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I now keep six horses, instead of the fourteen I had before and need two men less than previously.

My Cleveland is in excellent condition, ready for the 1919 season, and counting everything, I haven't spent over $10 for repairs.

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Such specific, definite facts tell why the Cleveland is so fully justifying the faith that so many farmers have placed in this compact, powerful Tractor. Write *today* for complete information and the name of your nearest Cleveland dealer.

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The largest producers of track-laying tractors in the world

Cleveland Tractor

Breaking Prairie Sod Demands Thorough Work

(Continued from Page 3)

raise on it? The answer to this is anything according to the season and the time of breaking. The best crop on early spring plowing would naturally be a late crop such as corn or sorghum, so as to allow as much time as possible for settling and the accumulation of moisture. If the new settler needs some wheat for his chickens, or oats for his horses and is willing to take a chance, for these crops are surer on fall plowed land, he could plant a small acreage which may do fairly well if the season is right, for with no moisture conserved everything depends on the rainfall.

Need of A Compact Seedbed

Besides that of conserved moisture from fall plowing another factor intervenes, that of compaction, which is more necessary for small grain than for corn or sorghum. Therefore, in planting small grain on land just plowed in the spring which has had no time to settle, considerable rolling or disking with the blades set straight is called for. Prairie which is broken during May and June should be reserved for winter wheat or rye, and, if the summer rains are frequent, large crops of these may be expected, for the sod seed bed is like a sponge and retains an enormous amount of water; but if not properly worked up the water escapes through the crevices between the chunks of sod.

On thin sandy soil the best chance of obtaining a stand of alfalfa is on the sod broken in the fall for spring planting. The same may be said of potatoes, for as far as fertility is concerned the soil is at its best before the sod has all been converted into humus and used up or dissipated, as it will be in time; but of course this state of affairs may be postponed indefinitely by the farmer if he is willing to plow under green crops once in a while, or do some manuring.

What Apple Rate Thermometer Tells Grower

(Continued from Page 4)

lightly. The freight handicap on boxed apples from those quarters is not so great as is the freight handicap of Watsonville, and yet it is great enough to give to Colorado growers a decided advantage in common markets. Into Denver and other Colorado markets, the boxed apples from Hood River come with a freight handicap of $168 on every car, of 26 cents on every box; the boxed apples of Wenatchee and those of Montana and Idaho, with a freight handicap of $150 on every car, of 24 cents on every box; and yet notwithstanding the pronounced advantage which the freight handicap of the Northwest gives them, the Grand Valley growers have barely a toe-hold in the Denver market. With the Newton Pippin and the Spitzenberg, which have made Hood River famous, and with McIntosh Red of Idaho, apples which are not produced in the Grand Valley on a commercial scale, the Grand Valley growers can not hope to compete; but that the growers of the Pacific Northwest and the growers of the North mountain states should, in view of the pronounced freight handicap working against them, be able to keep Grand Valley Winesaps, Jonathans, Rome Beauties, and Ganos practically out of the Denver market would seem to indicate there is something radically wrong, not with the apples, but with the associations and the growers themselves.

In Kansas, Nebraska, and Northeastern New Mexico, the real competition will be, not between boxed apples and apples in bulk, not between boxed apples and barreled apples, but between boxed apples and boxed apples. In those states the demand for apples in bulk and for apples in barrels is on the wane. For the boxed apple trade in these states our competitors will be the very same growers with whom we have to compete in Colorado markets.

But can Colorado growers meet, in the markets of Kansas, Nebraska, and New Mexico, competition from the Northwest? I have no hesitation in saying, yes. In the first place, the freight handicap against the Northwest works to the advantage of Colorado growers. In these states the rate handicap on every box of apples from Hood River is 18 cents; on every box of apples from Wenatchee or Montana or Idaho is 15 cents. But that is not enough. Not until Colorado growers put up a pack as dependable and attractive as the Northwest pack will they be able to meet competition from the Northwest. Nor is that all. If the Colorado growers want these markets, they must go after them. They must advertise their apples and put salesmen on the road to build up the boxed apple trade. Nor is there any time to lose. The growers of the Northwest are now, and have been for years, intelligently and systematically building up, in these states, markets for their boxed apples. If, I repeat, we Colorado growers want those markets, we will go after them in an equally intelligent, and in an equally systematic way, and not wait until, as it surely will be if we sit still and do nothing, the door has been locked, and the key thrown away.

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This Case 10-20 Kerosene Tractor

THE country over, there is consistent and continuous applause rendered the Case 10-20 Kerosene Tractor.

In all the written and spoken recommendations, there always stands out prominently the comment that its performance and economy are unbeatable.

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Pastures for Cattle

The richness of our native grasses is a never ending marvel to stockmen from the East. At one's first visit to Colorado it is difficult to believe that cattle can grow and fatten on the thin stand of grass found on our ranges. Our own stockmen and farmers have grown accustomed to this, and yet do not seem to realize that the same soil which produced these rich grasses in a native sod, can produce correspondingly as rich pasture of domestic grasses under irrigation.

Irrigated pastures in Colorado are beyond the experimental stage. In 1907, my first year in Colorado in agricultural work, there was not a successful, high yielding pasture under irrigation in Colorado, so far as I was able to ascertain, except the Howell pastures at Montrose. There were pastures of a kind, blue grass, fescue, etc.; but the prevailing opinion was that irrigated land was too expensive to devote to pasture; or to put it the other way round, pastures would not pay on irrigated land.

It has taken ten years to just make a beginning towards wiping out that erroneous belief. What particular impish devil it is in men's minds that makes us all prone to believe in and repeat every fallacy that comes to our ears, without thinking the thing out for ourselves, I do not know. But I do know that it is heartbreaking work trying to overcome the inertia of belief in the untrue.

It would be a relief if we could rouse men's interest in pastures without first having to unburden their minds of a belief that pastures won't pay in our irrigated country.

There are now irrigated pastures in practically every section of Colorado built up from essentially the same mixture of grasses and legumes that was put into the first high yielding irrigated pastures seeded here at the Agricultural College. The first of these I seeded in 1909, and it is still carrying its two head of cattle to the acre with two to three irrigations per year. In only one section of Colorado has there been apparent failure, and that is in the lower part of the Arkansas Valley. We do not know positively the reasons for failure in this section, but apparently it is due to seedbed and moisture conditions immediately after the young plants have come out of the ground. In every other section where these irrigated pastures have been tried, reports show large numbers of stock kept upon them, and the leaven is slowly spreading from the first pasture in each locality, other pastures being put in as the result of farmers seeing the success of those firt established.

I believe so thoroughly in pastures that I am almost prepared to say that we shall have no permanent cattle industry upon our farms without the use of pasture. The recent experiments of Dr. McCollum have shown that milk of animals and the leaves of plants are the main sources of those protective food nutrients which are absolutely essential to rapid and economical growth in animals. It is true that the dried leaves of plants possess these growth nutrients as well as the leaves of green plants, but experience has shown that no dried herbage is, in the long run, equal to green luscious plant growth in producing well being in animals. Cattle can be kept for years in a dry lot on dry feed, but breeding becomes difficult, and troubles occur which are minimized if the cattle are put out on pasture. More than that pastures furnish relief from heavy barn labor during the season of year when one's time is needed upon the crops, and I have yet to learn of a man who has developed a good irrigated pasture and then abandoned it for a dry lot system.

Everybody interested in the development of agriculture in this state, who is really acquainted with conditions, states that our permanent agriculture must be built with live stock as a foundation, and we have had many a campaign for better stock, better feeding, silos, and so on. I doubt if there is one single factor which will contribute more to the development and permanency of live stock farming in this state than the general use of pastures.

To many men a pasture is a pasture. They have no idea that there is as wide a range in yield of pasture grasses as there is in the yield of grains or other crops. Farmers of Great Britian have, I think, developed their knowledge of pastures to a greater extent than the farmers of most countries. Land worth thousands of dollars an acre is devoted to pasture. On the island of Guernsey land renting for thirty dollars per acre is down in permanent pasture. Jersey is a great truck garden for the London market, and that makes land values extremely high, yet pastures are universal.

One of the first items of importance in a pasture is to have heavy yield in grasses. Orchard grass and brome grass are two of the greatest yielders under our conditions, and far surpass in yield, timothy, blue grass, and other well known pastures. They are therefore the foundation of our irrigated pasture mixtures. In addition to their yield, they are deep rooted grasses, and consequently draw the nutrients from a deeper layer of soil than the shallow rooted grasses like timothy, blue grass, and the fescues. These latter grasses can be added to the mix-

(Turn to Page 24)

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EMPIRE
MILKING MACHINES

Pasture for Cattle

(Continued from Page 22)

ture with advantage because they increase the total yield of the pasture by furnishing their yield from nutrients gathered in the upper few inches of the soil.

Brome grass spreads from a root stalk running under ground from which shoots come up forming new plants. In this respect it is like Kentucky blue grass. It is necessary in the mixture in order to make a sod of a heavy yielding grass. If blue grass is used in quantities to make the sod, it will fill in and smother out many plants of the deeper rooted, heavy yielding grasses, and give a pasture which is sod bound and burns quickly in dry weather.

A variety of grasses is advisable for any mixture, because soils vary greatly, even on a ten acre field, in most sections of this state. Some grasses will thrive better on some soils and other grasses on other soils. A mixture therefore gives you a better stand and better yields.

Legumes are essential in the mixture because they gather nitrogen from the air which is made immediately available for greater growth of the grass intermingled with them. Just as the droppings of animals cause a rank green growth around them, so legumes gather nitrogen for a similar rank growth. The one great objection is that they bloat cattle and sheep, and even a small per cent of them in a grass mixture frequently proves dangerous. The best solution I have found for this difficulty is yellow sweet clover which seldom bloats. It should be the chief legume in the mixture. White clover may be used where it does well. Alsike clover may be used at the higher altitudes.

Heavy seeding is advisable in order that an even stand may be gotten. The following mixture is the one which seems best suited to Colorado needs after ten years' experience in trying out various grasses and proportion of seed:

Pasture Grass Mixture for Irrigated Land

Orchard grass	14 lbs.
Awnless Brome	12 lbs.
Meadow Fescue	6 lbs.
Tall Meadow Oat	4 lbs.
Timothy	6 lbs.
Alsike Clover	1 lb.
White (Dutch) Clover	1 lb.
Yellow Sweet Clover	4 lbs.
Total	50 lbs.

It is necessary to make the seed bed fine, as grass seeds are very small in size and the plants are fine and cannot force their way through clods.

A pasture should never have stock put upon it the year of seeding. The ground is loose, and the roots of the grass are not yet well established, and many of them will be pulled out of the ground in grazing. This also is true to some extent of the spring following seeding. It is advisable to roll the pasture the spring after seeding so as to firm the soil around the roots of the small plants. A hay crop should then be taken, as the top growth gotten in growing the plant to maturity enables the roots to extend down and establish a strong vigorous plant. A light cover crop of barley, wheat, or oats is advisable in seeding, as such a crop is better than a smother of weeds. The grain crop should be cut for hay and removed from the field immediately, so as not to kill out the plants under the windrow. If painstaking care is used in preparing the seed bed, gathering the seed and handling the pasture the first two years, the pasture will be a source of income and satisfaction for ten years to come.—G. E. Morton.

Cooperative Bull Associations

The typical cooperative bull association as recommended by the dairy specialists of the Department of Agriculture is composed from 15 to 30 farmers who jointly own five bulls. The territory in which these farmers live is divided into five "breeding blocks," one bull being assigned to each block. As many as 50 or 60 cows may belong to the farmers in each block, and the bull in the block should be kept on a conveniently located farm. To prevent inbreeding each bull is moved to the next block every two years. If all the bulls live, and if all are kept until each has made one complete circuit, no new bulls need to be purchased for ten years. In this way each member of the association has the use of good pure-bred bulls for many years, at a cost of only a small part of the purchase price of one good bull—usually less than is invested in a more inferior bull owned by individual dairymen.

In a survey conducted by the U. S. Department of Agriculture on 1,219 farms in eight districts in Iowa, Minnesota, and Massachusetts in which there were no associations, it was found that there were 817 bulls, having an average value of $76. Had the owners of these cheap bulls been properly organized the same investment would have purchased the necessary bulls of an average value of $283. In one association having more than 100 members the original cost of good pure-bred bulls to each member was only $23. When questioned regarding the value of cooperative bull associations, 150 farmers in Maryland, Michigan, and Minnesota estimated that the use of the bulls belonging to the organization increased the value of the offspring in the first generation from 30 to 80 per cent, with an average of 65 per cent.

The selection of the bulls for an association is one of the most important considerations. A good pure-bred bull will make rapid and marked improvement in the herds, and the association interest increases in proportion to the improvement obtained. If a poor dairy bull is used the milk production of the members' herds is sometimes reduced, the interest is lessened, and these conditions may lead to the breaking up of the association. Success in the operation of an association depends a great deal on the care that is used in its organization. Dairymen contemplating forming an association should consult the local county agent, write to the state agricultural college, or to the Dairy Division of the U. S. Department of Agriculture at Washington, D. C., for advice and assistance.

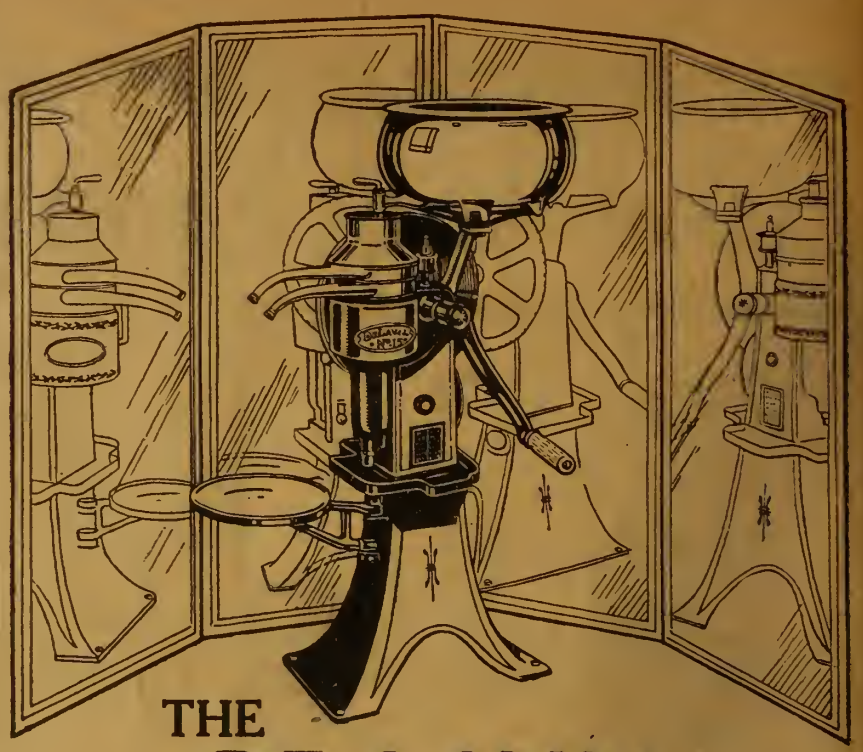
Diseases of Calves

Calves, especially in the early stages of their development, are subject to a few common diseases. Some of these diseases are accompanied by high mortaltiy, while others, though not responsible for the deaths of so many calves, undoubtedly lead to a considerable amount of unthriftiness on the part of calves and consequently to a considerable financial loss to the farmer.

Prevention is undoubtedly the best treatment for calf troubles and with careful feeding and management considerably less trouble should be experienced with the more common calf diseases. When disease does make its appearance, "cure alls" should be carefully avoided and if the trouble cannot be treated successfully a competent veterinarian should be called. The following suggestions, whose value has been proven by practical experience, are offered:

Constipation. (Retention of meconium.) The newly born calf requires the colostrum, or first milk, of its dam to assist in getting the bowels into good working order. Occasionally when the calf fails to receive the colostrum, the bowels remain inactive and the meconium is retained. Enemas consisting of a watery solution of soda or one-half teaspoonful of salt in one quart of water injected with a syringe or allowed to gravitate in through a hose and funnel, (or an ordinary fountain syringe) relieve this condition. Soap and other irritants should be avoided. In older calves constipation is occasioned by improper feeding, such as lack of sufficient roughages. One of the safest treatments for constipation is the administration of castor oil in doses of one to three ounces, depending on the size and age of the calf.

Indigestion. Digestive derangements in calves may be due to a variety of causes. Among the more common are constipation, over-feeding, irregularity of feeding, feeding dirty milk or other feeds that are in bad condition, too rapid changes in feeds, or chills brought on



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by draughts or by damp, cold floors. The cause of the trouble should be immediately located and remedied and in addition the feed should be cut down and castor oil administered. Where abnormal fermentations due to dirty milk are the cause of the trouble, lime water may also be of value.

Bloat. This form of indigestion may be caused by abnormal fermentation in the stomach brought about by dirty milk and also by the calves sucking each other and thus drawing air into the stomach, and also the calves swallowing the foam which is sometimes found on separated milk. The cause should be eliminated and castor oil administered. Sometimes a teaspoonful of ground Jamaica ginger given in hot water will be valuable in giving relief if the bloat is severe enough to cause colic.

Scours or Dysentery. Acute diarrhoea resulting from catarrh of the digestive tract caused by various forms of bacteria, is more common among calves than among other new-born animals. Some of these various forms of diarrhoea are regarded by herdsmen as white scours. Overfeeding probably predisposes to this trouble. This rarely occurs when calves are nursing, as the nourishment is taken frequently and in smaller quantities. Fermented or partially soured milk, feeding from dirty pails and other unsanitary conditions are all contributing causes.

Common scours are all too prevalent among calves and can be prevented by proper care and feeding. The causes previously outlined predispose calves to the bacterial infection which is associated usually with dysentry. Milk too rich in butter fat may also be a contributing factor. When calves are comfortably housed and regularity, not only in regard to the time of feeding but also with regard to the quantity and quality of the milk and its temperature and cleanliness, is observed, there will be little trouble from common scours. When this disease makes it appearance the milk ration should be cut down at least one half. This relieves the digestive system and it can be assisted in freeing itself of obnoxious materials by the administration of 1 to 3 ounces of castor oil. Treatment with formalin also gives beneficial results. A stock solution of 1 part of commercial formalin to 31 parts of water is made and a teaspoonful of this is added to each pound of milk feed. When the trouble is under control the calf should be brought slowly back onto full feed. Where the calf is very weak and will not drink it can be kept nourished by the occasional administration of an egg. The shell of the egg is cracked and the egg, shell and all, put well back in the calf's mouth which is held close on the egg so that he will break it up and swallow it.

The stable or stall in which the calf is dropped should be thoroughly cleaned and disinfected before the birth of the calf, and after the calf is dropped the stump of the umbilical cord should be thoroughly cleansed with a five per cent solution of creolin and then painted with one part of tincture of iodine in two parts of glycerin. This treatment should be repeated once each day for four or five days. It is believed that this method of treatment will largely prevent a more serious form of dysentery, known to herdsmen as white scours.

If the disease has made its appearance a cathartic of 2 ounces of castor or 4 ounces of raw linseed oil should be given. Following this 6 grains of calomel may be given twice daily or the following may be used:

Salol .....50 grains
Bismuth subnitrate..... 1½ drams
Sodium bicarbonate..... 2 drams

Make five powders and give one in milk every 6 hours. This remedial treatment is equally beneficial for the milder forms of scours.

Hemorrhagic Septicemia and Blackleg. These two diseases are caused by germs and in some cases it is quite difficult to distinguish between them, even when laboratory facilities for diagnostic purposes are available. A vaccine now is being used for each one of them with satisfactory results. However, the vaccines are specific and the one is not effective in preventing the other disease, so that a positive diagnosis must be made before any vaccine is applied, if satisfactory results are to be expected. At the outbreak of either disease the calves should be put in charge of a veterinarian as it is only with expert care that a cure can be accomplished.

Colds. Colds are frequent among calves and though they may not cause many deaths they retard the growth of the calves and make them not only poorer in condition and stunted but also more expensive. Well ventilated, dry barns and good bedding, will prevent colds, and if contracted they can be cured by giving the calf a little extra attention, blanketing if necessary, feeding warm milk and water and preventing draughts.

Pneumonia. Pneumonia is usually brought on by a chill and in severe cases, in valuable animals, it should be treated by a veterinarian. The animal should be kept in a well ventilated, bright barn which should be cool rather than warm but not draughty. The animal should be kept warm with a blanket. The application of a mustard plaster in the pleural region very frequently brings relief and aids in recovery. The bowels should be kept open. Further treatment should be prescribed by a competent veterinarian.

Mange. Many young animals become affected with mange in the winter time. The loss of hair is frequently confined to the neck and the root of the tail but it may become generalized. Treatment consists of washing with coal tar dip at intervals of about ten days. Petrolatum oil may also be used.

Ring Worm. Ring worm is caused by a fungus and in calves appears most frequently about the head, especially the eyes and along the neck. The disease may be prevented from spreading by keeping the healthy and infested animals separated and thoroughly cleansing the stalls. The crusts should be removed by washing with soap and water after which the diseased skin may be treated with sulphur-iodide ointment well rubbed in, or tincture of iodine and iron, equal parts. Care should be exercised to see that this does not get into the eyes of the animal.

Lice. Lice are most prevalent on cattle in winter and may become so abundant as to cause the animals great discomfort and consequent loss of condition. They are more common in stables where sanitation is lacking and may be seen along the neck and back of the animals. Calves infected with lice generally appear to be unthrifty and are poor doers. Treatment may be carried out by hand applications, spraying or dipping, or the animals may be washed with a good coal tar solution, and the treatment repeated again in about two weeks. If dipping is deemed expedient, Farmers' Bulletin 909 of the U. S. Department of Agriculture will prove helpful.

Flies. Flies cause considerable annoyance to young calves and it will usually be found convenient to spray the small ones in hot weather. A good fly spray can be made from:

4½ quarts coal tar dip.
4½ quarts fish oil.
3 quarts coal oil.
3 quarts whale oil.
1½ quarts oil of tar.

Dissolve 3 pounds laundry soap in water, add the ingredients of the spray and bring the whole up to 30 gallons with luke warm soft water. This spray will keep off the flies and prevent the coats of the animals from becoming harsh.—Iowa Circular No. 50.

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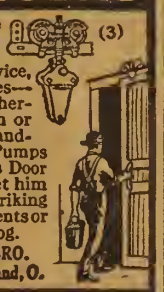
Known everywhere as the standard in quality. Exclusive patented Adjustable and Stayon features mean better wear, service, and satisfaction. Twelve styles—a type for every need. Give weather-proof doors that *always* push or pull easily. Your dealer who handles the famous Myers line of Pumps and Hay Tools also has Myers Door Hangers. See him today. Let him point out the striking Myers Improvements or write us for catalog.



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PUMPS FOR EVERY PURPOSE

GOOD FARMING PAYS

Every farmer and land owner should be interested in something that will save labor, time, horse-power, seed and make bigger and surer crops.

The Western Pulverizer, Packer and Mulcher will do all this. Its principle is entirely different from any other roller, pulverizer or packer; it does different work and produces far better results. All we ask is a chance to prove it to you at our own expense.

Our ILLUSTRATED CATALOGUE proves our statement and contains lots of valuable information on up-to-date and better farming and is worth its weight in gold to any farmer or land owner who doesn't think he knows it all. Send for it today.

WESTERN LAND ROLLER CO., Box 403 Hastings, Neb.

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Revealed

Now on a sudden, I know it, the secret, the secret of life.
Why, the very green of the grass in the fields with betrayal is rife!
The whirr of the grasshopper by the wayside proclaims it to all;
'Tis unrolled as a scroll to all eyes in the curve of the waterfall.
But, for me, I can only wonder at mortals —the secret is out;
For they see, hear, smell, taste, feel not what Heaven reveals all about. —Hoopman.

What I See From My Window

There are folks to whom spring means sulphur and molasses and sassafras tea; there are other folks who think of spring as soapsuds and scrubbing brushes and varnish; and there are still others for whom the fourth month in the calendar says nothing more than an exchange of cotton for wool, straw for felt and yellow shoes. But these are not the folks we are talking about, we'd like to talk to them if such a thing were possible, and tell them there are some marvels they are missing.

We mentioned birds in the last issue and we are coming back to them again. There are so many things to get acquainted with in our big outdoors that it is difficult to tell where to begin, but of that vast multitude of objects and happenings which make up the interestingness of everyday, the common wild flowers hold their place with the wild birds. Nothing can reveal quite so thoroughly to children the marvels of life as some of the ways in which plants grow; and some of those things are so ordinary we have forgotten and never think of their reason.

For some time past we have had twigs from the back yard currant bush full of budding leaves growing in water on our table. It is wonderful to think that every fold of that serrated leaf is formed and held in the bud in as perfect a shape as ever appears in the full-grown leaf.

For the first time, the very beginning of a yucca, or Spanish bayonet, brought itself to my attention on one of the prairie trips. A tiny little spikelet of the sharp leaves folded together was just pushing its way through the soil. To show the children how, when the delicate blossoms of this plant are at their best, their waxy cups are the home of a tiny white moth which may be seen in the evening flitting from one flower to another. They will be still more surprised to learn that this moth, first as an egg and then as a tiny worm has made its home in that particular plant; and had it not been for the parent moth, there would have been no ripened seed of the yucca itself.

The first flowers to draw our attention now are the fragrant stars of the sand lilies, the furred cups of the anemones or Pasque flowers, tiny spring beauties, dandelions and small harebells. All of them bring their dainty bit of interest. But there are other growing things held as even more ordinary, among them cottonwood trees, which give us much of beauty. Show the young botanist that two different trees will bear different flowers or catkins, that every short branch of the tree is scarred with many a mark which tells its own interesting tale.

There are many books to help in this study, but one which will be enjoyed for its pictures and interesting stories is a little book of Burton O. Longyear's called, "Rocky Mountain Wild Flower Studies," and another, beautifully illustrated, is "Wild Flowers of the Rockies," by Clements and Clements. Either will help us to do as Wordsworth says:

Come forth into the light of things
Let Nature be your teacher.—E. D.

What Mary Wants

Dear Sarah:—

Now you have made me more anxious than ever for that summer visit. That new kitchen of yours has been in my dreams, especially the wood-box part that can be filled from the outside. We've been having mud lately, and the many onslaughts upon the kitchen floor which are necessary to fill my wood-box leave it in a state where the "duck boards" that the boys in the front line trenches talked about would be useless. You can't find the floor. When we come this summer, John is coming too, and I am relying upon your help and ingenuity to make him linger in that kitchen long enough anyway to see one or two things before he and Marvin have to tear out to the barn to compare notes on their dairy stock. The wood-box and the cupboards are two things he must see, so don't show this part of the letter to Marvin.

I noted in the last issue of Western Farm Life that the State Farm Bureau organization at Fort Collins had taken up the matter of home improvement as part of their state work. That certainly sounds good, coming from what is as yet an organization made up pretty largely of men. But I heard from one who was there that a MAN got up and insisted that the main part of that state project be a drive to get water in every farm home in Colorado! His urgent insistence was due to the fact that he thought children left farm homes because they couldn't get enough baths! Some of them don't get enough, but whether the unsatisfied yearning in that direction has led to this condition or not, I don't know. I do know plenty of small boys who don't yearn at all, but handier water would certainly help their mothers to overcome their objections with much more ease.

Doesn't it make you sort of "uppity" to think we were in on a state project before we or anybody else knew it? And as you binted, I do go around and open all the faucets just a bit every once in a while just to assure myself that the blessed liquid is still running.

Now my dear, I have something which is almost a secret, at least John doesn't know he has let me find it out, and so it's still a secret with him. I'm not going to stop to write about it now, for it makes me want to whoop with joy just to think of it. And I haven't time to whoop, there are dandelion greens for dinner; and unless we chew more sand than is good for us, I must begin washing. Thank goodness I don't have to measure their cleanliness by the pailful. My news will keep until next time.

Lovingly,
MARY.

Getting Acquainted With the Plumbing

During the Farm Bureau meeting in Fort Collins early in March the home demonstration agents of the state went into the shop for a couple of lessons on plumbing. They threaded pipes and attached all the various "joints" they could find. They made the acquaintance of Stillson wrenches and the common kind. They learned that everything that is turned and gives a flow of water is not a faucet, but that most of them are "bibs." They met valves and stop cocks, "forty-fives" and "nineties," reducing joints which were no kin to beauty parlors, gaskets, which in ignorance were designated as "washers," and plugs. They didn't feel quite equal to opening a shop when the two lessons were over but they did learn one thing and that was that nothing is plumbing if it isn't "plumb" straight.—E. D.

Carrots in Cooking

Mrs. Sam Hayes of Moffat sends the following on the use of carrots in cooking to the Saguache County Farm and Livestock Reporter:

Since the food saving and experimenting on new foods commenced I wonder if the carrot has had its own as it should. I hear a great many say, "I don't like carrots," but we were all willing to learn to like the many substitutes and the carrot, if properly and carefully cooked, is very good, we think. One new way of cooking them is in the form of sweet pickles and preserves. For pickles, the carrots are cooked with the skin on till tender, then peeled and packed in a stone jar, the vinegar, sugar, spices and salt prepared as for any other sweet pickle and pour over them boiling hot and set away in a cool place.

For the preserves, small carrots are best pared and quartered and cooked in water till almost tender, then remove the carrots and add enough sugar to the water to make a heavy syrup, returning carrots and enough sliced lemon to suit the taste, just as you would make watermelon rind or citron preserves, and cook till clear. Children are especially fond of the preserves; large carrots, peeled and halved, peppered and salted and put in a well greased baker and baked in a medium oven are very good, and domestic science says it is nourishing.

Carrots boiled, mashed and seasoned like turnips are a nice change. Carrot pie is made similar to the pumpkin or sweet potato pie, has even a nicer color and flavor and we all know how much better our beef soup tastes and appears with a few dice of carrot in it.

The ever welcome and inexpensive vegetable hash should always contain a good supply of chopped stewed carrot. Carrots fried like potatoes, keeping a lid on the skillet tight are unusually liked and I am sure there are more ways than the above in serving the carrot, as the average farmer's wife is quick in inventing new dishes from common foods. It is to be hoped that the idea that "carrots are only cow food" will fade away.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapaboe, Denver, Colo.

2791—Simple, But Pretty Frock.—This makes a good, comfortable school dress, nice for gingham, seersucker, percale, lawn, repp, popplin, gabardine, voile, or serge. The closing is at the side. The sleeve may be finished in wrist or elbow length. Cut in sizes 6, 8, 10 and 12 years. Size 12 requires 3¾ yards of 36-inch material.

2771—A Frock for Mother's Girl.—This style is nice for batiste, lawn, voile, silk, or Swiss. The bolero may be omitted, and one may have the sleeve in wrist length, or short and flowing. Cut in sizes 6, 8, 10 and 12 years. Size 10 requires 3⅛ yards of 36-inch material for the dress, and 1¼ yards for the bolero.

2790—Frock With Youthful Lines.—This model may be finished without the tunic. The skirt is a two-piece style. The sleeve is close fitting below the elbow. Figured voile or silk, with satin or crepe would be good for this design. It is also nice for gabardine, gingham, batiste, lawn, and organdie. Cut in sizes 16, 18 and 20 years. Size 18 requires 5 yards of 44-inch material. Width of skirt at lower edge is about 1½ yards.

2781—A Popular Style.—This model is good for satin, linen, serge, shanting, taffeta, and for combinations of material. The sleeve may be finished in wrist or elbow length. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 4⅜ yards of 36-inch material for the dress and 1⅞ yards for the jumper. The skirt measures about 1¾ yards at the foot.

2776—A Simple Dress for Mother's Girl.—This is just the style for wash fabrics, and for serge, voile, repp and poplin. The sleeve may be finished in wrist or elbow length. Cut in 4 sizes: 2, 4, 6 and 8 years. Size 6 requires 2⅞ yards of 27-inch material.

2789—A Practical Outfit.—Here is a choice combination for a set of short clothes. It comprises a pretty dress that is excellent for lawn, batiste, voile, nainsook and crepe, a petticoat which is comfortable and easy to develop, and simple drawers. The undergarments may be of lawn, cambric, or nainsook. Cut in 5 sizes: 6 months, 1, 2, 3 and 4 years. Size 2 will require for drawers, 1 yard; for petticoat, 1⅞ yards; for dress, 2¼ yards of 36-inch material.

2770—A Simple Apron.—This style is a good "cover all" model, and suitable for gingham, percale, seersucker, lawn, sateen and alpaca. Cut in 4 sizes: Small, 32-34; medium, 36-38; large 40-42; extra large, 44-46 inches bust measure. Size medium requires 5 yards of 36-inch material.

2472—Comfortable Work Dress.—Galatea, khaki, seersucker, percale, gingham and chambray are nice and serviceable for this style. The front closing is a practical feature of this one-piece garment. The belt confines the fulness at the waistline. This is a good model for a "food conservation" or canning costume. Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6¼ yards of 36-inch material.

Ability to Remember Names

"What do you think? I met a girl, today, whom I met only yesterday, but to save my life I couldn't remember her name."

"I wish I could remember the captain's name, but then, I never could remember names."

"There I stood like a dunce, knowing you two were not acquainted, but I had forgotten his name and wouldn't have had him know it for the world."

And so on, a never-ending story.

"But then there is Mrs. Black. She never does forget names. She seems to know everybody; and she calls everybody by name."

What's the trouble? We do not speak distinctly when making introductions; so very often we really do not know the names, and hence have had no chance to forget them. We are apt to be less intent upon the names of our new acquaintances than we are upon their appearance and upon our conversation. Often we do not think of their names for several days after we were introduced; and you know, repetition is a fundamental basis of memory. We make no associations of names with the persons to whom the names belong.

The ability to recall names is a valuable asset socially, politically, and financially. Speak distinctly when you introduce others. Be sure that you understand the name of the person introduced to you. Pronounce his name then and there. Pay close attention to the name. Try to make some association with name and person. Think over the names of your new acquaintances occasionally. In a word, by conscious effort, you will acquire the habit of remembering names. You will escape many of the embarrassing situations that now arise.—B. F. Coen, Agricultural College, Fort Collins, Colorado.

For Control of Poison Plants

The Colorado amended pest law was originally intended to be used to stimulate co-operation in the control of "grasshoppers, insects, prairie dogs, ground squirrels or other rodent pests, weeds and plant diseases." Over two million acres are now in pest districts for the control of rodents. The grasshoppers have been successfully cleaned up in a number of counties and two districts have recently been formed in one of our most important fruit-growing counties for the control of the fruit-tree leaf-roller. Under this law, the common barberry, on account of it harboring the wheat rust, is being removed from the entire state.

The law can be as successfully used in the control of the poison milkweed and other weeds that are doing so much damage to livestock and agricultural crops in this state. Anyone interested in the law for this purpose can obtain a copy by addressing the State Pest Inspector, Colorado Agricultural College, Fort Collins, Colo.

"Kaiser" Pea Changes Its Name

Farmers who want to buy quantities of the variety of field pea introduced several years ago by the United States Department of Agriculture from Germany, and then known as the "Kaiser" pea, will save trouble by not using that name any more. These peas are now known as "McAdoos," and they are as widely distributed through the northwest as Liberty bonds, which caused the substitution in nomenclature.

Purebred Livestock for Sale. See Breeder's Announcements on next to last page this issue.

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

The annual consumption of eggs in Colorado is estimated at about 750 cars, valued at approximately $3,300,000. About two-thirds of the poultry products consumed in Colorado are shipped from Kansas, Nebraska and other adjoining states. Denver alone consumes 135 cases of eggs daily. Colorado, therefore, supplies only about one-third of her demand for eggs and other poultry products, a condition which would indicate vast opportunities for Colorado poultry producers.

In the past most poultry producers have considered eggs a by-product and the returns as so much clear gain. Carelessness in caring for hens and in handling of eggs obtained has resulted in the shipments of a large number of small, cracked, dirty, stale and even rotten eggs, all unfit for market purposes.

Experiments in other states have shown conclusively that the largest degree of success for small poultry producers is obtained through the organization of egg circles. In Texas, according to H. M. Eliot, chief of the rural economic division of the Texas Agricultural college, 31 egg circles shipped 4,419 cases of eggs during the 1917 season. The receipts of these 31 egg circles during that year were $43,999.43. Their success has resulted largely from shipping eggs which do not spoil before they reach the consumer. In Colorado, co-operative egg marketing is comparatively new. The field for egg circles managed along business lines is practically unlimited.

An egg circle is simply an association formed by uniting several egg producers who agree to market their combined products. The aim of such a circle is to market fresh eggs carefully graded on color, size and cleanliness, so that a grade of eggs considerably above the average is placed upon the market. The trade of the egg circle is largely with clubs, hotels and restaurants, who are usually willing to pay a premium for fresh, clean, well-graded eggs.—Stuart L. Sweet, Field Agent, Colorado Office of Markets.

Kit Carson Egg Circle

A successful egg circle has been in operation at Kit Carson in Cheyenne county for several months. It was organized by the Colorado Office of Markets with the advice and assistance of Mr. H. W. Sanborn, poultry extension specialist for the Department of Agriculture. Eggs are furnished by the wives of farmers living in the vicinity of Kit Carson. Only the best eggs are brought to town, the undersized and the soiled ones being kept for home use. The Brown Palace Hotel at Denver was supplied by this circle throughout the winter, paying a substantial premium over the general market price. At the time the circle was started last fall the price received by the farmers for eggs from the merchants at Kit Carson was 32 cents. Members of the circle at that time sold specially selected eggs at 50 cents and extra No. 1 at 42 cents a dozen. While this ratio was not maintained at all times, the members of the circle, nevertheless, received from 5 to 10 cents above market and they were able to furnish quality eggs at a time when consumers in the cities were paying 75 and 80 cents a dozen.

Mrs. Lena Lancaster is president and Mrs. George Waters secretary of the circle. Recently the work was reorganized and it is now on a permanent basis. Mr. Charles E. Collins, a banker at Kit Carson, is chairman of the executive committee which looks after the matter, and he and other influential citizens of the community will see to it that the women who are bringing in the eggs and furnishing a high-grade article receive fair prices from the Denver hotel markets.

Chickens Sick or Not Laying?
Most poor layers are "OUT OF CONDITION" or have Colds, Roup, Bowel trouble, Sore head, Chicken pox, etc. GERMOZONE is the best remedy for all these disorders. At dealers or postpaid 75c, with 5 book Poultry Library.
GEO. H. LEE CO., Dept. 445 OMAHA, NEB.

Not a Serious Danger

Will poisoned oats prepared for the extermination of prairie dogs kill chickens and wild birds should they eat them?—A. C., Colo.

Chickens, turkeys, quail and pheasants can eat a considerable quantity of poisoned oats without serious effects. The oats used for this purpose are poisoned with strychnine.

Making Brooms at Home

There is a good suggestion for southeast Colorado counties where broom corn is grown, in a plan for home broom-making in the southern states. Broom machines by which 25 to 30 brooms can be turned out in a day, have been bought on a community plan and rented out to boys' and girls' agricultural clubs, who pay in brooms for the use of the machine. It has been found that the cost of making a broom under these conditions is about 20 cents. The work has been done mostly by girl club members, who sell the product in the home market.

Sections where broom corn is grown have experienced much difficulty in marketing their product. Perhaps the present suggestion will help solve this problem.

Growth and Development of the Dairy Heifer

(Continued from Page 20)

rub her udder and make her certain she has nothing to be afraid of. Good feeding is very necessary at this time. The udder develops the most during the last four months before calving, and heavy feeding at this time, instead of causing a habit of fattening, helps to develop the mammary organs and increase their capacity. The heifer or cow which freshens in a poor condition very rarely gives the amount of milk and butter during the year that she would otherwise do. Breeders of record-making cows make a specialty of fitting their calves well previous to calving, but the matter has not been given as much attention as should be by managers of ordinary dairies.

It takes $100 to $125, all expenses and overhead charges considered, to produce a dairy heifer at time of freshening, and a dairyman cannot afford to lose that value by carelessness. One source of loss occasionally met with is the spoiling of heifers' udders through milk developing in them ahead of time, often during the second summer on pasture. When this occurs it is usually in heifers of the best dairy type. This may come on simply from the stimulus afforded by good pasture, but most frequently it is due to calves sucking each other when small. For this reason calves raised on the bucket should be confined in stanchions after getting their milk until they have forgotten their desire to suck. Most calves forget the habit thus developed after milk feeding ceases, but some carry the habit on. One calf sucks the udder of another until milk is secreted, then it forgets or starts after another calf. As a result, the milk in the udder spoils, inflammation follows, abscesses form and the heifer is spoiled for dairy purposes, often before the owner knows anything is wrong. Instead of having a dairy cow worth $250 or more, he has only a $50 canner to send to the stockyards. Vaccinate the dairy heifers with blackleg serum. It is always the best heifer that is found dead from blackleg. Treat the heifers as if they were the same as $300 cows and you will produce good cows.

There are almost 1,000 Colorado breeders of purebred livestock. Buy your purebred livestock of them. Names and addresses of breeders who have stock for sale will be supplied on request. Address Breeder's Department, Western Farm Life, 1400 Arapahoe, Denver, Colo.

WHITE LEGHORNS

Hatching Eggs and Baby Chicks

Do You Want Eggs and Big Profits This Winter?

Then get your hatching eggs and baby chicks from our strain of TOM BARRON ENGLISH bred-to-lay LEGHORNS, TESTED 9 YEARS for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for circular, prices and facts from customers before you buy eggs or chicks. It's free, write.

The Fowler Egg Farm, Fowler, Colo.

IRRIGATED FARM LANDS

Write us for full particulars concerning the 500,000-acre tract of ALBERTA farm land which we now have for sale. We will gladly furnish you with maps, pamphlets and all information.

Canada Land and Irrigation Company, Ltd.
MEDICINE HAT, ALBERTA

Producing Good Seed Corn

The farmer who raises an average crop and gets average prices for his produce will never make more than a bare living He has too much competition. If there were as many merchants, manufacturers or professional men as there are farmers they would have hard sledding to make both ends meet.

The average production of corn for the corn belt is about 24 bushels per acre, and for this state about 15 bushels. The cost of raising a small crop is about the same as for a large one, therefore the profits on a 60 bushel per acre crop are more than double those on a 15 bushel crop, which will just about pay the expenses of producing it. It doesn't require a very large ear of corn to weigh eight ounces. Corn planted 20 inches apart in the row and the rows three and one-half feet apart will produce 60 bushels per acre, if every stalk bears an eight-ounce ear. So it is easy to see that it is the barren stalks and the nubbins which cause the low and unprofitable yields. This brings us to the point of eliminating the barren and poor producing stalks.

The only way this can be done is to plant a seed plot apart from the rest of the field and when the tassels first appear, go through the rows and detassel or cut out the barren stalks. Another important cause of poor yield is inbreeding. This can be prevented by detasseling every other row and selecting seed only from the detasseled row. This is no doubt some extra trouble, but if you don't care for the trouble, it will pay to buy your seed corn from someone who will take the pains to propagate seed for high yielding qualities.—R. H. Bane, Ackmen, Colo.

Western Farm Life: I just received your notice that my subscription had expired. I am sorry that I didn't renew before. I am sending you one dollar for two years' subscription. I like your magazine. It is one of the best magazines I ever took. It is a good magazine for the farmer. I believe every farmer and stockman ought to take Western Farm Life.—Antonio Onorato, Purcell, Colorado.

Purebred Livestock for Sale. See Breeder's Announcements on next to last page this issue.

Seed Corn for Club Work

The Arapahoe County Farm Bureau will supply any boy or girl between ten and sixteen, inclusive, in the county with enough seed to plant one acre of corn free of charge.

At the first meeting of the directors this matter was taken up and it was thought in this way club work could be started more readily and also different kinds of corn could be compared in different localities.

The boy or girl taking corn will be expected to make a fifteen-ear exhibit at some place to be decided on at a later date. The prizes will be given for best ear, best fifteen ears, and best acre. The best acre will be decided from the following points: yield, cultivation of corn, cost per bushel, the record of cost and profit and the story that is written as to how the corn was grown. There will be three medals given for the best acre, and suitable prizes for the individual ear and the fifteen-ear exhibit.

The boy or girl entering the contest can have their choice of either Swadley or Minnesota No. 13 corn, these two corns being the best for conditions in Arapahoe county.

There will be an entry fee of 30 cents charged each contestant. This money will be spent entirely for prizes. The entry fee will be divided into three payments, 10 cents when entering, 10 cents when corn is planted, and 10 cents by the first of July.

Anyone wishing to enter the contest must apply to any of the following before April 15th:

W. A. Groom, County Agent, Littleton, Colo.; J. T. Robertson, County Club Leader, Littleton, Colo.; John Spacke, South Cook and Iliff streets, Denver, Colo.—Strasburg News.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24TH, 1912, OF "WESTERN FARM LIFE," PUBLISHED SEMI-MONTHLY AT DENVER, COLO.—FOR APRIL 1, 1919.

State of Colorado, County of Denver. Before me, a notary public in and for the state and county aforesaid, personally appeared W. E. Edmiston, who, having been duly sworn according to law, deposes and says that he is the publisher of the Western Farm Life, and that the following is to the best of his knowledge and belief a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:
Name of publisher—W. S. Edmiston, Denver, Colo.
Managing Editor—A. T. Steinel, Denver Colo.
2. That the owners are:
W. S. Edmiston, Denver, Colo.
A. T. Steinel, Denver, Colo.
3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contains not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholders or security holder appears upon the books of the company, as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustee, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect, in the said stock, bonds or other securities than as so stated by him.

W. S. EDMISTON,
Publisher.

Sworn to and subscribed before me this 3rd day of April, 1919.

EDMONTE O. HAFFNER,
Notary Public.
(My commission expires March 14, 1920.)

Insurance Company Flourishing

Encouraging reports were made by the office of the Farmers Life Insurance Company at the annual meeting recently held in Denver. Notwithstanding the unusual losses through influenza, the company's surplus increased during the year from $55,000 to a total of $105,000. Officers and directors were elected as follows.

E. M. Ammons, Denver, president; B. M. Stackhouse, Denver, secretary; J. H. Orr, Lewellen, Nebraska, treasurer; Dr. P. C. Kelley, Grand Island, Nebraska, first vice-president; W. M. Glenn, Tribune, Kansas, second vice-president; D. A. Lord, Denver, third vice-president; Dr. J. E. Kinney, Denver, medical director; H. A. Hicks, Denver, general counsel.

Directors: W. T. Ashley, Sagauche, Colo.; L. C. Fulenwider, Denver; Dr. Robert Damerell, Red Cloud, Nebr.; J. J. McIlquham, Cheyenne, Wyo.; Rudolph Durtschi, Wood River, Nebr.; A. A. Edwards, Fort Collins, Colo.; R. N. Hayward, Hyannis, Nebr.; Thos. Stansbie, Ashby, Nebr.; L. E. Ballinger, Bingham, Nebr.; J. P. McEnroy, Larkspur, Colo.; E. P. Perrine, Denver; Wm. Kinderman, Denver; R. R. Kinkaid, Bingham, Nebr.; D. B. McNeal, North Platte, Nebr.

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

S. C. BROWN LEGHORNS, EGGS 15 $1.25—100, $7. Mrs. E. L. Zeiner, Ramona, Kans.

S. C. BLACK LEGHORNS; STOCK AND EGGS for sale at all times. Harry Grimes, Chula, Mo.

PURE BRED SINGLE COMB WHITE LEGHORN eggs. 75c per 15 or $4.50 per 100. Joe Herbrandt, R. 4, Jefferson City, Mo.

PUREBRED SINGLE COMB BROWN LEGHORN eggs, $5.00 per 100. Manda Godard, Mound City, Kans.

PUREBRED ROSE COMB WHITE LEGHORN eggs. 15, $1.50; 100, $5.50. Prepaid. C. Nesselroad, Attica, Kans.

EXTRA QUALITY S. C. BROWN LEGHORN eggs, 17, $2—50, $5. L. Hastings, Thayer, Kans.

S. C. WHITE LEGHORN EGGS, 15, $1.50—100, $6. Stock headed by 200-egg Yesterlaid Strain. Linna Seaver, Egbert, Wyo.

S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

FANCY SINGLE COMB BROWN AND WHITE Leghorn cockerels, $2.00 to $3.00. H. N. Hoideman, Meade, Kan.

HEWITT'S S. C. BUFF LEGHORNS, BLUE ribbon winners. Eggs $2.50 a setting; $6.00 per 50. Mrs. Philo Hewitt, Lexington, Neb.

ROSE COMB BROWN LEGHORNS; STATE winners, roosters, $1.50. Prize eggs, 7c. Rufus Standiferd, Reading, Kan.

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

HATCHING EGGS FROM SINGLE COMB WHITE Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Robert Sbumway, Fountain, Colo.

FOR SALE—PURE-BRED WHITE ROCKS AND S. C. White Leghorn eggs for hatching, $6 per 100; $1.25 per setting. Lloyd Willeman, Central City, Nebr.

FAMOUS YOUNG STRAIN SINGLE COMB White Leghorns costing $20 setting, $7 hundred, $2 setting. Elsie Thompson, Mankato, Kans.

EGGS—SINGLE COMB WHITE LEGHORNS, Ferris highest laying strain; $5 per hundred. Chicks, 15c each. Mrs. Anna Hege, Sedgwick, Kans.

PURE BLOOD SINGLE COMB BROWN LEGhorns. Setting eggs from healthy range flock, $1 per 15; $6 per hundred, prepaid. Order today. C. O. Johnson, Boyero, Colo.

BARRON'S ENGLISH WHITE LEGHORNS, winter layers. 248 to 308 eggs per year. Baby chicks. Eggs. Royal Oaks Poultry Farm, Jas. Dickey, Cabool, Mo.

SINGLE COMB WHITE LEGHORNS. 95-96½ scores. Winners, layers. Finest eggs, cockerels. Reasonable; honesty. Mrs. Albert Ray, Deiavan, Kan.

SINGLE COMB WHITE LEGHORN EGGS from excellent laying strain of vigorous, farm range fowls, bred especially for high egg production. $1.50 per fifteen; $6.00 per hundred. Ellen M. Donahue, Inland, Neb.

EXTRA GOOD SINGLE COMB WHITE LEGhorns, pure white, low-tailed, males mated to heavy laying females. Eggs $6.00 per 100; setting, $1.50. Order now. E. D. Allen, Inland, Neb.

S. C. BUFF LEGHORN EGGS, 15 FOR $2.00; 120 for $10.00. Six pens trapnested at $3.00 and $5.00 setting. All prepaid. Few cockerels. Free "Book of Buffs." Pearl Haines, Rosalia, Kan.

'RUSSELL'S RUSTLERS," AMERICA'S FAmous Single Comb Brown Leghorns. Free catalog. Winners at largest shows. Eggs prepaid, $2.00 per 15 and up. Geo. Russell, Chilhowee, Mo.

BREEDING OF BRED TO LAY SINGLE COMB Brown Leghorns in large quantities a specialty;; 50 for $4.00; 100 for $7.00; 150 for $10.00, prepaid. Cockereis, $3.00 to $6.00. Chas. Bowlin, Olivet, Kan.

BUFF LEGHORNS, BEST LAYERS ON EARTH. Baby Chix, not the cheap kind. 25c each. One or a hundred. Hatching eggs, $1.50 for 15, prepaid. You will be pleased with my stock. Champney, 25 So. Logan, Denver.

SINGLE COMB WHITE LEGHORN CHICKS, 15 cents; from world's best strains, Young Smith and Ferris, from hens that pay $8 each per year from eggs. Layers, winners and payers, $5 to $25 each. Clara Coiwell, Smith Center, Kans.

SINGLE COMB WHITE LEGHORNS—OUR Leghorns are bred to lay more eggs at all seasons than common hens and especially in winter. It pays to get eggs and chicks from a heavy laying strain. Fourteen years in the business. Hatching eggs and chicks. Riverside Poultry Farm, H. D. Walker, La Junta, Colo.

SINGLE COMB WHITE LEGHORNS. THE LAYing kind; the paying kind. No hucksters, but genuine business birds that fill the egg basket all seasons of the year. Standard bred, line bred and trapnested continuousiy. I breed from nothing but the best. Selected for prepotency, size and vigor, and verified the trapnest route. Eggs, $2.00 per setting. Incubator iots 8c each. Send for folder. J. S. Stever, Rock, Kans.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and facts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Coio.

PLYMOUTH ROCKS

BARRED PLYMOUTH ROCK EGGS FOR hatching, $1.50 per setting of 15. Mrs. C. J. Davidson, Fort Lupton, Colo.

WINTER LAYERS, BARRED PLYMOUTH ROCK eggs, $1.50 for 15. Mrs. Lon Edwards, 1105 Garfield Ave., Loveland, Colo.

BIG-BONED WHITE PLYMOUTH ROCK COCKerels for sale at $2.00 and $3.00 each. Mrs. John Rhudy, Pliger, Neb.

WHITE ROCKS, WINNERS IN SIX STATES, utility eggs, $10 per 100. Williams Poultry Farm, Cedar Biuffs, Nebr., Box F.

PUREBRED WHITE ROCK EGGS FROM PRIZEwinning stock. Fishel strain. $1.50, 15; $4, 50; $7, 100. J. S. Cantwell, Sterling, Kana.

FIVE-POINT COMB WHITE ROCK EGGS, $1 for 15, $7 per bundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kans.

TOLIVER'S PRIZE-WINNING WHITE ROCKS—won at Denver Stock Sbow. First and third hen, second cockerel. Setting eggs, also cockerels and pullets for sale. F. L. Roy Toliver, Box 144, Fort Collins, Colo.

PARTRIDGE PLYMOUTH ROCKS—THE beauty and utility breed. Eggs for hatching, $3.00 for fifteen eggs; after May first $1.50 for fifteen eggs. Satisfaction guaranteed. A. R. Stover. Manzanola, Colo.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Biunt, Route 1, Greeley, Colo.

RINGLET STRAIN BARRED PLYMOUTH Rocks—big boned, yellow iegs, barred to the skin, from Thompson's prize-winning stock. No better anywhere; 25 years breeder. $2—15 eggs; $11 per hundred. Thomas Moore, Akron, Coio.

LAYMORE BARRED PLYMOUTH ROCKS. Eggs, $3.00-$5.00 for setting (15); $12.50 per 100. Prize winning stock. Buy eggs of this stock and you buy the best. I can furnish a few hundred Rhode Isiand Red baby chicks at $20.00 per 100. J. R. Anderson & Son, Fort Morgan, Coio.

ORPINGTONS

WHITE ORPINGTON EGGS, $6.00, 100. NELiie Penticuff, Knobnoster, Mo.

PURE BRED BUFF ORPINGTON ROOSTERS, $2.50 to $5.00 each. Mrs. H. Swan, Hugo, Colo.

BEST WINTER LAYERS, WHITE ORPINGTON eggs, $1.50 per setting of 15. Mrs. W. H. Persyn, McClave, Coio.

EGGS—BUFF ORPINGTON EGGS, MAILED to you in Frost Proof Cartons. Setting of 15 worth $5.00—only $2.50. C. R. Wilson, Herman, Neb.

"SHANKS ORPINGTONS" S. C. BUFF. EGGS for hatchiing, utility, $2.00 per 16; $6.00 per 60, and $12.00 per hundred. Exhibition pen eggs at $3.50 and $5.00 per 15; $12.00 per 60; 80 per cent fertility guaranteed. A few good maies and females to sell at bargain prices. F. M. Shank, Route 2 A., La Junta, Colo.

WYANDOTTES

COLUMBIAN WYANDOTTE EGGS, $1.50 PER 15. Orvei Sharits. Newton, Kans.

GOLDEN WYANDOTTE EGGS, $7 HUNDRED, $4 fifty. H. C. Moeller, Rt. 1, Wheeler, Ill.

WHITE WYANDOTTE EGGS, $2.50 PER 15. From prize winning stock. Mrs. Ed. Gudgel, Akron, Colo.

WHITE WYANDOTTE STOCK AND EGGS. Also Fox Terrier Ratters. Ginette & Ginette, Florence, Kans.

PUREBRED WHITE WYANDOTTE EGGS, "farm range." $1.50, 15; 30, $2.50; 100, $7.00. Homer Fleury, Concordia, Kans.

WHITE WYANDOTTE EGGS — PUREBRED. $1.50 per 15; $8.00 per hundred. William F. Holmes, R. R. 5, Galiatin, Mo.

WHITE WYANDOTTES—EGGS FOR HATCHing, $7 per 100, $4 per 50, $1.50 per 15. Miss Anna Lansdown, Fort Lupton, Colo.

BUFF WYANDOTTES—PRODUCERS, HEAVY laying Missouri Egg Contest Stock; heavy laying qualities; wonderful soft golden color. L. E. Jones, 2227 Mapleton, Boulder, Coio.

WHITE WYANDOTTE EGGS FROM TRAPnested stock. $3.00 per 15 eggs, $5.00 per 30 eggs, $12.00 per 100 eggs. Mrs. Mary M. Wright, Route 2, Box 205, Boulder, Coio.

RHODE ISLAND REDS

EGGS. S. C. RED. TROPHY CUP, BLUE RIBbon winners. Get mating list. Mrs. John D. Shaw, Rt. 1, Atiantic, Iowa.

SINGLE COMB RHODE ISLAND RED COCKerels, $2.00 each; three Rose Comb cockerels, $2.00 each. Mrs. E. C. Grizzell, Claflin, Kans.

ROSE COMB RHODE ISLAND WHITE COCKerels, $3. Eggs, 15 for $1.50. C. D. Baldwin, Granada, Colo.

ROSE COMB RED EGGS FROM WINNING DENver Stock Show strain. Get my prices now. C. E. Dewey, Fort Morgan, Coio.

HIGH-CLASS SINGLE COMB REDS. GET MY price on hatching eggs. Three pens 250-egg strain. Nels W. Peterson, Mason City, Neb.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize-winning, heavy laying strain. Write for mating list. E. A. Miller, Alma, Nebr.

SPLENDID ROSE COMB RHODE ISLAND Reds. Eggs, 15 for $1.00, 100 for $5.50. Lucy Ruppenthai, Lucas, Kan.

PURE-BRED SINGLE COMB OX BLOOD RHODE Island Reds, 15 eggs $1.50; Mammoth White Peking ducks, 15 eggs, $1.50. Mrs. Chas. DeBrier, Aroya, Colo.

FINE CHICKENS AT THE TUCKER FARM; Rhode Island White, Rhode Island Reds; baby chicks; write me your wants; eggs in season. Mrs. Hattie M. Tucker. Pawnee. Okla.

EGGS FROM BUSHBY'S WINTER LAYERS. Single Comb Reds, $7.50 hundred, expressed from Pueblo. Flock estabiished 12 years. H. A. Bushby, Rye, Coio.

ROSE COMB RHODE ISLAND REDS. EGGS for hatching from matings of dark brilliant red, large bone, winter layers. F. B. Morger, Fowler, Colo.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockereis and pullets bred from our great stock show winners, at reasonable prices. Liston L. Haii, Gering, Neb.

DISPERSION SALE ROSE COMB RHODE Isiand Reds. Cause: death of Mrs. Huston. Mated pens, hens, cockerels, cocks sired by roosters costing $50.00 to $75.00. Sacrifice prices. W. R. Huston, Americus, Kan.

STANDARD BRED REDS, EITHER COMB. "Hoganized" flocks, dark rich color, none better. Eggs, $7.50 per hundred. Speciai matings, $3.00 setting. Circular free. Edson Snyder, Butler, Mo.

PEN OF CHOICE ROSE COMB RED HENS headed by cockerei taking second Okiahoma state sbow. Eggs, $4.00 for 15. Second pen, $2.00 Range, $1.50. Mrs. George L. Thornton, Eureka, Kans.

ROSE COMB REDS, FARM FLOCK; EGGS $6.00 per 100; speciai yard mating, $3.00 per 15. Single Comb Reds, eggs $2.00 per 15, $5.00 per 50; safe delivery and strong fertility, guaranteed. Free mating list. Mrs. E. C. Grizzell, Claflin, Kans.

LOWER'S POULTRY FARM, ARVADA, COLO., is the oldest and iargest breeder of thoroughbred Single Comb Rhode Island Reds in the west. Our stock is line bred from selected heavy laying type for 16 years. Hatching eggs ready Jan. 1, $10.00 per 100. Thoroughbred baby chicks $30.00 per 100. Free catalogue.

ANCONAS

ANCONA EGGS, SETTING $1.50 OR $6 PER hundred; exclusive Ancona farm. Mrs. D. D. Davis, R. D. 2, Littleton, Coio.

S. C. ANCONAS—FOR MORE EGGS TRY OUR Anconas, bred from the famous Sheppard strain wbich hoids the world's records for egg production. They fill the basket with large white eggs. Price, $2 per fifteen; $8 per hundred. Mrs. J. B. Shenk, R. F. D. 2, La Junta, Coio.

ANCONA HATCHING EGGS FOR SALE; PRIZE winning strain at the Heart of America and Kansas City shows; greatest winter layers from the largest stock west of the Mississippi. Our best, $3 setting; other pens, $12 per hundred; guaranteed 85 per cent fertile; now booking orders for baby chicks from March 1 and thereafter, $35 per hundred. J. E. Diveley, Diveley's Ancona Egg Farm, Excelsior Springs, Mo.

RHODE ISLAND WHITES

ROSE COMB RHODE ISLAND WHITE COCKerels and hens, $3, $4; prize winning, trapnested, vigorous, iarge as Reds. mature earlier; eggs, 15, $2.00; 50, $5.50; 100, $10.00 Catalogue. Col. Warren Russeli, Winfield, Kans.

BRAHMAS

SETTINGS FROM PURE-BRED LIGHT BRAHmas. E. Grosser, 2238 Perry, Denver, Coio.

SEVERAL VARIETIES

FOR SALE—GOLDEN PHEASANT EGGS, $6.00 per dozen. J. T. Graves, Bentonsport, Iowa.

PUREBRED BARRED ROCK COCKERELS and pullets. Tbompson's ringlet strain. Ship anywhere. 2948 Coiumbine, Denver, Colo.

EGGS FROM PRIZE WINNING RINGLET Batred Rocks, $1.50 for 15; $7 per hundred. Clarence Brooks, Logan, Kans.

WANTED SILVER LACE WYANDOTTE AND Buff Rocks eggs for setting. Mrs. Etta Philips, Bennett, Colo.

SPLENDID BARRED ROCK COCKERELS FOR sale at a reasonable price. Mrs. Mary Welty, Rt. 6, Sterling, Kans.

BUFF COCHIN BANTAMS, CHINESE RINGneck Pheasants, stock and eggs for sale. E. A. Miller, Alma, Nebr.

BEAUTIFUL SILVER CAMPINES, 240 EGG strain. $8 for 100; $5, 50; $2, 15. Large white eggs. Culverdale Farm, Red Oak, Iowa.

CRITTENDEN'S FAMOUS BLUE ANDALUSIANS, winter iayers; eggs, 15, $1.50; 50, $4; postpaid. S. D. Crittenden, Mansfield, Ark.

COCKEREL BRED BARRED ROCKS. WINNER Kansas and Missouri shows. Eggs, $5 per 15. Chas. Darnell, Topeka, Kans.

BARRED ROCKS—EGGS FOR HATCHING from 3 fine Pens, $5.00, $3.00 and $2.50. T. W. Drummond, Fairmont, Neb.

PURE BRED BARRED ROCK COCKERELS, $5.00; winter iaying strain. Eggs, 15 for $5.00. E. Piessinger, Cheyenne Wells, Colo.

PURE BRED ROSE COMB RED EGGS, 15 FOR $1.00; 100 for $5.50. Mrs. B. F. Weigle, Winfield, Kan.

WHITE ROCK EGGS, $1.10 PER SETTING, $6.00 per hundred. Henry Luers, Columbus, Neb.

INVINCIBLE DARK CORNISH—UTILITY AND Exhibition. Mating list. R. H. Jandebeur, Aima, Neb.

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

75 BLACK LANGSHAN COCKERELS. WON first ckl. at Illinois and Kansas state shows, 1919. John Lovette, Mullinville, Kan.

LIMING'S HEAVY WEIGHT WHITE ROCKS. Eggs, $2 per 15. Quality Fruit and Poultry Farm. Manzanola, Colo.

EGGS—BUFF ORPINGTON BARRED ROCKS, R. I. Reds, Biack Minorcas. T. J. Pugh, Fullerton, Neb.

BLACK AND WHITE LANGSHANS; PRIZEwinners; eggs, $3 for 15. $5 for 30. H. M. Palmer, Florence, Kans.

PUREBRED BARRED ROCKS—EGGS IN SEAson, one dollar for thirteen; seven dollars per hundred. Peter H. Friesen, Lehigh, Kan.

EGGS FOR HATCHING, SILVER CAMPINES, $3; Barred P. Rocks, $2; Blue Andalusians, $2; Single C. R. I. Reds, $1.50 for 15 eggs. John L. Miller, Arvada, Colo. Phone Arvada 10J.

BARRED ROCK EGGS—PARKS PEDIGREED 200-egg strain. Pens headed by pedigreed cockerels, 15 for $3.00. Utility, 15 for $1.25, 100 for $7.00. Mrs. A. E. Huff, Lancaster, Kan.

EGGS FOR HATCHING—PURE ROSE COMB silver spangied Hamburgs, farm raised, $1.50 per 15 eggs. Write L. D. DeVeny, Box 2, Ciifty, Ark.

EGGS—IVORY STRAIN WHITE ROCKS, NONE better; send for description and prices. A few cockerels to ciose out, $5.00 each. E. Kaselack, Lyons, Kan.

EGGS FROM BIG BLACK LANGSHANS. EXTRA good, in perfect health, great egg producers. $2.00 for 15; $10.00 per 100. Ollie Ammon, Netawaka, Kan.

SUYDAM'S MINORCAS—SINGLE COMB BLACK Minorca cockerels, exhibition and utility stock. Write for prices. H. R. Suydam, 4500 Bryant St., Denver, Colo.

BRED TO LAY—BARRED ROCK EGGS FROM pens headed by Park's pedigreed cockerels. $2.50 for 15; range stock, $1.50 postpaid; circular free. Orchard View Poultry Farm, E. W Miller, Owensville, Mo.

SINGLE COMB BROWN LEGHORNS AND Barred Plymouth Rocks. Bred for winter iaying. Eggs, $1.50 per setting, $6 per hundred, prepaid. Investigate our record. Mrs. W. A. Estes, Schooi, Mo.

PRIZE-WINNING BARRED ROCKS, SIZE AND quality. Tested layers. Eggs, 15 for $2.00; 50 for $6.00; 100 for $10.00. Jos. V. Beran, Verdigre, Neb.

DARK CORNISH BIRDS—PRIZE-WINNERS wherever exhibited. Best layers, most delicious meat. Adapted to this climate. Write or see J. B. Benedict, Prop. Wyldemere Farm, Littieton, Coio.

BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Coio.

REV. LEE WHIDDON, BOGARD, MO.; ADVICE free; how any minister, teacber or farmer can make from $200 to $500 as side line out of fancy chickens and rabbits; stock and eggs from the best strains of White Wyandottes, Anconas, Black Minorcas; 200 eggs per year hens; eggs, $2 to $10 per 15; Buff Orpingtons, White Rocks, White Leghorns, Barred Rock eggs, $1.50 to $5. Chickens, $10 each; rabbits, Flemish Giants, New Zealand Reds, Belgians, $1 to $7.50 each; guaranteed tablets to make your hen double egg production, $1 box.

TURKEYS

WHITE HOLLAND TOMS, $6.00. Mrs. G. W. Combs, Fowler, Colo.

TURKEY EGGS FROM MAMMOTH BRONZE 18 to 20-lb. hens, 11 for $5. April delivery. Order now. William A. Draves, Lemoyne, Nebr.

MAMMOTH BRONZE TURKEYS. A FEW VERY choice ones. Toms, $10.00 to $15.00, hens, $6.00 to $10.00. Mrs. Viola Griblin, Virgil, Kan.

PUREBRED BOURBON RED TURKEY EGGS, 12 for $5.00; postpaid, fertility and safe delivery guaranteed. Vivian Anderson, Oswego, Kan.

BABY CHICKS

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Coiwell's Hatchery, Smith Center, Kans. Shipped anywhere, 15 cents.

BABY CHICKS, DAY OLD; ROSE COMB RHODE Island Reds, winter layers; 15c each. Eva Campbeli, Wilsey, Kans.

BABY CHICKS FROM LARGE BONE DARK Rose Comb Reds, mated to males from winners in egg laying contest. Hen hatched 16c. Mrs. Alex. Leitch, Parkerville, Kans.

STATE PRIZE WINNERS, SINGLE COMB White Leghorn hen-hatched chicks, 15c each, $12 per 100; fine layers. Carrie Parker, Parkerville, Kans.

YOUNKIN'S DAY-OLD CHICKS, BARRED Rocks, Reds, Buff Orpingtons, 17c; White Leghorns, 15c; live delivery 50 or more prepaid. Younkin's Hatchery, Wakefield, Kans.

UNIVERSITY PARK POULTRY RANCH—BABY chicks and hatching eggs. Single Comb White Leghorn chicks from 241 egg trapnested stock, $18 per hundred, prepaid. Write for circular. 2520 S. Clayton St., Denver, Colo.

COLUMBIA HATCHERY — ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

DENVER BABY CHICK CO., 2436 W. 43RD Ave., Box 1328 Denver, Colo. Booking orders now for quality baby chicks. White Wyandottes, Buff Orpingtons, White Orpingtons, Rhode Island Reds, White Rocks and Barred Rocks and Leghorns. Strong and vigorous chicks from carefully selected, heavy-laying stock. Live delivery guaranteed. Prompt attention to all orders, large or small. Write at once for prices.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have been making the Denver Incubators and hatching and selling baby chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18. Why not buy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live. Hatching eggs, $7.50 per hundred. Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

DUCKS

RUNNER DUCK EGGS; $1.00 SETTING OF eleven; $3.50 for fifty. Mrs. Baker, Route 1, Arvada, Colo.

BUFF DUCK EGGS, $1.75 PER 12, PREPAID. Laylong strain. Mrs. E. C. Grizzell, Claflin, Kans.

PUREBRED BUFF INDIAN RUNNER EGGS, $1.50 for 15; duck and Leghorn; parcel post. Oak Grove Poultry Farm, Kell, Ill.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver. Colo

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—Pure-bred Ayrshire bull calf; price $75. Box 15, Gurley, Nebr.

ABERDEEN ANGUS BULLS AND TWO YEAR old Percheron Stallions. R. R. Lucore, Arriba, Colo.

REGISTERED POLLED DURHAMS—LARGE, growthy, bony, quality bulls. Two years old next April. Mott Rathbun, Ord, Neb.

FOR SALE—HIGH GRADE HOLSTEIN OR Guernsey heifer calves, $24 crated or $30 prepaid. Herbert Taft, Whitewater, Wis.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLbred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

HOLSTEINS—HAVING DECIDED TO QUIT milking, I will sell my 16 head of high-grade young cows, all real producers; also 14 head of yearling heifers. Prices right. W. P. Perdue, Carlton, Kans.

FOR SALE—SHORT HORN BULL, BETTER Goods 4th., 418157, four years old, color red, a prize winner at Denver Show in 1917 and 1919. Priced right. A good breeder. G. W. Ball, Pierce, Colo.

SHEEP

3,300 GOOD BREEDING EWES — 10-LB. shearers, 50 yearlings. 16,000 acres grazing land, all in Coconino, Arizona; with forest permit, plenty of water and well-improved ranches. For prices and terms apply to R. C. Croswell, Winslow, Arizona.

HOGS

REGISTERED BIG TYPE DUROC-JERSEY hogs for sale; September gilts and boars; one fine July boar. R. C. Van Scoy, Highland Sta., R. 5, Denver, Colo. Phone Arvada 105R2.

HORSES

FOR SALE—THE SURPLUS STALLIONS from small herd of registered Percherons. Lanyon Stock Farm, Gresham, Neb. Branch barn, Harrah, Okla.

"KING," DAPPLE GRAY PERCHERON STALlion, foaled May 20th, 1911. Purebred and best of dispositions. Sire and dam weighing 2,100 and 1,800 respectively. Shows four seasons of large, heavy-boned, growthy colts. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CHOICE BLACK AMBER CANE SEED, $3.75 per 100. Gus Herfert, Julesburg, Colo.

WILL TRADE SUDAN SEED FOR A COUPLE stands of bees. John Smith, Wiggins, Colo.

SEED CORN, $3.00. NINETY BUSHEL KIND. Must suit or I will return money. Wiltse, Rulo, Nebr.

EXTRA GOOD RECLEANED SHROCK KAFIR seed, $3.50 per bushel. Sample on request. J. P. Nachtigal, Buhler, Kans.

FOR SALE—HAVE ON HAND FIELD PEA seed. Sold in car lots only, F. O. B. car. Felix Garcia, Garcia, Colo. Phone No. 25W4.

A SMALL AMOUNT OF CHOICE RED FODDER cane seed at $5 per hundred. H. E. Morton, Oberlin, Kans.

SUDAN GRASS SEED RAISED ON DRY LAND, 1918 crop, commercially cleaned. A. J. Tatman, Wiggins, Colo.

FOR SALE—LARGE WHITE BLOSSOMED sweet clover seed. Elliott Ranch, Wolfcreek, Colo., via Strasburg, Colo.

ALFALFA SEED—CERTIFIED GRIMM AND Common. Extra fine seed. Prices and catalog free. J. D. Long, Seedsman, Boulder, Colo.

SWEET CLOVER, WHITE BLOSSOMS, REcleaned, no hulls; sow now, 10 lbs. per acre; 30c per lb., F. O. B., sacks free. Pearl Haines, Rosalia, Kan.

MINNESOTA No. 13 SEED CORN. COLORADO dry land selected, certified, seed. Sample, prices and catalogue, free. J. D. Long, Boulder, Colorado.

BLACK AMBER CANE SEED, $4.00 PER CWT. Kaffir seed, $4.50 per cwt. Both 1918 crop, recleaned. Sacks free. F. E. Eakins, Oberlin, Kans.

FLAXSEED—YOU CAN FIND A MARKET FOR large and small lots with Uncle Sam Breakfast Food Company, Omaha, Nebr., who will quote you full market price. Send samples and advise amount on hand.

SUDAN SEED FOR SALE—I HAVE FOR SALE Sudan seed in any amount; raised on dry land at an altitude of 6,500 ft.; seed all recleaned; price 10c in 500-lb. lots, 12c in less than 500 lbs.; no less than 100 lbs. sold. H. Bert Cave, Parker, Colo.

10 LARGE PACKAGES OF GARDEN SEED sent anywhere prepaid for 50c. Regular 10c size; one each of watermelon, muskmelon, cabbage, carrots, cucumbers, lettuce, tomato, pepper, pumpkin and onions. Catalog free. Home Nursery Co., McCune, Kan.

PURE BLISS TRIUMPH SEED POTATOES. Best for early on dry or irrigated land. For early planting April 15 to 20. Late up to July 4. Mature in 100 days. Price, $2.50 per cwt. Pure Dean Baking Rurals and Pearls all hand selected, same price. McClellan Pure Seed Co., Greeley, Colo.

FOR $1.00 WE WILL SEND YOU POSTPAID 10 apple, peach or pear or 7 cherry or plum, all budded, or 20 grapes, gooseberry, currant or rhubarb, or 25 raspberry, blackberry or dewberry, or 50 asparagus, or 100 spring bearing or 50 Everbearing strawberry plants, or five 2-year roses or 50 seedling, or 10 transplanted red cedar or other evergreens. Many other bargains. Catalog free. Manhattan Nursery, Manhattan, Kan.

RECLEANED SEEDS. ALFALFA $8.50 PER bushel. White kaffir $2.00; red kaffir $3.00; Amber cane seed $1.90; Orange cane $2.25; Sumac $3.00; Schrock kaffir sorghum $3.25; Common millet $1.75; Hungarian millet $2.25; Siberian millet $2.75; Milo $2.65; Feterita $2.75; Reid's yellow dent seed corn $3.00; Boone county white $3.00; Bloody Butcher $3.50; Calico $4.00; Seed rye $2.00; Sudan 15c lb., sacks free; satisfaction or your money back. Order right from this ad., we ship from five warehouses and save you freight. Liberty Bonds accepted. Meier Seed Co., Russell, Kans.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—TO HEAR FROM OWNER OF GOOD farm for sale; state cash price, full particulars. D. F. Bush, Minneapolis, Minn.

IF YOU WANT TO SELL OR EXCHANGE YOUR property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

WANTED—TO HEAR FROM OWNER OF FARM or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

320 ACRES IMPROVED NEAR BYERS, $18.00. 640 acres, fine section, raw, Byers, $17.00. 640 acres near Bennett, $15.00. Snap. States Realty Co., 207 Century Bldg., Denver, Colo.

160 OR 320 ACRES, FULLY PAID WATER rights, level, good soil, near Platteville, school and beet dump within one mile. $80 per acre; terms. Walker Glaister, 1215 Foster Bldg., Denver, Colo.

10 SECTIONS CHEYENNE COUNTY LAND, $9 to $12.50 per acre; 10 sections Kiowa County land, $9 to $15 per acre. Write me for legal description, price and terms on any of these tracts. A. N. Mitchem, 305 Gas & Electric Bldg., Denver, Colo.

160-ACRE FARM, HIGHLY IMPROVED, BEST water rights, 8-room house, 4-room bungalow, barns, granary, chicken houses, artesian well, water piped all buildings, good fence, 5 miles to Broadway. Price, $32,000; terms. A. J. Simonson, 314 Cooper Bldg., Denver, Colo.

320 ACRES OR 160 ACRES, 8 MILES FROM Denver, $17.50 per acre; 10 acres adjoining Littleton for $2,500; 40 acres, half in alfalfa, well-improved, bargain for quick sale; 1,100 acres, good place for cattle, $15 per acre. Sydney C. Osmer & Co., 308 15th St., Denver, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

MEN—WOMEN, 18 OR OVER, WANTED IMmediately. U. S. Government positions. Commence $92 month. Vacations. Common education sufficient. Hundreds Permanent Peace Positions. Write immediately, for list. Franklin Institute, Dept. E171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

WRITE FOR INFORMATION ON CANNING. Address C. W. Alexander & Co., Plattsmouth, Nebr.

BUY RICH, RIPE AND MELLOW OLD KENtucky leaf tobacco, direct from producer to consumer; no doping or doctoring, just tobacco; 50c per pound, postpaid. Francis-Qualls, Dukedom, Tenn.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

AUTO

WANT A BELT POWER TRANSMITTER FOR your Ford? Then don't pay more than $15.00 for it. Buy the Simplex; simplest, handiest and most practical. Information free. Frank R. Weisgerber, Salina, Kans.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES— Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

PURE EXTRACTED ALFALFA HONEY. 60 lbs. in can, $13.50. One case, two cans, $26; guaranteed. J. Van Engen, Producer, Crawford, Colo.

DELICIOUS EXTRACTED HONEY ON APPROVal; quality guaranteed. Thirty pounds, $7.85; 60 pounds, $14.90; 120 pounds, $29.75. Sample, 15c. Wesley Foster, Producer, Boulder, Colo.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 448 Lumber Exchange, Seattle, Wash.

TYPEWRITERS

REBUILT TYPEWRITERS OF ALL MAKES, $15 up. Salina rebuilts make good. Write for price list of typewriters and office supplies. Salina Typewriter Co., Dept. F, Salina, Kans.

FARM MACHINERY

ONE-MAN SLING. CHANGES HEAVIEST HAYracks. F. Lovering, Fremont, Nebr.

FOR SALE—HAPPY FARMER TRACTOR, 12-24. L. A. Engle, Wiota, Iowa.

WANTED — THREE OR FOUR BOTTOM lister, 40-80 Avery. Kelly Ambler, Stapleton, Neb.

CABBAGE CUTTERS—6 KNIVES—SLICES all kinds vegetables rapidly; fine for potato chips. Prepaid, $1.00, three for $2.00. Agents wanted. Lusher Bros., Elkhart, Indiana.

MOTOR CULTIVATOR AND PLANTER FOR sale. Avery make; good as new; only used to plant and cultivate 100 acres last season. Will sell for less than one-half the original cost. Addres J. M. M., care Western Farm Life.

Raise Hares for Us

IMMENSE PROFITS easily and quickly made. We furnish stock and pay you $2.00 each and expressage when three months old. Contracts, booklet and full information 10c. Nothing free. Address

Dept. 24. THORSON RABBIT CO. Aurora, Colo.

Live Stock Notes

Poland China gilts are being offered for sale by A. J. Campion. He has about 40 head full blooded gilts by his herd boar Wonder King. See his announcement elsewhere in this issue.

J. D. Brunton, Aspen, Colorado, has Polled Hereford cattle and at the present time has young stock ready to sell. See his announcement in this issue.

Milking Shorthorns can be secured from S. G. Rose, manager Pine Valley Farms, Colorado Springs, Colorado. See his announcement in this issue.

The Blue Ribbon Livestock Company is offering registered Duroc hogs and Holstein cattle for sale. From their big herds one is assured of a fine selection. See their announcement in this issue.

The Hereford Corporation of Wyoming, with offices in the First National Bank Building, Cheyenne, Wyoming; 406 New Livestock Exchange Building, Denver, Colorado, have two carloads of two year old bulls and several cars extra good yearling bulls, for sale. Their ranch is located 6 miles from Cheyenne, Wyoming. See their announcement in this issue.

A. M. McClenahan, Greeley, Colorado, one of Colorado's old and established breeders at this time has some good offerings, in high class Jerseys and Durocs. See his announcement in this issue.

L. G. Davis, with ranches at Saratoga, Wyoming, and Overland, Colorado, announces in this issue that he will place a number of his Herefords in the joint sale which is to be held at the stockyards in Denver, April 29. See his announcement in this issue.

J. W. Brauer, Colorado Springs, has a number of sows and gilts bred to his Grand Champion boar, Pathfinder, for sale. See his announcement in this issue.

George E. Morton & Sons, route 5, Ft. Collins, Colorado, have a few Duroc boars for sale. See their announcement in this issue.

There will be 120 head of registered Hereford bulls and heifers, 85 head of registered Shorthorn bulls and heifers offered at the joint official sale of registered cattle held at Denver, April 29 and 30. See the page announcement in this issue of Western Farm Life for full particulars.

D. W. McIntyre, 1760 Stout street, Denver, sold 45 Duroc gilts to San Luis Valley parties this spring at a fancy price. Four of them were exhibited at the Monte Vista Hog Show and all took top prizes. The sale was made through the recommendation of one of the best expert hog men of Colorado.

A five-months-old registered Guernsey bull calf is offered for sale by A. L. Harsch, Kersey, Colo. See his announcement in this issue.

A two-year-old gray Percheron stallion is offered for sale by Charles Hiley, Lamar, Colorado. See his announcement in this issue.

The Smith Livestock Company, Chivington, Colo., have Polled Herefords for sale. See their announcement in this issue.

Edgemoor Farm Durocs

Our spring litters are the best we have ever raised on the farm. Every spring pig which we will offer for sale is sired by a prize-winning boar and out of a prize-winning sow. We can sell you a boar or gilt good enough to show at the State Fair this fall, or the Denver Stock Show next winter, and which will make money for you as a breeder. Put in your order early. Prices reasonable and satisfaction guaranteed.

Edgemoor Farm

CALDWELL MARTIN, Owner

Littleton, Colo.

Polled Herefords

Big-boned, blocky, double standard Polled Herefords. One more yearling bull for sale.

SMITH LIVESTOCK CO.

Chivington, Colo.

Percheron Stallion

For Sale

A coming two year old gray percheron stallion. Extra large boned rugged colt. Write for further particulars. Price $250.

CHAS. HILEY

Lamar, Colo.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

Majestic Sunbeam Herefords

Herd headed by "Majesty Sunbeam" by "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" by "Statesman". Dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM weighs 2,500 pounds. He is the biggest boned Hereford bull in the country.

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Will sell 20 head of Majestic Sunbeam heifers, from two to four years old, all bred to "Beau June," guaranteed to be in calf, at private treaty.

Also have several head of big-boned yearling bulls sired by Majestic Sunbeam, and a few yearling bulls sired by "Beau Andrew" from Majestic Sunbeam heifers.

If you are looking for best blood and quality and the biggest boned bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and bulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards DENVER, COLORADO

FOR SALE

I also have for sale two registered Airedale dogs three months old. The best bred Airedale dogs in Colorado. Price, $15.

Forty head of full-blooded Poland China gilts by my great head boar, "Wonderking," bred to my great boar "Standard Darkness," the biggest boned Poland China boars in Colorado. Get in the hog business. Fifteen head White Leghorn cockerels one year old; Tom Barron and Ferris strains. Show birds, $3.00.

HERE IS ONE READY FOR SERVICE

28-LB. SIRE 23-LB. DAM

He won't be here long at our price

PAHGRE VALLEY RANCH

Montrose, Colorado

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE-BRED

Hereford

BULLS

We Have on Hand and For Sale

250 Head Yearling Bulls

100 Head Two-year-old Bulls

Good Bone, Colors and Markings
Fine Condition for Service

Write or phone us regarding these Bulls. It will be worth your while.

715 E. & C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion,
Chicago, 1917
Denver, 1918
and 1919

Breeders of

BELGIAN HORSES

and

POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Duroc's, am sold out of boars, have one or two bred yearling sows at right prices, bred to a son of "Top Sensation."

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

OUTSTANDING DUROCS

I am offering some of the most exceptional young brood sows and gilts, bred; also several young boars. This stock is registered and immune. It is from prize winning strains; prices right. Same class stuff as have been furnishing for breeding purposes through the Department of Agriculture.

Let us give you details and prices on stuff that meets your requirements.

N. W. McINTYRE

1760 Stout Street, Denver, Colo.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

12 Head L. G. Davis Herefords to be Sold in Association Sale

We are consigning twelve bulls to the "Western Hereford Breeders' Association Sale" to be held at Denver, April 29th, 1919. These bulls are seventeen to nineteen months of age, six are sired by Beau Carlos 2nd, five by Bonnie Weston, and one by Carlos 175th. They are a splendid lot of bulls, equal in quality and breeding to our Grand Champion car lot of bulls at the 1919 Denver Stock Show. Attend this sale and secure one or more half brothers of the Grand Champion Wyoming at a low price.

L. G. DAVIS, SARATOGA, WYOMING

Guernsey Bull Calf for Sale

We have for sale a five-months old registered Guernsey bull calf, sired by a line bred son of the France family and out of a daughter of Longwater Royal 4th 19331. Five nearest dams to this calf average 563.8 pounds hutterfat. Write for price and pedigree.

A. L. HARSH, Kersey, Colo.

THE HOME OF

BIG SENSATION, Weight 1,204 Pounds

LARGEST HOG IN THE WORLD

Big type Poland Chinas, choice bred gilts for sale at all times. Call or write.

A. J. ERHART & SONS
Ness City, Kansas

KING RAG APPLE SUPREME

a son of RAG APPLE KORNDYKE 8th, the greatest bull in the world today, heads my herd.

I have some registerd Holstein hull calves for sale, ranging in age from six months to three years. These calves are mostly white and are richly bred, Pontiac Korndyke and King of the Pontiacs, two of the greatest Holstein hulls that ever lived, appear on both the dam and sires' side of the pedigree of these calves. They are fine individuals, absolutely straight and tuberculin tested. Send for pedigrees and prices.

F. M. KING, 1117 West 43rd Street, Kansas City, Mo.

HOLSTEINS. Several choice, well bred calves ready for shipment. Also cows and heifers. Bred for production. Write, W. C. Kenyon & Sons, Holstein Stock Farms, Box 39, Elgin, Illinois.

Registered Hampshire Boars

For sale at reasonable prices. Sired by Culbertson Senator, a great son of the Grand Champion boar "The Senator" at the National Swine Show, in 1917.

GEO. W. HERTZ, Culbertson, Nebr.

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

Shorthorn and Polled Durham Cattle

Valentine's Last X12316 452068 at head of beef herd. Claywood White 127350 at head of milk type.

STATE INDUSTRIAL SCHOOL
Golden, Colorado

Joint Sale Registered Breeding Cattle

STOCK SHOW PAVILION, UNION STOCK YARDS

Denver, Colo., April 29th and 30th, 1919

Shorthorn Cattle

Western Shorthorn Breeders' Association

Will Offer on Wednesday, April 30

50 BULLS 20 FEMALES

These cattle are all consigned by members of the Association as follows:

D. Warnock & Sons, Loveland, Colo.
H. M. Wilson, Greeley, Colo.
Harmon Bros., Boulder
Allen Cattle Co., Colo. Springs
Colorado Agricultural College, Fort Collins
C. A. Melburn, Elbert, Colo.
Cornforth Livestock Co., Elbert, Colo.
Paul Jones, Elbert, Colo.
Gleason & Blazer, Kiowa, Colo.
Gordon W. Graham, Lilly, Colo.
Carr W. Pritchett, Steamboat Springs
Maxwell-Miller Cattle Co., Steamboat Springs, Colo.
C. V. Owens, Greeley, Colo.
Sam Ball, Wray, Colo.
A. Carnahan, Elbert, Colo.
H. C. Dennis, Fort Morgan, Colo.

Western Shorthorn Breeders' Association
W. L. WARNOCK, Secretary
Loveland, Colo.

Hereford Cattle

Western Hereford Breeders' Association

Will Offer on Tuesday, April 29

80 BULLS 70 FEMALES

These cattle are all consigned by members of the Association as follows:

W. N. W. Blayney, Denver
John E. Painter, Roggen, Colo.
Fulscher & Kepler, Holyoke, Colo.
Hereford Corporation of Wyoming, Cheyenne, Wyo.
Firm Bros., La Veta, Colo.
J. D. Canary, Saratoga, Wyo.
Colorado Agricultural College, Fort Collins
L. G. Davis, Saratoga, Wyo.
A. J. Campion, Denver
C. H. Lupton, Denver
J. D. Craighead, La Junta, Colo.
Cudahy Stock Farm, Olney Springs, Colo.
C. B. Scott, Idalia, Colo.

Western Hereford Breeders' Association
JOHN E. PAINTER, Secretary
Roggen, Colo.

These Cattle are from the Best Herds in the West and are all in good breeding condition and ready for immediate service. They will be sold at public auction to the highest bidder.

Sale will start Tuesday, April 29, at 9:30 a.m.

Stock Show Pavilion, Union Stock Yards, Denver

G. M. GROSS, Auctioneer **WALTER O. MITCHELL, Assistant**

For Catalogues Write to

FRED P. JOHNSON, Mgr. - 1828 Curtis Street, Denver

NOW That Coupon is Worth $2 on a Famous New Butterfly

More Than 150,000 New Butterfly Cream Separators Now in Use

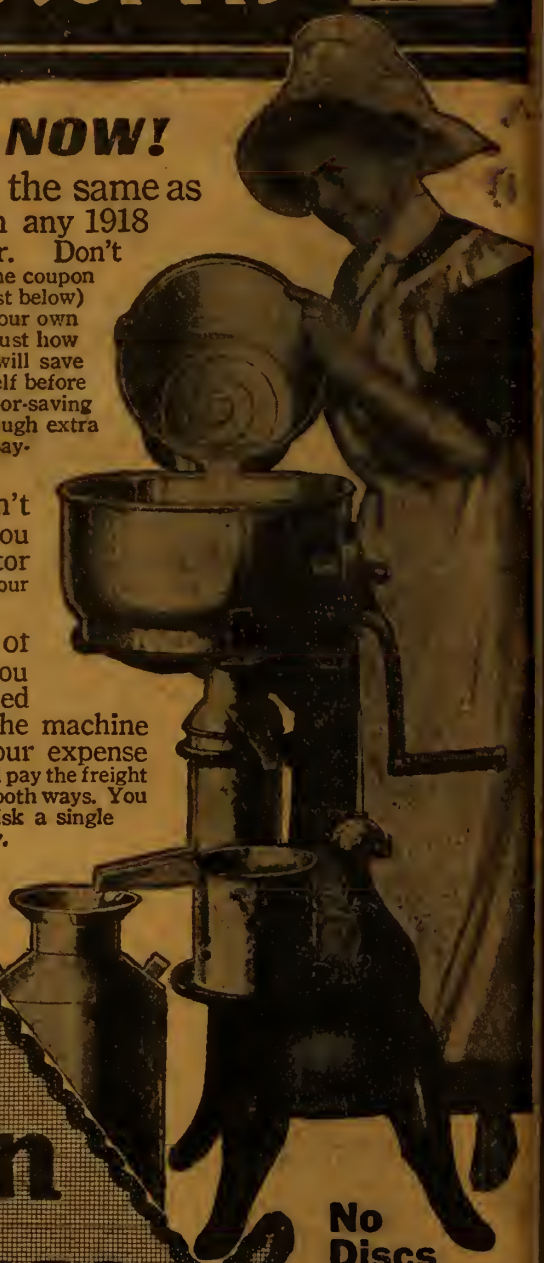
—But You Must Act NOW!

We will accept the coupon below the same as cash for full first payment of $2 on any 1918 model New Butterfly Cream Separator. Don't send a single penny in advance. Just fill out the coupon telling us which size machine you want (see list below) and we will ship it for you to try 30 days in your own home. Then you can find out for yourself just how much a New Butterfly Cream Separator will save and make for you. You can see for yourself before you pay a cent how easily this great labor-saving money-making machine will save enough extra cream to meet all the monthly payments before they are due.

In this way you won't feel the cost at all. You will have the Separator to use on your farm and your money in your pocket.

If at the end of 30 days' trial, you are not pleased just send the machine back at our expense and we will pay the freight charges both ways. You don't risk a single penny.

Send No Money Just The Coupon Save $2.00



How the COUPON Saves You $2

By ordering direct from this advertisement you save all expense of catalogs, postage, letters and time. And we give you the benefit of this saving if you send the coupon below. Furthermore, isn't it better to have one of these big money-making machines to *use* instead of a catalog to *read?* Wouldn't you like to compare the New Butterfly with other Separators in your neighborhood regardless of price? Wouldn't you like to see just how much more cream you would save if you owned a Separator? We believe you would, so we send you a machine from our factory to try 30 days. Then if you decide you want to keep it the coupon counts the same as a $2 payment. You take that much right off from our factory price on any size Separator you select. For example—if you choose a *$38* machine, you have only *$36* left to pay in 12 easy payments or only $3 a month. If you select the *$47* machine you will have only *$45* left to pay in 12 easy payments of only $3.75 a month—and so on.

The Coupon Makes First Payment And the Separator Itself Pays the Rest

You get the benefit of the great saving in time and work while the separator is paying for itself. After that the profit is all yours, and you own one of the best separators made—a steady profit producer the year 'round—a machine guaranteed a lifetime against all defects in material and workmanship and you won't feel the cost at all. If you decide to keep the separator we send you, you can pay by the month, or you can pay in full at any time and get a discount for cash. The coupon will count as $2 just the same. The important thing to do now is to *send the coupon,* whether you want to buy for cash or on the easy payment plan. We have shipped thousands of New Butterfly Cream Separators direct from our factory to other farmers in your State on this liberal plan.

No Discs to Clean

The New Butterfly is the easiest cleaned of all Cream Separators. It uses no discs—there are only 3 parts inside the bowl, all easy to wash. It is also very light running with bearings continually bathed in oil. Free circular tells all about these and many other improved features.

Pick Out the Size You Need

Order Direct From This Advertisement on Thirty Days' Trial. Use the Coupon.

You take no risk whatever. You have 30 days in which to try the New Butterfly we send you before you decide to keep it. Every machine we build carries a written Lifetime Guarantee against defects in material and workmanship.

No. 2½—Machine illustrated at left. Capacity up to 250 lbs. or 116 qts. of milk per hour. Price, **$38.00.** **Terms: Free $2.00 coupon with order. Balance, $3.00 a month for 12 months.**

No. 3½—Machine shown at left. Capacity up to 400 lbs. or 195 qts. of milk per hour. Price, **$47.00.** **Terms: Free $2.00 coupon with order. Balance, $3.75 a month for 12 months.**

No. 4½—Machine shown here. Capacity up to 500 lbs. or 250 qts. of milk per hour. Price, **$56.** **Terms: Free $2 coupon with order. Balance, $4.50 a month for 12 months.**

No. 5½—Machine shown here. Capacity up to 600 lbs. or 300 qts. of milk per hour. Price, **$65.00.** **Terms: Free $2.00 coupon with order. Balance, $5.25 a month for 12 months.**

No. 8 — Machine shown here. Capacity up to 850 lbs. or 425 qts. of milk per hour. Price, **$69.80.** **Terms: Free $2.00 coupon with order. Balance, $5.65 a month for 12 months.**

It is Always Best—

to select a larger machine than you now need. Later on you may want to keep more cows. Another thing—remember, the larger the capacity the less time it will take to do the work.

(14)

ALBAUGH-DOVER CO. MANUFACTURERS 2129 Marshall Blvd., Chicago

FREE COUPON

ALBAUGH-DOVER CO., Chicago, Illinois.

Gentlemen: Please ship me on 30 days' free trial, in accordance with your offer in

one New Butterfly Cream Separator, size..... If I find the machine satisfactory and as represented by you, I will keep it and you are to accept this coupon as $2 first cash payment for same. If I am not pleased, you agree to accept the return of the machine without any expense to me, and I will be under no obligation to you.

I keep..... .....cows.

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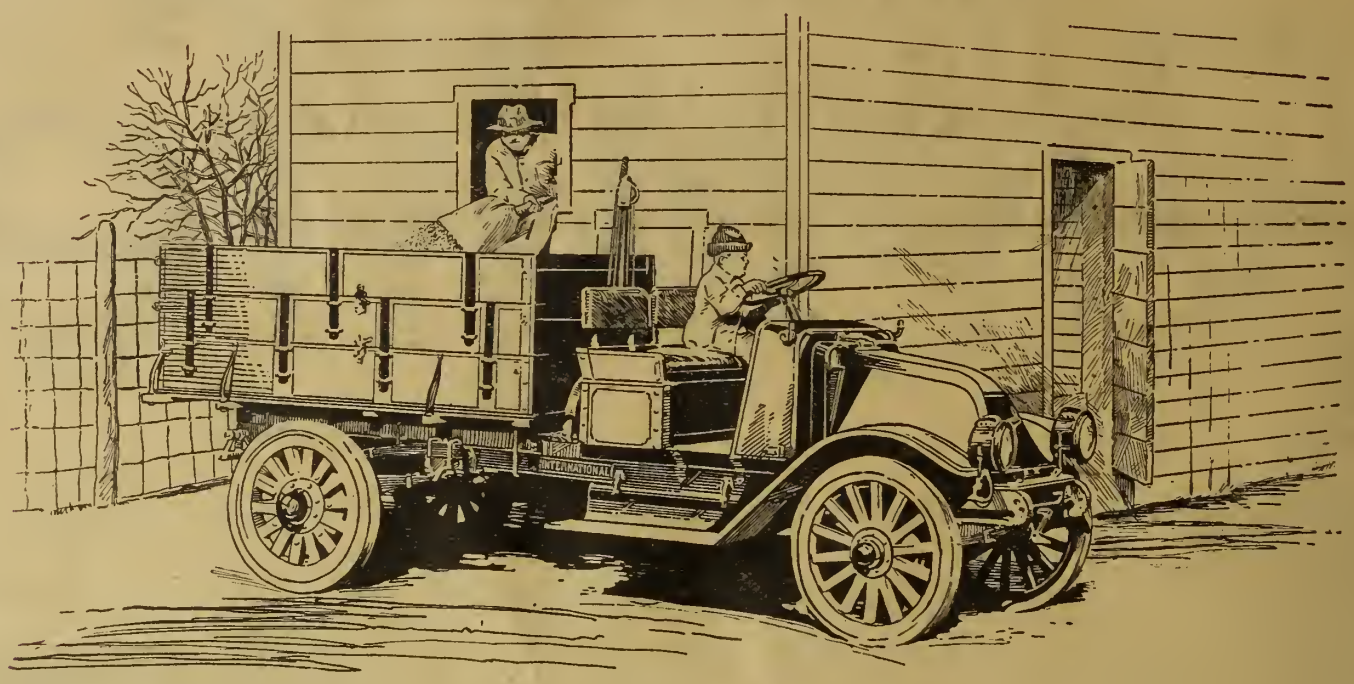
WESTERN FarmLife

Vol. XXI Denver, Colorado, May 1, 1919 Semi-Monthly

RANCH VIEWS ON THE LARAMIE PLAINS

Upper Picture Shows Lakeside Ranch Home, Near Laramie, Wyo. Lower Picture Shows Herefords on Hart Ranch



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Largest Circulation of Any Farm Magazine in the West

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Delta County Report On Sunflower Ensilage

TESTS BY FARMERS UNDER SUPERVISION OF COUNTY AGENT

EDWARD H. DIVELBISS, County Agriculturist

IN view of the growing interest in sunflower ensilage, and the fact we had, in Delta county last season, the largest acreage of this crop that has been grown in any section of the state, our experience may be of interest to farmers in general.

While our acreage last year was in the neighborhood of 130 acres, much of this was planted under unfavorable conditions and, while we have had some experience, we have not been able to get much information in statistical form. The range of altitudes of the various fields was from 5,800 to 7,000 feet, all under irrigation.

Only one man planted as early as May 20. This man reports a maximum yield of between 30 and 35 tons of ensilage to the acre. Seed planted a little later, and on land from which an old orchard had just been removed, yielded about 18 tons to the acre. Seed planted as late as July 15 and 20 yielded from 8 to 10 tons to the acre. One man who had failed in securing a stand of corn drilled sunflowers in the rows with the corn and secured a good crop of ensilage. This sunflower seed was not planted until after the first of July. The possibilities offered by sunflowers where one has failed to secure a stand of corn is well to remember.

As a result of this variation in time of planting, the sunflowers were harvested at all stages of growth. All made good ensilage. The best ensilage resulted, however, from sunflowers that had pretty well matured before harvesting. Some heads were fully ripe and shattering. We are now recommending that the crop be cut for ensilage when the seed has well formed, just before it will shatter and rust before the birds begin to eat it.

Our men who raised sunflowers are unanimous in the folowing opinions:

(1) That sunflower silage is a nourishing, stimulating food, greatly relished by cattle and sheep.

(2) That there were no bad results in any way from feeding the ensilage.

(3) That they can raise bigger crops than of corn.

(4- That corn machinery can be used in the handling of the crop from planting to the harvesting of the harsest plants.

(5) That the silage packs tighter and is heavier than corn silage.

(6) That it is equal to corn ensilage, bulk for bulk, as a feed; some believe better, while but a few believe it is equal, pound for pound.

(7) That the crop will mature in shorter season and is more resistant to cold weather than corn.

We found out by experience also, that sunflowers are particularly responsive to the condition of the seed bed. Where seed had to be irrigated up, the yield was less than where there was enough moisture in the soil to give it a good start. Cultivation and irrigation does not materially differ from that of corn, although the general opinion is that fewer irrigations are necessary. There is considerable surplus juice in the silage and we are contemplating the addition of straw, either in the bottom of the silo or fed in through the cutter with the sunflowers. The only objection so far has been the fact that there is less heat in this silage than corn and it freezes more easily.

There are several reasons why our growers are looking favorably upon this crop. In the first place, it seems to be particularly adapted to higher altitudes where corn cannot be grown or the yield of forage is light. It offers possibilities of almost double the yield of corn silage. The silo will hold considerably more of it. The growing season is short, and by early planting the crop can be harvested before the rush of late fall work begins. This same condition will also permit of the sowing of small grain following sunflowers.

That our farmers have faith in the crop is borne out by their attitude. The men who raised it last year are, without exception, contemplating an increase of acreage this season. The acreage planted in the county this spring will be at least three times as large as that planted last year.

Producing the Crop

"Sunflowers for Silage" is the title of Colorado Extension Bulletin No. 158A, by G. S. Ray, from which the following is quoted:

Sunflowers do best on fertile soil rich in humus. The field in which sunflowers are to be planted should receive about the same preparation as one would give it for corn. A fine, well-firmed seed bed is essential for best results. Sunflowers respond readily to increased fertility, due to the application of manure.

Sunflowers may be sown earlier than corn. Light frosts after the plants are up do not injure them. In southeastern Russia, where sunflowers have been grown more extensively than any other place, they are sown just as early in the spring as it is possible to get onto the land. There, an early start is considered so essential that sometimes the seed is sown in the late fall and it then lies in the ground and is ready to germinate in the spring just as soon as the ground begins to warm up. The earlier the seeding the greater the seed production and hence, even for silage, it will be well to plant as early as possible in the spring so as to obtain as much of the seed as possible. Sunflowers grow so rapidly, however, that they are sometimes sown very late in the season and still make a fairly satisfactory growth for silage, a growth much more satisfactory than corn would make in the same length of time. Where the corn planting, for example, has failed to make a start for one reason or another sunflowers have been sown late in the season (July 1 to 15), and the silage obtained has been quite satisfactory, both from the point of yield and of quality. Of course, the sunflowers would not mature seed when sown so late.

Methods of Seeding

Various methods of seeding sunflowers are practiced. Either a corn planter or an ordinary grain drill may be used. Where the grain drill is used a sufficient number of seed cups must be stopped up so as to provide the required distance between rows. In western Colorado the rows run from 30 to 42 inches apart and the plants, generally, 3 to 5 inches apart in the row. One of the heaviest yields so far reported, 37.6 tons per acre, was obtained on the Experiment Farm, Huntley, Montana, where the rows were 20 inches apart and the plants 3 inches apart in the rows. Twenty-four to thirty-inch rows are reported most practical by the Montana Station at Bozeman. A distance between rows, such that the ordinary cultivating machinery on the farm may be used, will generally be satisfactory. The plants should be comparatively close in the drill rows, 3 to 4 inches the best distance. If farther apart, the stalks are apt to become quite coarse and woody and not make a good quality of silage. Occasionally the sunflowers are check-rowed on irrigated land, in which case two to three plants are allowed to each hill. Depth of seeding is usually about 2 inches, although this will depend upon moisture and soil conditions. From 8 to 10 pounds of seed per acre is usually sufficient on irrigated land. On dry land the sunflowers are sown either in check-rows and cultivated both ways, or in drills with the plants 12 to 15 inches apart in the rows. The rows should be 36 to 42 inches apart on dry land and from 5 to 6 pounds of seed per acre is used.

Cultivation

Cultivation for sunflowers is much the same as for corn. The field should be kept free from weeds at all times.

(Turn to Page 25)

Sunflowers on North Platte Reolamation Project

Sunflower and Corn Silage

The varieties of field corn which were included in the variety test already reported, together with two long-season varieties of corn and one variety of sunflowers, were included in a test for silage. These silage crops were planted on May 24 in tenth-acre plats in field H on land that had been in alfalfa. The test comprised one plat of each of the five field-corn varieties and three plats of each of the other crops. The field-corn varieties and the sunflowers were cut and put into the silo during the first week in September, while the two silage-corn varieties were not cut until the last of September. The field-corn varieties were fairly well dented at the time they were cut, while the silage varieties had only reached the roasting-ear stage. The sunflowers were well into the dough stage when cut. All of the corn varieties were cut with a corn binder, but the sunflowers were cut by hand. The yields are given in the accompanying table:

	Per Plat Pounds	Per Acre Tons
Sands Yellow corn (1 plat)	1,560	7.80
Dry-land White (1 plat)	2,094	10.47
Calico (1 plat)	2,360	11.80
Youngheim (1 plat)	2,450	12.25
Sands White (1 plat)	2,460	12.30
Hagner's Yellow (average of 3 plats)	3,180	15.90
Nebraska White (average of 3 plats)	3,380	16.90
Russian Sunflowers (average of 3 plats)	4,586	22.93

In filling the silo the corn and sunflowers were placed in layers of about four feet. This was done to see whether the cows would show any preference for either and whether a change from one to the other would cause any fluctuation in the milk flow. The cows did show a preference in favor of the corn silage. While they ate the sunflower silage very well, they would not eat so much as of the corn silage. There was no noticeable fluctuation in the milk flow.—Report of Scottsbluff, Neb., Experiment Farm, U. S. Reclamation Service.

Hanson's Holstein Sale Establishes A Record

AVERAGE ON THIRTY REGISTERED COWS APPROXIMATELY $500

SAM HANSON of Englewood, Colo., established a new Colorado record for registered Holstein-Friesian cows in his sensational sale April 8th and 9th, when the first thirty head through the ring brought an average of approximately $500. On grade cows the average also ran high, being $197 on thirty-two animals. It is probable that the average on purebreds has not been excelled at any farm sale between the Missouri river and the Pacific coast states. On grade cows, however, it was not up to the Hall Brothers' sale of May 1918, where the average was $227 for 113 head.

Disagreeable April weather, with snow flurries and a cold wind did not discourage buyers, who came from all parts of Northern Colorado and far out into the dairy districts of the Arkansas valley. The heaviest buyers were W. C. Sauer & Son of Fort Lupton, who are producers in the Fort Lupton condensery district and who came for cows of known milking qualities and found them in the pedigreed stock on Sam Hanson's farm. They bought over $8,000 worth of stuff. Other stock went in carlots to Pueblo, for re-distribution at Arkansas Valley points and there were scattering buyers from the district that supplies Denver with milk.

Norman D'Arcy of Parker, who was a pioneer in the introduction of purebred Holsteins in this district, came to the sale and got several of the identical cows that he disposed of last fall at his dispersion sale, paying a big premium over the price that Hanson got them for from him.

The cattle were in fine shape for a sale; in fact, they looked like show cattle, having been groomed to look their best to prospective buyers as they passed through the barn, which is fitted with the highest type of modern dairy equipment and electrically lighted. Col. G. M. Banks was the auctioneer in charge, assisted by Col. H. E. Buchanan, in the ring.

Dairy Herd and Barn on Sam Hanson's Farm, Englewood, Colorado

Carlos W. Hall, of the Western Holstein Farms, took time from his duties in the state legislature to be at the ringside and give pedigree information. The record was in charge of A. E. Ferguson, cashier of the First National Bank of Englewood.

W. C. Sauer & Son, Fort Lupton, Colo., bought the following:

Beauty Hengerveld Tritomia	$350
Pet Hengerveld Pearl de Kol	500
Copia Cornucopia Tritomia	635
Snowflake Copia de Kol	600
Celosada Aaggie Belle	500
Jenny Pledge 4th de Kol	270
Franktown Belle	650
Stem Winder Sanborn	750
Clementina Woodcroft	300
Aagie Gerben Butter Lady	395
Tritomia Aaggie Belle	500
Lady Gem de Kol Tritomia	450
Yvonne Gem de Kol	435
Amelia Mechthilde de Kol	550
Fern Queen de Kol	475
Verda Yvonne de Kol	335
Registered cow	570

C. Olsen, Englewood, bought mostly heifers:

Queen Delphine Gertrude	$300
Queen Ethel	300
Avoca Lodge Sadie Korndyke	200
Heifer calf	185
Kattie Tritomia Aaggie Belle	300
Heifer calf	160
Anita Tritomia de Kol	250
Ruby Stem Winder Sanborn	260
Mary Gerben of Windsor	25
Registered heifer	17
Registered heifer	20
Registered heifer	20
Registered cow	30
Registered bull	20

John Kramer, Brighton, bought:

Headlight de Kol	$60
Amy Sadie Lyons Pontiac	60
Nemea Gerben of Windsor	42
Ruby Hengerveld Tritomia	55
3 purebred heifers, $115 each	34

C. A. Brigham, Pueblo, bought:

Bessie Hengerveld Tritomia	52
Agnes Pauline Karel de Kol	46

N. R. D'Arcy, Parker, bought.

Priscilla Copia de Kol	47
De Lourdes Mechthilde de Kol	40
Beauty Queen Onyx de Kol	50

Jess Cruse bought:

Pearl Netherland Hengerveld	42

Claude B. White, Golden, bought:

Fannie de Kol Rag Apple	30
Purebred heifer	20

Pearly Exline, Aurora, bought:

Celosade Copia Cornucopia	14
Purebred bull	9

Miscellaneous sales of purebred stoc included the following: F. W. Pearc Englewood, two heifers at $225 and $15 Fred Jensen, Pueblo, heifer, $170; Be Nielsen, Pueblo, heifer, $165; R. E. Wi coxson, Pueblo, bull calf, $100; Joh Kramer, three bull calves, $80, $65 an $75; H. Lederman, Edgewater, bull cal $200; H. Johnson ,Englewood, bull cal $85; G. L. McKee, bull calf, $75.

Grade cows went to the followi buyers:

J. A. Rymer, two head, $295 and $28 N. P. Petersen, Englewood, 4 head, $20 $165, $160, $180; H. Lederman, Edgewate 4 head, $260, $200, $135, $190; Fred Nic laus, Fort Lupton, $170; R. E. Wilcoxso 5 head, $185, $195, $160, $195, $125; W. Taylor, $180; Jess Cruse, 5 head, $20 $200, $170, $260, $250; F. C. Holcom Pueblo, 4 head, $190. $175, $140, $105; D. Canary, Denver, $150.

H. Lederman, 5 grade heifers, at $1 each, $500; Adam Klug, Fort Lupto grade heifer, $140; F. C. Holcomb, 2 gra heifers, $110, $125; C. Olsen, 7 gra heifers, $60, $420.

Pulverizer Brings Five Bushel Wheat Increase

CRUSHES LUMPS, COMPACTS SEEDBED, STOPS SOIL BLOWING

The illustration shows seed bed preparation on the farm of W. E. Green, Greeley, Colo., a tandem disk harrow, pulled by a tractor, being followed by a double gang pulverizer. The work of the pulverizer is clearly shown. This tool has a number of uses and advantages which are just beginning to be recognized by farmers and by the agricultural experiment stations. At the Nebraska station a series of experiments were carried on through four crop seasons to demonstrate the value of the pulverizer on wheat ground. Various methods of wheat cultivation were tried in comparison with this tool and the average increase in yield, in favor of preparation with the pulverizer, was 5.1 bushels per acre.

The pulverizer is used in preparation of ground for planting, and also to close up the frost cracks on grain ground in spring. It makes an ideal mulch for holding the moisture, and when used at right angles to prevailing winds stops soil blowing. It crushes the lumps, packs out air spaces, compacts the ground around the seed after planting and is a fine tool to break up the crust in cultivating small grains.

One reason why it has not come into more general use is that after the plowing is done in spring, the horses are usually due for a rest, and they are not in shape to go again on the plowed ground. The tractor solves this problem, because it doesn't get tired.

Prof. E. G. Montgomery, in reporting on the Nebraska experiment mentioned above, says: "Several winter wheat plats were laid out for cultivation experiments at the Nebraska Experiment Station. They were all sown to Turkey Red winter wheat, some being sown broadcast and others put in with a press drill. It was planned to harrow the wheat after it was up. Some of the plats were to be harrowed in both fall and spring, others to be harrowed only in spring, while a third set were to be packed.

"It is apparent from the data that during the past five years no increased yield could be secured from harrowing winter wheat. Harrowing broadcasted wheat resulted in an average loss of almost three bushels per acre, while harrowing drilled wheat resulted in loss of nine-tenths of a bushel per acre. Packing winter wheat in the spring has not failed in any of the four years to give an increased yield, the average increase being 5.1 bushels per acre. The packing was given early in spring, soon after frost was out, and about the time growth started. Harrowing after packing was not as good as packing alone, probably due to loosening up the plants again after the roller had pressed them firmly into the soil.

"Every spring packing of winter grain, pressing the earth, as it does, firmly about the plant roots, produces good results. When frost comes out in the spring it is apt to leave the soil filled with small cracks or checks, especially around the plants. If these checks are examined closely it will be seen that a large number of roots are thus exposed, and if the weather continues dry, they are killed ,or at least injured. We have taken up plants in the spring where half the roots were injured in this manner. If the soil is not wet at time of packing—and it should never be packed when wet—packing aids in no small degree to form a surface mulch."

A bulletin gave results of the various methods as follows:

Drilled wheat: harrowed in spring, versus no cultivation, nine-tenths of a bushel more for the plats not cultivated.

Broadcasted wheat: harrowed in spring, versus no cultivation, 2.9 bushels more in favor of the plats not cultivated.

Drilled wheat: harrowed fall and spring; harrowed in spring only, and not harrowed; difference less than bushel per acre in the three method

Drilled wheat: packed in sprin versus not harrowed, 5.1 bushels p acre more for the plats that we packed.

Drilled wheat: packed and ha rowed in spring, versus not harrowe difference of 1.8 bushel per acre in f vor of the packing and harrowing.

Double Gang Pulverizer on W. E. Green Farm, Greeley, Colorado

Silage on the Dry Lands

To the Editor:

I have read with much intere your Silo number. Having had s years' experience with silos in Co rado, thought your readers might lea from my experience. We are d land farmers entirely, and raise large acreage of corn, which yiel from 20 to 40 bushels to the ac Have always filled a good many sil each fall. The average tonnage p acre is about 4. I have seen Parso White Dent make 9 tons per acre. A kind of silo is good The hollow t is the best and most popular here, b the pit silo is the cheapest. Not mu was said about silo fillers. Have us several kinds, and I find that one the combined huskers and cutte that Mr. La Grange mentions, is t best all round filler than can be us This machine can be used for gre corn and does a good job. Or it c be used as a cutter on dry stov Here we carry most of our cattle ov the winter dry and have them co fresh in the spring, so do not feel t need of putting all the corn in the si With this machine the corn is left the shock till it is fairly dry, hus dry and loose on the ear, and ensil The machine can be adjusted so th it will take out all the corn or let t shelled corn, and small ears go in the silo. This is usually done befo all the natural moisture is dried o of the stalks, and does not requi nearly so much water to make go ensilage.—J. B. Hawley, Mathes Colo.

Effect of M'Collum's Discovery On Stock Feeding

WHAT THE RATION MUST CONTAIN TO MAKE ANIMALS THRIVE

GEORGE E. MORTON

WE have considered for so long a time that rations for livestock could be balanced by combining certain groups of nutrients in varying proportions for the different classes of stock, that it proves rather startling to find we have been leaving out of account some very important factors until recently unknown.

Before the close of the war, Dr. McCollum of Johns Hopkins University, formerly of the University of Wisconsin, gave lectures in various parts of the country in order to emphasize the importance of milk and milk products in the human diet. This first gave wide publicity to his findings, which are far-reaching in importance. The results of Dr. McCollum's experiments, while involving years of detailed study and investigation, are very clear and simple in themselves, and can readily be applied to the feeding of livestock as well as to human nutrition.

Several years ago Dr. Babcock made the suggestion to some men on the staff of the Wisconsin Experiment Station that there was a missing link in nutrition which was worth investigating. These men began work, and later the work was taken up by McCollum and Hart, with other associates coming in on the work later.

In order to find whether the theory of balanced rations was sufficient in itself, plans were made to feed balanced rations of pure nutrients. Instead of feeding a balanced ration of feeding stuffs as they are grown in nature, it was necessary to separate out from these feedstuffs pure groups of nutrients and balance them according to the present well-known formulae for balancing rations. In other words, pure protein, pure carbohydrates and pure fats were separated out and then formed into a ration which showed the proper proportion of each for the class of animal to be fed. It was found that cows would not do well upon such a ration. They ran down in condition; their calves were born weak or dead, and young calves raised upon such rations would not make anything like normal growth. After a short time, the work with milk animals was abandoned, and the rat was selected as an animal most easily handled, coming to maturity in a short time, having numerous generations within a space of two or three years, and so furnishing data which was desired with regard to the effect of these rations upon succeeding generations.

Rats Starved on It

It was soon found that rats would actually starve to death upon these so-called balanced rations. It is not necessary to detail all of the difficulties which were encountered in trying to narrow the experiments down to a point where the real difficulty would be indicated. Briefly, it was shown that rats would starve to death upon bread made from pure nutrients; but it was found that such bread made with milk instead of water would cause the rats to make very nearly normal development. Pursuing the work still farther, it was found that butter-fat added to the balanced ration made from pure nutrients would produce development much more nearly normal. Various fats were tried out, and it was found that vegetable fats do not possess this growth-producing factor, whatever it might be, and body fats from animals possess the growth factor in only a slight degree; while butter-fat possesses it in a very high degree. Dr. McCollum named this unknown constituent of butter-fat "Fat Soluble A."

But still results were not normal. After repeated experiments, he found that an alcoholic solution of leaves of plants would stimulate growth. Then he found that a water solution of the leaves of plants would do the same thing. Now, by adding butter-fat or milk, and also a water solution of the leaves of some plants, preferably alfalfa, to the diet of the rats, he got for the first time normal development.

This second factor secured from the leaves of plants, he named "Water Soluble B." The outstanding fact is that these two things are necessary for normal growth either in human beings or other animals: Fat-soluble A, found chiefly in milk and butter-fat, and Water-soluble B, found chiefly in the leaves of plants. While development to some extent will occur although either one or the other is supplied in insufficient quantities, normal development can occur only when both are supplied.

Dr. McCollum published his results in bulletin form from the Wisconsin Experiment Station and, also, at the same time, in Hoard's Dairyman. Photographs of the animals in the experiments show an almost unbelievable stunting or lack of development where either of these factors were missing from the diet. It is worth while for anyone who has the feeding of a family, or of a herd of animals, to get all the literature he can on this subject and convince himself of the necessity of these two "unknowns," as they are called, for normal development of animals.

We, of course, do not have with our common rations the extreme stunting of livestock which occurred in these experiments with animals fed upon pure nutrients, because in our everyday rations, for most classes of animals, there is furnished plenty of leaf growth. But unless the stomach of the young animal is prepared to handle a bulky ration formed by the leaves of fodder plants, it is necessary that it get milk. Young animals should have both milk and fodder, but their stomachs are small and they cannot handle very much leafy fodder, so a larger proportion of milk is necessary.

The facts brought out by Dr. McCollum throw new light on the problem of raising young animals without milk. It is a very difficult task. The supplying of vegetable fats does not take the place of butter-fat, nor will the supplying of a large amount of protein in the diet for the young animals replace milk, which almost exclusively furnishes "Fat Soluble A."

Bringing the Lesson Home

In bringing the application of this lesson home to livestock producers, I can use no better illustration than the growth of pigs. Hog-growing is not so closely connected with dairying in this state as it is in states farther east. It has come to be fairly common practice in Colorado that spring litters only are raised. Satisfactory growth is not generally secured with fall litters. The facts brought out by Dr. McCollum furnish an explanation.

Spring litters stay with their mothers, getting sufficient milk to keep them growing rapidly until they are eight to twelve weeks old, and by this time they are on alfalfa pasture and are large enough to make good use of the tender green alfalfa. Then with a good balanced ration of grain, fed in connection with the alfalfa pasture, the pigs make rapid growth until fall, when they are marketed. But even these spring pigs, if they are kept for breeding stock beyond fall and run over the winter, do not make satisfactory winter growth unless they are fed leafy alfalfa hay. Fall litters of pigs get very little alfalfa pasture after weaning time, and are then shut into pens and fed a ration composed of grain, tankage, etc. They never make the weight that spring pigs do, but by supplying skim milk or third cutting alfalfa hay, much better growth can be made than will result from grain feeding alone.

I wish everyone could see the photographs of animals fed with these two factors, "Fat Soluble A and Water Soluble B," and also the photographs of animals fed upon rations from which these have been eliminated. The photographs in themselves are a most convincing proof of the correctness of Dr. McCollum's results. We can come to only one conclusion, and that is that the ideal diet for the young is milk and more milk, and that the alfalfa plant is a tremendous asset to sections of the country in which it can be grown. Young animals beyond the suckling stage that cannot have skim milk should be put upon alfalfa pasture, or other green pasture, during the growing season, and given in winter the fodder of some plant which they can utilize. Silage, of course, contains "Water Soluble B," and is extremely valuable for the growing of young animals. There seems to be an increase in the tendency to use corn silage for growing shoats during the winter season, and Dr. McCollum's results would indicate that it may be so used to advantage.

Found in the Plant Leaves

It should be noted that the storage parts of plants do not possess the water soluble growth factor which is present in the leafy part of the plant. It is not found to any great extent in grains or seeds, nor in roots or tubers, these being starchy in their character. It is found to some extent in connection with the germ of the seed, but is found chiefly in the leaf of the plant.

While most stockmen know the value of milk and alfalfa in the ration of their animals, these results secured by Dr. McCollum and his associates show the indispensability of milk and forage. It is very evident why the central west, depending largely upon concentrates for the development of their animals, find their animals becoming small and fine-boned, and they now are changing their methods and using less grains in the production of their hogs and cattle.

We must not feel that because the chemist has been unable to locate the compound which is responsible for the results shown by "Fat Soluble A" and "Water Soluble B", that these results are in doubt. Thousands of experiments were conducted, and a sufficient weight of evidence has been piled up so that we may accept without question the fact that there are two unknown groups of nutrients or growth factors which are indispensable, and which are termed, in the absence of a knowledge of their chemical composition, "Fat Soluble A, and Water Soluble B." These two terms will probably become well known to feeders before the actual chemical composition of the compounds they represent is discovered.

ROCHETTES PRINCESS
Record, 17,891 Pounds Milk, 933 Pounds Fat. Owned by Meldrum Gray, Roswell, N. M.

A New Mexico Jersey Record

Last year New Mexico was visited by almost every known variety of weather, from the extreme heat of 108 degrees in the shade to a blizzard with the thermometer hovering about zero. But even these handicaps did not prevent Rochette's Princess, a Jersey cow, from producing 17,891 pounds of milk and 933 pounds of butter-fat.

Rochette's Princess made a strong race to make a new Jersey record for the production of butter-fat. In one month she produced 108 pounds fat. Even though she did not equal the present record of 1000 pounds fat, her record is a remarkable one, when it is considered that at no time during her test was her owner able to provide all the necessary feeds and that for five months she was without ensilage. Her records (she had previously completed two yearly tests) are as follows:

MILK—Lbs.	FAT—Lbs.	AGE—Yrs.
9,136	453	4
13,937	713	5
17,891	933	8

Her latest record makes her fourth in milk production and tenth in fat production among the leading cows of the Jersey breed.

Rochette's Princess is an imported cow and is owned by Meldrum Gray of Roswell, New Mexico. Mr Gray is going to send her to Brookwood Farms, Barryville, New York, to be bred to the $25,000 bull, Golden Fern's Noble. She is to stay at Brookwood Farms indefinitely, the object of the mating being to obtain bull calves for both Mr. Gray and Brookwood Farms.

What the result of this mating will be only time will tell. But by glancing over the pedigrees of these two great animals, it can be seen what great things may be expected. Rochette's Princess was sired by Rochette's Noble who is a son of Noble of Oaklands. Noble of Oaklands has 38 daughters and 21 sons in the Register of Merit and is also the sire of Golden Fern's Noble. Golden Fern's Noble now has 15 daughters and one son in the Register of Merit.

Rochette's Princess is not only a great producer but also has the ability to pass her qualities on. One of her daughters, Fox's Rochette's Princess, has made 8,240 pounds milk and 401 pounds fat in 319 days as a two-year-old.

Sugar Beets in Germany

Regulations recently issued for the cultivation of sugar beets (in Germany) for the year 1919-20 include the continuation of the enforcement of compulsory cultivation. Beet sugar factories can obtain sugar beets from the same sources and from an area of the same size as in 1916. Contract conditions generally will remain the same as in that year, but the minimum price to be fixed shortly for 1919-20 will govern all agreements. The restrictions on the use of beet roots in distilleries will be suspended for 1919-20.

According to a report from Germany, the sugar-beet area has decreased from 1,406,000 acres in 1914-15, the first year of the war to 882,000 acres under cultivation at present (1918-19). On the other hand the cost of sugar beets has risen from $0.326 per cwt. in 1916 to double that price, $0.65 per cwt., in January, 1918, and beet sugar from $3.26 to $5.93 per cwt., an increase of 81 per cent during the same period.—U. S. Bureau of Markets, Foreign Service.

Cost of Corn Production In Two Irrigated Areas

FACTORS AFFECTING YIELD PER ACRE UNDER COLORADO CONDITIONS

L. F. GAREY

WHAT are the factors which affect corn yield per acre in Colorado? The principal ones are climate, soil, variety and cultural methods. The first two man has no control over except to use his judgment in selecting the right kind of soil and putting the seedbed into proper shape. He does have the say as to the variety he plants and the way he shall plant and cultivate the crop. Of course, it goes without saying that in order to obtain highest yields one must have a variety adapted to a community and that the seed must be viable. One can usually get the information regarding proper variety through the county agent, or from the most successful growers in the locality. Of course, the only way he can tell whether or not he is planting viable seed is to test it. One cannot tell by looking at an ear whether it will grow or not, hence the safest plan is to test every ear planted. Information concerning the best methods of testing can be obtained from the county agent, or the Agricultural College.

In regard to the best cultural methods to follow one can probably obtain the most useful information from the most successful corn growers in the community, other things being the same. It is worth while, however, to know something regarding the order in which the cultural operations come and the amount of time required for each. Below are the man and horse labor requirements for growing an acre of corn in two irrigated districts of Colorado:

Operation—	El Paso County Hours		Otero County Hours	
	Man	Horse	Man	Horse
Manuring	5.2	7.8	...	...
Plowing	7.9	25.4	4.7	15.9
Harrowing	2.0	5.5	4.2	12.4
Disking	2.5	8.7	1.6	6.3
Planting	1.1	1.3	1.1	1.8
Listing	1.4	5.0	2.0	5.2
Leveling	1.0	2.3	1.8	4.5
Ditching	.4	.8	.8	1.2
Irrigating	1.8	...	5.0	...
Cultivating	3.5	6.5	4.4	8.4
Hoeing	9.1	...	4.0	...
Harvesting	6.0	6.6	4.4	8.3
Shocking	3.0	3.1	2.7	...
Stacking	...	...	5.3	5.3
Shucking	6.3	...	...	...
Marketing	10.0	20.0	1.1	2.2

Man and Horse Labor

The man labor for the two sections is very nearly the same, El Paso county showing but .6 of an hour more man hours and 1.7 more horse hours. It must be remembered that all of the farms did not do all of the operations. For example, only one-fifth of the farmers in the El Paso county list had to level their ground and the requirements for leveling were for only that one-fifth.

Of the two methods used in planting in Otero county there was no difference as to yield, while in El Paso there was a difference of 6.5 bushels per acre in favor of checking. In case of listing the corn was nearly always disked before listing.

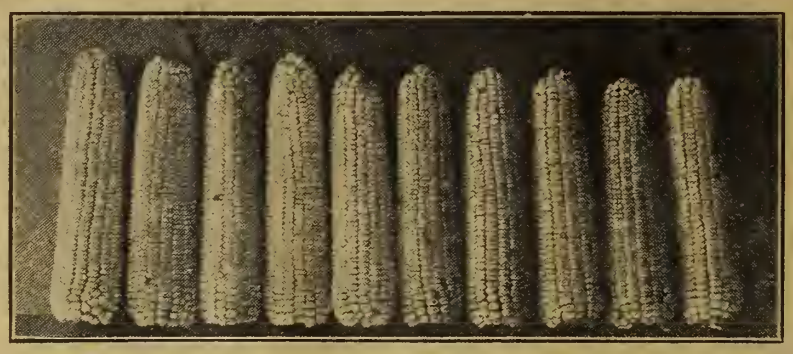
In the dry land area, which is represented by Phillips county, the operations with labor requirements per acre are disking 1.29 man hours and 4.72 horse hours; listing, 1.41 man hours and 5.46 horse hours; harrowing, .61 man hours and 2.27 horse hours; cultivating, which includes go-deviling and cultivating, 3.45 man hours and 9.29 horse hours; harvesting, 4.98 man hours and 8.68 horse hours, marketing, 3.11 man hours and 7.04 horse hours.

By applying the prices in effect one can easily obtain the labor costs for any year. In a good many instances the corn was put in a silo and the silage either fed or sold. In case it was sold, from eight to nine dollars a ton was received for it in the silo.

Per Acre Production Costs

Below is the cost per acre for two areas:

	Otero County	El Paso County
Man labor	$ 9.41	$ 8.65
Horse labor	6.21	5.33
Seed	.38	.43
Use of land	8.22	7.42
Machinery expense	1.87	1.55
Twine	.72	.63
Land and water tax	3.35	2.67
Overhead	2.94	2.67
Total	$33.10	$29.35



Iowa Silver Mine Grown in Montrose County, Colorado, and Also Adapted to the Arkansas Valley

The average yield in Otero county was 38.1 bushels, making the cost per bushel 86.9 cents. The yield in El Paso was 32.6 bushels, making the cost per bushel 89.6 cents. It is readily seen from the above figures that although the cost per acre was more in Otero and the yield greater, the cost per bushel was less. It can still be lessened in either case by increasing yield. The cost per unit, as a bushel or ton, is of great importance in figuring production costs. It would take less expense to increase the yield per acre five bushels by additional labor, or better management, than it would to produce five bushels more on additional land by using the same methods used in producing the present yield. Please keep in mind that there is a time when the increased yield, due to extra labor and expense, will not warrant going to this extra expense to get it. That is, the cost per bushel may be more than when a smaller yield is obtained. It is possible to increase profits by increasing expense, and it is just as true that one can decrease profits by putting on too much expense which will come mostly in the way of labor.

Where the corn was marketed direct, by applying the price received, one can find out the profit in growing corn. Where it was marketed through livestock, sometimes more than the market price was realized. As to the way one should market corn is a problem for every farmer to solve for himself. In marketing direct he usually receives less but also assumes less risk. Where marketed through stock the price realized is usually greater, but one must remember that the risk is much greater, as there are the items of loss of animals through death, to say nothing of fluctuating and uncertain markets. Considering all things with which he must contend besides having money tied up and the worry which accompanies such an undertaking, why should he not get a greater return than the man who sells direct and has no worry? It so happens that greater profits usually come with greater risks, which has something to do with the different methods in which a crop can be marketed.

The corn plant is capable of adjusting itself to a wide variety of conditions of climate and soil. It is only after being grown for several seasons in a certain locality that it finally becomes acclimated and is able to produce the highest yield. When corn is taken to a new locality it must become accustomed to the new conditions before it will produce to its full capacity, hence, other things being equal, a corn thoroughly adapted to local conditions is to be preferred to shipped-in seed. Many farmers overlook this fact and buy a seed grown in some other part of the country, because it looks good in the picture and has been elaborately described by some shrewd salesman. Corn grown under a little more adverse conditions than yours will prove more satisfactory to you than corn grown under more favorable conditions, and that grown on near-by farms is often preferable to that grown several miles away.

All seed corn should be butted and tipped. These kernels are very often misshaped and vary in size and would cause an uneven stand, which has much to do with the yield per acre. The hereditary qualities of all kernels on the same ear are the same, but there is a slight difference in the viability, so all things considered, it is best to tip and butt the corn.

General Suggestions

Time, depth and rate of planting have much to do with the stand and, consequently, the yield. Conditions calling for somewhat late rather than early plantings are:

1. Cold, late season.
2. Wet ground or high water table.
3. Heavy or gumbo type of soil.
4. If one fears weeds or insects, especially the cut-worm.

Conditions favoring somewhat shallow rather than deep planting are:

1. Corn planted rather early.
2. Low, wet, cold soil.
3. Heavy soils which are inclined to form a crust.
4. Well-prepared seed bed.
5. Squirrels do not often bother recently planted corn.

Conditions favoring somewhat thick rather than thin planting are:

1. Plenty of available water, either through rainfall or irrigation.
2. Fertile soil.
3. Early maturing varieties.
4. Corn grown for silage instead of grain.

Some things which every corn grower should remember.

1. Increase your production by increasing yield per acre rather than increasing acreage. This can be done by planting seed that will grow. Test every ear planted.
2. It costs only a little work to test your corn.
3. Testing corn can be done at a time when work is slack.
4. Weak, dead seed means a poor stand; a poor stand means a poor crop.
5. Missing hills means wasted time and wasted land. Labor is a precious thing; don't waste it by working vacant ground.
6. Don't gamble that an ear will grow. "Beauty is often but skin deep."
7. Like tends to produce like. If we want good corn we must plant good seed.
8. You lose nothing by testing, and have much to gain.

How Winds Spread Russian Thistle Seeds

Thistles Cut the Corn Yield

Weeds rob the corn fields of Colorado of moisture and sustenance each season at a loss of many thousands of dollars. Of all the weed pests none is so widely distributed in the plains section as the Russian thistle. It comes in on the fields of wheat or rye and persists in spite of cultivation in the row crops that are planted following small grains. The accompanying view is a familiar one in Eastern Colorado. Almost any fence corner on the plains will provide a setting for this photograph.

Huge piles of dry thistles are gathered in the corners by the winds, after traveling over plowed and unplowed fields for many miles. In sandy regions these thistle piles furnish the framework for drifts of soil that often are as high as the fence posts. A single Russian thistle plant will ripen 100,000 to 200,000 seeds and these will sprout in any type of soil and under the most adverse moisture conditions. This plant is an importation from Southern Russia, having been first brought over in wheat seed from the region now familiarly known as the Ukraine. Our Turkey Red and other hardy strains of winter wheat came from the same region—the country bordering the Black Sea on the north.

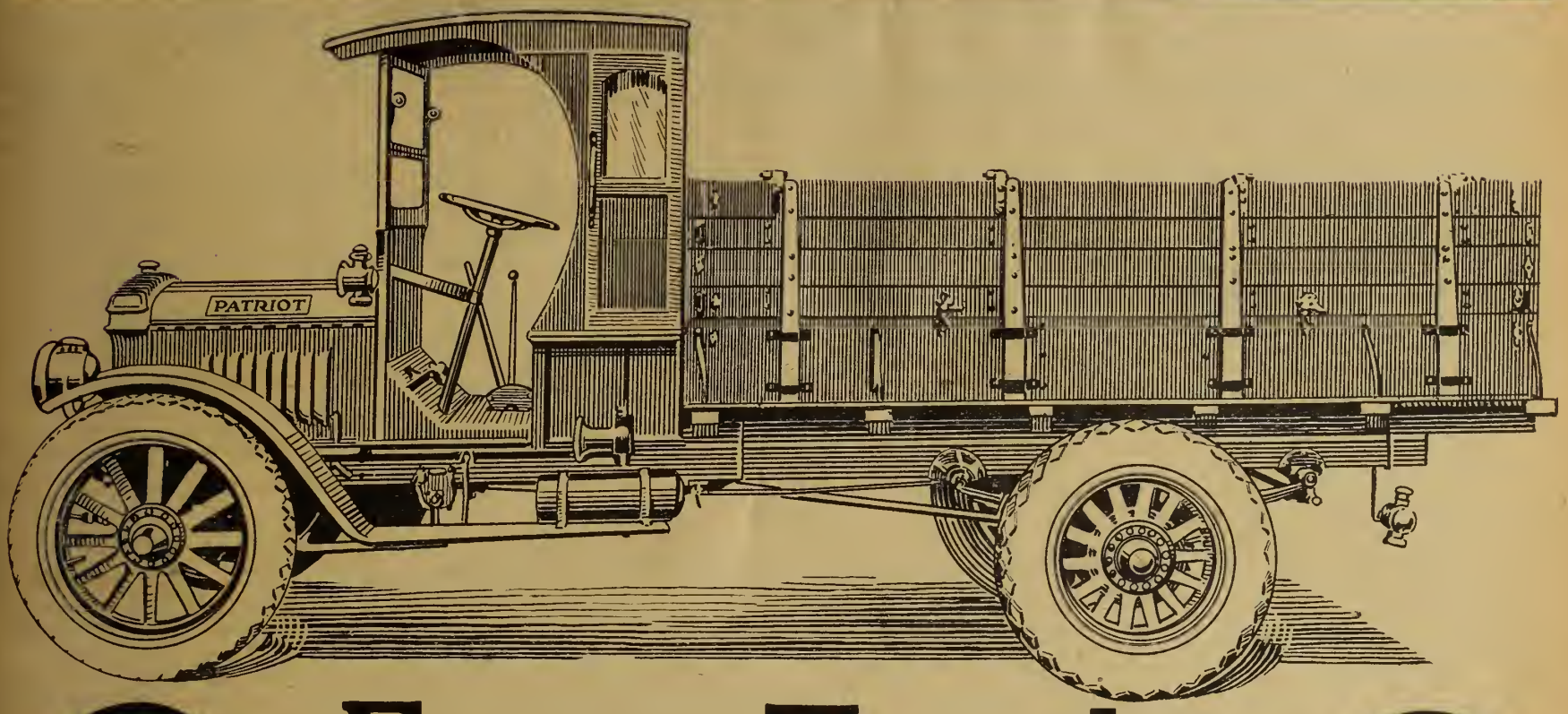
Mennonite settlers who came to Kansas about forty years ago are said to have brought the original wheat seed which, unfortunately, also contained the Russian thistle seed. The plant has become such a menace to agriculture on the plains that drastic measures will be necessary in order to eradicate it.

One of the reasons for its rapid spread is the fact that it is allowed to grow undisturbed along the roadsides. Thus, no matter how diligent the farmer may be in killing it out by cultivation in his fields, he finds, the next season, that his farm has become reinfested from the movement of the dried out thistles, which roll along before the wind in fall and winter, spreading infestation broadcast. s

Saves Every Issue

W. S. Edmiston, Gen Mgr.—I am renewing my subscription to your paper for two years. You will find inclosed $1.00 to pay for same. We like Western Farm Life fine. Read everything in it. I save every issue; have for the last four years.—P. S. McDowell Mosquero, New Mexico.

PATRIOT



Built for Country Loads

Farm Trucks

Built for Country Roads

Almost Every Farmer With 160 Acres Will Soon Be Selecting His Truck

Why do we know it? Simply because a Truck is a necessary part of your farm equipment, and is just as sure to become a part of your equipment as the binder, tractor and automobile. Thousands already in use on farms prove this, and investigations by the Department of Agriculture show that they cut the cost of hauling about one-half.

Every intelligent farmer already knows the saving and convenience of the truck—how it saves horses and feed—how it makes you master of weather and roads—how it brings larger and better markets within easy reach—how it adds at least $10 to the value of every acre you own by bringing your farm closer to the town or city.

What the Patriot Truck Represents:

1. **The Patriot was designed,** and its manufacturing is supervised, by some of the best automotive engineers in the country—men who have a reputation of being cranks for quality.
2. **It is manufactured by a $2,500,000 Company,** all of its stockholders are Western people, and it is controlled by some of the most successful business men of Nebraska, who have had long years of practical manufacturing experience along agricultural lines.
3. **Patriot Trucks have been in operation** for almost two years, under hard working conditions, and have made remarkable records in uninterrupted service and freedom from trouble.
4. **In the competitive demonstrations,** in which the Patriot has been entered, its performance has been nothing short of wonderful, it having outclassed every truck of same rating that has appeared against it
5. **The Patriot is very modestly rated,** as compared with other trucks, many of the units in the 1½ ton Patriot being practically the same as the 2 ton, or 2½ ton of other makes.

We are standing squarely behind every Patriot Truck sold and expect to see that it delivers the service the buyer has a right to expect. Write for full information.

HEBB MOTORS COMPANY

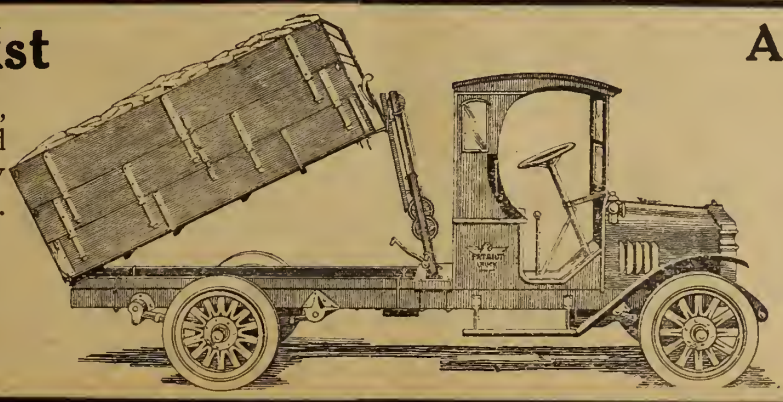
1381 P Street, Lincoln, Nebraska **Manufacturers of Patriot Farm Trucks**

Patriot Hand Hoist

by which the body, when loaded, may easily and quickly be elevated to dump its load. It may, or may not, be included, just as desired.

LINCOLN MODEL—
Capacity 3000 Pounds

WASHINGTON MODEL—
Capacity 5000 Pounds



A Big Western Factory Within Easy Reach

Another reason why the Patriot is the logical truck for the Western buyer is the fact that the Patriot Factory is located within easy reach, outside of the freight-congested manufacturing centers—where quick action can be secured, if service or repairs should ever be required.

Denver Tractor Demonstration

SHOW IS AUTHORIZED BY NATIONAL ASSOCIATION

BE at Denver June 9th to 14th inclusive. This means every farmer who is interested in power farming—and who isn't? A tractor demonstration authorized and under the supervision of the National Tractor Manufacturer's Association, is to take place during the week above mentioned. The ground has been chosen, and it is within easy reach of the heart of the city. Some two thousand acres of average plow land will be used for showing what the various makes of tractors can do under field conditions. All the leading manufacturers of the United States are to be represented. This will be the one chance of the year—and maybe the only one for several years—for seeing a demonstration of national size and importance, so near to the farming sections of the entire intermountain region.

The land to be plowed will include both sod and stubble ground and the tractors that will be seen in operation will include every kind and make that the farmers have ever seen or read about. Here will be found the opportunity for following the machines over the ground and watching them perform on home soil.

Not only will the farmers have a chance to see plowing done, but other forms of farm power will be exhibited, including cultivating, packing, seedbed preparation and other operations that can be done more swiftly and more economically with mechanical power than with horses.

The Denver hotels are making preparations to accommodate many hundreds of visitors during tractor week. The tourist rush will not yet be in full swing. consequently there will be room for all. In addition to the hotel accommodations there will be provided by the Agricultural Bureau of the Denver Civic and Commercial association ample free parking grounds for auto tourists who wish to pitch their tents and live outdoors during tractor week. Everything will be arranged to suit the convenience and comfort of the farmers, who are expected to come not only from all parts of Colorado, but from Wyoming, Utah, Idaho, New Mexico and Western Kansas and Nebraska. There will be no other tractor demonstration authorized by the National Association in this territory during 1919, consequently a big turnout is looked for.

Dependability of Tractors

Of more than 600 tractor owners on representative farms in Illinois who reported in a recent survey conducted by the United States Department of Agriculture, a report of which is published as Farmer's Bulletin No. 963, 54 per cent stated that their outfits were not disabled a single day when needed during the entire season last year. Of the remaining 46 per cent, the average number of days their tractors were out of commission when needed was five. This average, however, did not include one man who stated that his machine was not usable about half of the time.

The reports of tractor owners indicate that with a careful and proficient operator a gas tractor is a very dependable source of power. Occasional slight delays probably will be encountered, but serious ones will be exceptional, whereas with a careless or incompetent operator expensive delays are apt to be frequent.

Of the tractors owned by Ilinois farmers reporting, about 90 per cent were operated by the owner or some member of his family, the best results usually being obtained by this class of operators. Thirty-six per cent of Illinois owners reported no time lost in the field on account of trouble with the outfit. This probably means that the time lost was not worth mentioning. Most men do not consider it trouble so long as they know at once the cause of stoppage or other irregularity in the engine's operation, and are able to remedy it promptly. The average time lost per day by the 46 per cent reporting trouble is a little over three-quarters of an hour.

The Pig Eating Habit

The abnormality of eating their young is found as well in the herbivorous as omniverous class of our domesticated animals. Under normal circumstances every female has a natural instinct that forces them to protect their young to the uttermost, even at the risk of their own life. Eating of their young must thus be the result of a very unnatural condition of the mother animal, and, as every reader knows, it occurs very often with pigs, rabbits, and sometimes with cats. As a general rule this abnormal condition is liable to result from lack of sufficient water during pregnancy and in particular just before dropping, at which time any animal should have all the water it will drink. On the other hand, however, it has also been observed that too much water will hurt, in case this water contains certain mineral matter as iron, sulphur or chloride in too high a percentage, so that the blood cell solution is too high and results in a feverish condition of the animals. But such cases are exceptional, and it is advisable at any time to have the pregnant animal amply provided with good water.

A second source, which is of not less importance than the first mentioned, is malnutrition of the animal, through which not seldom high fever occurs. Malnutrition may be called that condition in which certain constituents of food, for instance protein, ash or vitamines, are lacking. This after a while causes sickness, even death in many cases. Animals that have the natural freedom will seldom show such unnatural inclinations, but confining brood sows to a small pen and feeding on corn alone is very liable to cause such a condition. The sow awaits the opportunity of supplying the body with the shortage, and she finds this in eating her pigs. If the corn is supplemented by alfalfa, clover, cowpeas or any other legume, however, it forms a good ration; and to be sure that the sow does not lack salts, we let such sows always have access to a mixture of 16 parts wood ashes, 16 parts of charcoal, 1 part of common salt, 1 part of copperas and 1 part of lime. This mixture serves at the same time as a good vermifuge. Pig eating may also result from lack of coarse, bulky feed, by which often constipation is caused. Pig eating may largely be prevented if the following points are observed: At all times sufficient water; sufficient legume feed as alfalfa; prevention of constipation, and the sow be placed in quiet surroundings during parturition time, not disturbed by human voices, but watched at a distance.—Dr. L. S. Dijkstra, Broomfield, Colo.

LOOK!
A Toy Tractor—25c

HERE is the greatest little souvenir novelty ever made—a cast-iron toy Avery Tractor. Looks just like a big Avery. Has rolling wheels; finished in shining red and black enamel with gold striping. Stands about 3½ inches high, 5 inches long. A dandy toy for the little ones—a beautiful desk or table ornament for the grown-ups. Everybody wants one. Send 25c and list of ten or more names of—
First—List of those talking of buying a tractor or separator, Second—List of threshermen, Third—List of tractor owners, and we will send you a toy tractor by return mail. Write names and addresses correctly and plainly. We also furnish a Tractor Watch Fob for a similar list of names and 12 cents, coin or postage.

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Motor Farming, Threshing and Road Building Machinery

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Fish Brand Reflex Slicker

The coat that keeps out *all* the rain. *Reflex Edges* stop every drop from running in at the front.

Protector Hat, too.

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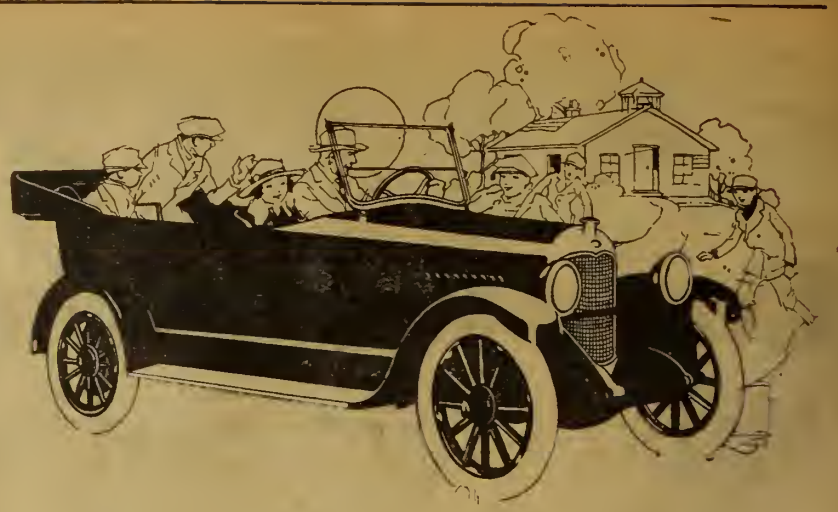

Keen Judges of Motor Car Value Select the

GRANT SIX

The Grant Six has never asked odds of anybody on either quality or price. It has always been in the lead. It is today.

Thus at the big shows where all cars are exhibited it is not astonishing that the Grant Six proved the most popular car of its type.

Ever since the first Grant Six—the original genuinely light six—was built, the capacity of our factory has been tested each season. The demand has always exceeded the visible supply. This season will prove no exception. For in quality and in price the Grant Six is easily the leader.

It is superior in power, in size, in quality, in ease of riding, in durability and in economy of operating cost. It is an exceptionally stylish car, therefore it is not surprising that the Grant Six is the choice of keen judges of motor car value.

Owners average better than 20 miles to the gallon of gas, 900 miles to the gallon of oil, 7000 miles to the set of tires.

Considering thrift and considering comfort and considering value you will certainly be wise to purchase a Grant Six.

This is not the time for idle words. We offer just one suggestion—see the Grant Six dealer as quickly as you can and place your order.

Select from these five body styles

Five-Passenger Touring Car $1120—Roadster $1120—Coupe $1625
All-Weather Sedan $1645—Demountable Sedan $1400
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1800 lbs., 1½ tons, 2 tons, 3½ tons capacity, are all electrically started and lighted and completely equipped. So reasonably priced that you will find they offer a bigger return for every dollar invested than any other trucks.

Descriptive literature on passenger cars, trucks or both sent on request.
Write for it and name of nearest dealer.

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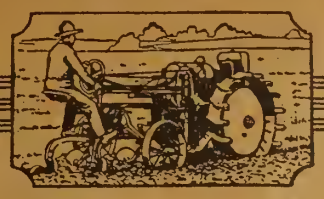
Eastern Shoe Repair Factory
"YELLOW FRONT"
1535 Champa St., Denver, Colo. Main 8453
Mail in your old shoes, have them repaired and delivered free anywhere in the United States



Every Moline-Universal Tractor Must Give Satisfactory Service

When you buy a Moline-Universal Tractor the transaction does not end there. In addition you buy Moline Service—which is service that satisfies. This means that with intelligent operation you will be able to keep your tractor working to full capacity during its entire life.

Moline Service means exactly what it says—and we have perfected an organization which enables us to furnish Moline Service that satisfies. We can do this because:

1. Twenty-three Moline factory branches in all parts of the United States carry stocks of repairs and complete machines—in charge of an expert service department.

2. Factory branch territories are sub-divided into service territories each in charge of a resident Moline Service Supervisor—whose sole duty is to see that Moline Service is properly and promptly furnished in his territory.

3. Every Moline Tractor Dealer is required to carry Moline-Universal Tractor repairs in stock and have a competent service department to provide prompt and efficient service.

4. Tractor schools of short duration in charge of expert instructors are being held in co-operation with Moline Tractor Dealers, to instruct farmers in the care and operation of Moline-Universal Tractors. These schools will continue to be held as long as there is a demand for them.

5. With every Moline-Universal Tractor we furnish a complete instruction book, giving full information on care and operation of the tractor.

6. Moline-Universal Tractors are simple in construction, have the best materials and workmanship money can buy, and all working parts are quickly accessible.

Therefore we are prepared to back Moline Service to the limit and you are sure of getting constant and satisfactory work from your Moline-Universal Tractor.

If any Moline-Universal Tractor is not giving its owner satisfactory service we want to know about it *immediately*.

The Moline Plow Company leads the Tractor industry—first, in developing and perfecting the original two-wheel, one-man tractor which does *all farm work including cultivating*, and again in announcing a service plan which makes a "booster" of every Moline Tractor owner.

Join the throng of "Moline Boosters." You will be able to do twice the farm work at half the expense. See your Moline Dealer now or write us for full information.

Moline Plow Company, Moline, Illinois

Factory Branches At:

Atlanta	St. Louis	Stockton	Denver	Minot	Indianapolis
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Service That Satisfies

Forest Homesteader On Policies

HE REPLIES TO LETTER FROM MR. SHERMAN

I am very glad to see the letter on page 9 of Western Farm Life for March 15, from E. A. Sherman, on Forest Service Policies. Mr. Sherman says "The Forest Service invites suggestions and constructive criticism. It wishes to get the views of the users of the National Forests, and * * * to comply with their desires."

No one can study the "Use Book" issued by the Forest Service without being struck by the earnest effort of the forester to administer the National Forests to the best possigle advantage of settler, stockman, and the public generally. And every one must appreciate the tremendous difficulties of making and compiling regulations applying to 155 million acres of National Forests, guarding against all sorts of ingenious frauds, utilizing natural pasture without abuse, preserving scenic attractions, conserving timber and watersheds, with impartial justice to all concerned.

And no one has anything but praise for the imposing amount of constructive work accomplished by the Service, from fire-fighting to trail-building.

Why then do so many homesteaders hate the Forest Service and all its officials like rabid coyotes or rattlesnakes? What about this attitude of antagonism to all settlers, and the reciprocal antagonism of the settler towards the Forest Service? The ranchers find themselves under laws not of their own making and under officials not of their own choice. They are not consulted and no reasons are given. This is un-American, contrary to all our national genius and traditions. The Forest Service should earn the confidence and obtain the co-operation of the settlers, so that the latter would initiate and present a petition to be included in such and such a National Forest. How different is the actual procedure. The township in which I live has lately been included in the Colorado National Forest. Over half of it is patented land. Yet all these ranchers, far from being consulted, did not even know that such a step was contemplated. When it became known petitions were circulated protesting. These petitions were filed and ignored.

Not one of us knows of any way in which the township has benefitted by being included in a National Forest. And the Forester has not told us. We do know several ways in which it is a disadvantage. The very first thing for the Forest Service to do is to acquaint us with its aims, to remember that it is in a country of government of the people, by the people, and for the people, and not in spite of the people; to make us see why we ought to have it; what benefit it will be to us, so that instead of being disgusted when it takes hold we shall be glad; a campaign of education, of publicity.

The Forest Service is jealous of every acre that goes into private ownership. It is notoriously difficult to obtain a homestead within the Forest boundaries. This township is now at a standstill. No more homesteaders can come in. Those who are here cannot obtain more land except by purchase, and every time you buy a ranch you lose a neighbor, so you are that much worse off.

The Forest Service restricts the homesteader to 160 acres. Joining me is a quarter section superior to mine, and if it were outside I could have it designated, and obtain title to it in three years, but no matter how badly I need it, it must remain idle because of that inflexible ruling, not more than 160 acres.

Suppose the land was such that it took 640 acres of it to make a farm, wouldn't it be better supporting a home than it is merely furnishing pasture as part of the open range? It takes homes, not open range to make a developed country. Land is valueless till it is used, and there are millions of acres that farmers can put to much better use than the forest rangers can. This restriction is the bark of the dog in the manger.

According to a recent survey, a neighbor finds that all his buildings and a fraction of an acre of cultivated land are really outside his boundaries, so he tried to buy the land he was occupying from the Forest Service. Nothing doing. Instead he can pay so much a year in consideration of "trespass." And the amount fixed is as much as the land is worth. Fancy paying for a piece of land every year, and having no title to it in a million years!

Another neighbor has a homestead. When he came to prove up the Forest Service contested him on a shortage of a fraction of an acre. He had put in a lot of work, money and time, enough to pay for the place twice over. Homesteaders do. Often the cost of developing and improving a mountain homestead is greater than the market value of the place when title is obtained. But they gave him a lot of trouble and expense, with no object. He will get his title all right, but he can hardly feel grateful to the Forest Bureau. Regulations are a necessity, but gratuitous annoyances are not.

Let Mr. Sherman, through his supervisors and rangers take us into his confidence, show us what he wants to do, and you bet we will work with him. Also if there is a ten acre aspen patch, or some good pasture convenient to some struggling settler, let him have it to do the most he can do with it, even if he has already got 160 acres. You can't put the public domain to the utmost use without the rough-neck and his mattock.

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Newspaper reports of stock losses due to spring storms were grossly exaggerated. The calf crop suffered in some sections, but the losses of range stock were trifling.

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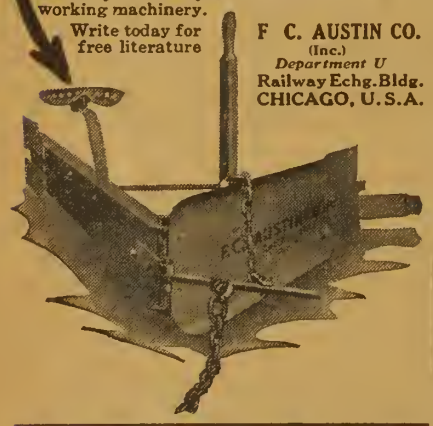

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OVER THERE, somewhere in Germany, I've got a kid brother. He's been in the fight since the beginning and now they've made him a corporal and sent him up to our bridgehead on the Rhine.

I've watched that kid grow up from a baby. I've helped him out of scrapes. I've raised the devil with him for getting fired from school and cussed him out for ducking the lawn-mower job. I've loaned him money I never expected to get back—and never did.

A couple of years ago I came home one day and found the little son-of-a-gun wearing my favorite shirt. We had a family row and I made him take it off.

Yesterday I had a letter from him. It was written with a pencil, over a month ago.

He told me about the fellows he was with and asked about the family. He told me about the work our soldiers are doing along the German border and what a tiresome job it is now that there's no more fighting. He said he'd be home when his job is over.

And then the little devil asked me if I remembered the day I made him take off my shirt.

Well—

Until I got that letter I had a comfortable sort of feeling that the War was over—that I had done about all that my patriotic duty called for, that my part of the job was finished.

But that letter woke me up.

It made me realize that a regular American doesn't put his Patriotism on the shelf when the guns stop booming.

If that kid is going to stick to his job until the whistle blows, I'm going to stick to mine.

I'm going to dig in and help oversubscribe this Victory Liberty Loan.

And be glad that I have the chance.

That kid can have anything I've got— I'm going to finish my job too

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Sudan Grass Information

Sudan grass is one of the important forage crops introduced into the United States in the last twenty years. Its introduction dates back to 1909, when C. V. Piper, in charge of forage crop investigations for the United States Department of Agriculture, secured a half pound of seed from R. Hewison, director of agriculture, Khartum, Egypt. It is cultivated there under the name of "garawi," and is probably a native of northern Africa. Piper says that there are strong reasons for believing this plant to be the wild original form of the cultivated sorghums, with which it readily crosses wherever the two are planted near each other. * * *

Sudan grass is adapted to the same general climatic conditions as the other members of the sorghum family. It seems to prefer a warm climate of relatively low humidity and, like the other sorghums, it is very susceptible to frost, so that its growing season is limited to the warmer months of the year. * * *

Sudan grass does not appear to be at all exacting in its soil requirements. Favorable results have been obtained with the crop in many sections representing a variety of soil types and conditions. Like other sorghums, however, it does best on a rich, well-drained loam. Exceedingly heavy soils are apt to be cold and damp and of poor physical condition, necessitating somewhat later planting, and in many cases producing a rather stunted growth. On extremely sandy soil, the growth of the crop is usually somewhat lighter than on the more favorable soil types, probably due to low fertility, lack of moisture, or poor physical condition. On most soil types, however, the growth of Sudan grass will ordinarily compare quite favorably with that of almost any other forage crop grown under similar conditions. No actual tests have been made by this station to determine to what extent Sudan grass will succeed on soils containng alkali, nor do we find any records in the literature. We have every reason to believe, however, that as in the case of the sorghums, small amounts of white alkali will not be injurious.

Perhaps the most important characteristic of Sudan grass, and the one which will be of greatest value in stimulating the use of the crop for hay purposes, is its resistance to drouth. This characteristic is possessed to a marked degree by all members of the sorghum family, but is probably more pronounced in the Sudan grass than in any of the other types. * * *

To what extent Sudan grass may become of importance as an irrigated crop is still a question, as on good, well-drained soils it must compete with alfalfa. While yields may be obtained which will compare favorably with, or even exceed those of alfalfa, the total feed value per unit area will usually be considerably lower. Furthermore, because of the beneficial effect of the alfalfa on the soil, it is much to be preferred in any rotation system. On the other hand, Sudan grass, being an annual, may often be employed with profit as an emergency forage crop, and yet not interfere seriously with the general farming scheme. Alfalfa is more of a permanent crop, requiring at least a year to reach its maximum productivity, and is, therefore, not so applicable to the short rotation. Again, when the supply of water is limited, Sudan grass will produce much larger yields than will alfalfa under the same conditions. * * *

Inasmuch as Sudan grass is a warm-weather plant, it should not be seeded until all danger of frost is past, or until the soil has become thoroughly warm. If the seed is planted in soil that is too cold the fermination is apt to be low, resulting in a poor stand. Then, too, the cold soil or atmospheric conditions encountered by too early seeding may materially stunt the early growth of the plants, from which they will be rather slow to recover. The best time for seeding, however, will necessarily vary with the location and, to some extent, with the type and character of the soil. * * *

For hay purposes Sudan grass may be seeded either in cultivated rows or in close drills. The latter method will probably meet with the greatest favor, especially when the supply of moisture is fairly abundant, as practically no attention is necessary after the crop has been seeded. When put in in this way, the ordinary grain drill may be used for seeding the crop, as almost any good implement can be set to seed as low as twelve to fifteen pounds to the acre.

In the drier sections better results will often be obtained by seeding in cultivated rows eighteen inches or more apart. This method provides the individual plants with a greater area from which to receive sufficient moisture to enable them to develop normally, and at the same time permits of the necessary cultvation for the conservation of the moisture. A considerable saving of seed is also effected, which may be an important consideration when the price of the seed is high.

For planting the crop in rows, the ordinary grain drill may be used by stopping up enough of the holes to give proper spacing. Fair results have also been reported by using a corn planter provided with special plates for dropping the seed. * * *

When Sudan grass has been seeded in close drills, cultivation will seldom be necessary after the crop has been seeded, though if the soil becomes encrusted before the plants appear, or while they are still quite young, a light harrowing may be desirable. On the other hand, when the crop is seeded in rows, some cultivation will be necessary, primarily to maintain the surface mulch and check evaporation. Weed growth will seldom be a serious menace to Sudan grass, as the crop grows with such rapidity and vigor as to keep the weeds in check quite efficiently. It is only when seeded extremely early, in which case the growth is apt to be rather slow, or when seeded on very foul soil, that the weed growth will be likely to be injurious.

Two cultivations during the growth of the first crop and one cultivation after each cutting, or after each irrigation, will usually be sufficient. The first cultivation should be rather deep and should be given as soon as the plants are large enough so that the rows can be followed easily. Later cultivation should be more shallow in order not to injure the surface roots of the plants. * * *

The feeding value of a product depends not only upon its composition and digestibility, but to a large extent upon its palatability to the animals which consume it. While no feeding tests have as yet been conducted with Sudan grass hay, observations indicate that it is relished by all classes of hay-eating animals, nor does it appear to have any deleterious effect on the digestive system. Instances have been brought to our attention where farm stock with long hours of heavy work have kept in good condition on Sudan grass hay without a grain ration. * * *

As yet but little definite information is available as to the value of Sudan grass for pasture, though from the character of the plant it would seem to lack some of the necessary properties of a good pasture crop. In the first place, being an annual, considerable time would be required for the root system to develop sufficiently so that the plant would not be pulled out by grazing animals. Again, since the soil in which the seed is planted is naturally quite soft, the young plants would probably be severely injured if pastured too early. If the plants were allowed to attain some size before the stock is turned in but little injury would be likely to result. Another possible objection to Sudan grass as a pasture plant is that, being a sorghum, it may, if subjected to extreme drouth, to too heavy grazing or other unfavorable conditions, develop prussic acid (hydrocyanic), which is quickly fatal to stock.

poses. The danger from poisoning by members of the sorghum family has, on the whole, doubtless been overestimated, as the death rate among livestock from this source is very low as compared with other causes.—Bulletin No. 277, California Experiment Station.

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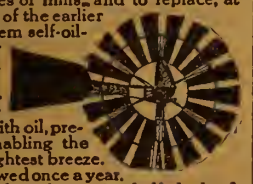

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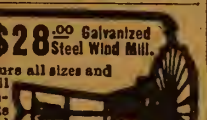

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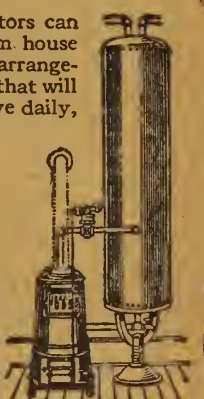

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The State Board of Agriculture

Two new members were appointed recently by Governor Shoup of Colorado to the state board of agriculture, namely J. B. Ryan of Rocky Ford and W. I. Gifford of Hesperus, the sections represented being the Arkansas valley and the San Juan basin. The retiring members of the board are Charles Pearson of Durango and Dr. R. W. Corwin, the noted Pueblo surgeon. At the annual meeting of the board in Ft. Collins, April 9th, Mr. A. A. Edwards of Ft. Collins was re-elected president, in which position he has now served for ten years. Ex-Governor E. M. Ammons was re-elected vice-president and Lathrop M. Taylor was again elected secretary, which position he has held for a decade. Messrs. Edwards, Ammons and H. D. Parker of Greeley again constitute the executive committee.

At the time Mr. Ammons was placed on the board by the then Governor Shafroth, ten years ago, affairs at the Agricultural college were in a deplorable state, because of internal dissension. There had been a bitter faculty row and a fight within the board, with Fort Collins townspeople and the agricultural interests of the state taking sides. The result was a falling off of attendance and a lowering of standards in faculty and student body. The school was near demoralization when harmony was finally accomplished, the changes leading to this being the election of Mr. Edwards as president of the board and the appointment of Dr. Lory as president of the college. From that time the institution has prospered; today it stands at the head of western agricultural colleges in influence and efficiency.

The state board of agriculture, while seldom favored with publicity, is without question the most important of all boards deriving its powers from the executive department of the state government. It is not merely a board of regents for the agricultural college, but, in addition, serves as the state board of horticulture and state board of forestry, has jurisdiction over the state entomologist, the state dairy commissioner, vocational training, pest control work and the system of county agents and agricultural extension work. Dealing with the fundamental industry of agriculture, now the state's greatest industry, this board is exercising a tremendous influence for good. It is absolutely non political in character and it illustrates the possibility and practicability of true representative government, as carried out through powers delegated by one of the three great arms of state government.

Let Western Farm Life Service Bureau help solve your farming problems.

Plants as Weather Prophets

About planting by noting the periods of other plants or trees. That is all right and it is not superstitious. It is rather a good way to do; but it is really not much surer than the almanac or calendar. Plants and trees have no occult weather nerves. They simply react to temperature. If the weather is warm in March and April the native wild plums blossom early, only to be caught by a blizzard in May. We had them on the ranch and they fruited only about one year out of three. I have seen the grass frozen down to the roots, so that a new growth started a month later. I have seen all the cottonwoods and willows with every leaf frozen off them in the spring of the year. One old chap that I used to know always said, "Plant corn when the leaves on the oak brush are as large as a squirrel's ear." This usually occurs late in May and is all right, but one year the oak leaves even were frozen, but that did not hurt the corn which had not yet come up. The farmer can figure it out by oak leaves or goldenrod and there won't be much difference between his crops and those of the man who goes by the weather statistics of the last ten or more years. Animals are supposed to have a weather instinct. They do for storms which are actually brewing, but not for long range. Ducks and geese are supposed to fly south early when a hard winter is coming. They start for the South when a bad storm hits them, sometimes it is an indication of early winter, sometimes not. Beavers, prairie dogs, etc., are supposed to become extra fat when a bad winter is coming. They do not. All wild things become fat where there is lots of grub. Corn is supposed to have more leaves in the husk when a hard winter is coming. This is wrong also. They always have exactly the same number of layers in the same way that a flower always has the same number of petals. I counted them for several years. All people love mysteries; they appeal to their sense of romance. The farmers hate to give up the moon and the signs; and fortune tellers and mediums are always in vogue with the city people.—E. R. Parsons.

* * *

Farm Help Suggestions

The problem of farm labor, like all other labor, is affected by the abnormal conditions created by the war, yet there is little, if anything, to be gained by discussion of the subject from that standpoint. The problem is, for the most part, a local one and its solution is properly worked out by local effort, yet fundamentally, the solution lies in the establishment of thorough systems of farm management, or business farming. Much labor is wasted; wasted labor does not necessarily mean idleness, but wrong methods, inefficient management, and improper or imperfect implements. Improved methods and proper implements mean more work accomplished at reduced cost.

Production should not be expected to be kept at a high stage unless fairness is shown the farmer in the markets, yet he should see the unfairness to himself in methods that are conducive to high production costs, and labor is the heaviest production cost. He must handle labor to his own advantage and he can only do this by planning ahead and not allowing himself to be forced into competitive bidding for the service.

The farm help wage question is a difficult one. The justice of an adequate wage must be admitted, while not overlooking the fact that, under present conditions, the farmer is compelled in some degree to compete with industry for his labor. The present wage cost is high at best, and it is certainly clear logic to contend that the consuming public must become acquainted with production costs if it is to be expected to pay a fair price for farm produce without serious protest. It will pay the price gladly if it knows the facts, but too often the facts are lacking.

An adequate wage must be paid for efficient labor, and any other kind is expensive at any price, yet the farmer himself has been very often guilty of crowding the wage up beyond the fair and adequate stage simply by bidding against his neighbor and "poaching" labor. Unanimity of understanding on this phase of the question is very necessary.

The importance of proper housing is great and becoming greater as the days go by, and is a considerable factor in establishing an even balance between the farmer and the labor. A good tenant, or good married help does not have to live in a poor house. He can either find better conditions on some other man's farm or he can move to the city, demand good wages and live respectably. "Good substantial tenant houses, a garden, pure drinking water, the ownership of pigs, chickens and a cow, tend to increase the efficiency of labor." These are necessities and not luxuries, and sound business investments.

Available information at the present time does not indicate that there will be a plentiful supply of labor for the coming season. It is true that there is an abundance of available labor in the country, but a great part of this will be absorbed by a tremendous road building and industrial construction period. The available labor will go to these industries rather than to farming because they offer shorter and more regular hours with higher wages. How seriously this will affect the farms no one can estimate, but the wise farmer is the one who immediately determines how much help he will need and proceeds to make arrangements for it at once.—D. W. Thomas, Farm Labor Specialist, U. S. Department of Agriculture.

* * *

Brazil a Breeder's Market

Interest in the livestock and frozen-meat industries has increased greatly in Brazil during the war, according to a recent article in the London Board of Trade Journal. Both Brazilian and American interests have grasped the fact that Brazil as a stock-raising country has attractive possibilities.

Five meat-freezing concerns are already doing business and four more are building plants. These nine companies will be able to slaughter 5,000 cattle daily, as well as a number of hogs and sheep. A plant with a capacity of 3,000 hogs daily is also being constructed.

The capital invested in these companies, which is nearly all from the United States, amounts to $10,000,000.

Most of the cattle in Brazil are crosses of the Indian zebu with the Portugese stock imported years ago. The general type is large-boned and coarse, but hardy. However, the quality of the meat is poor, and it is carried in the forequarters instead of the hindquarters. The export has been chiefly to Italy, where a lean meat is demanded. In order to meet the needs of other countries, the Brazilian producers realize that the stock must be graded up, so that the quality of the meat may compare favorably with that exported from Argentina and Uruguay. This is now being done to some extent by importing pedigree stock from the United States, Argentina, Uruguay, and England. The government of Brazil recognizes the importance of obtaining pure-bred stock, and is encouraging importation by allowing free entry and by offering all possible inducements. The following breeds thrive in Brazil: Hereford, Devon, Polled Angus, Shorthorn, Holstein, Jersey, Lincoln Red, Flamengo, Normando, Limousine, Simmenthal, and Switz.

As an indication of the possible extent of the demand for breeding stock, the Journal points out that an examination of statistics of the world's supply of cattle shows that Brazil stands fourth, with more than 28,000,000 head, consisting mostly of the low-grade crosses. In order to grade up the stock properly, it is believed that extensive imports may have to take place from the United States and other countries having the most desirable breeds.

His Closest Relative

Allotment Officer—"Who is your closest relative?"

Kentucky Rookie—"My aunt."

"To whom do you wish this money sent?"

"My mother."

"Why! I thought your aunt was your closest relative?"

"She is. You see, I'm a fisherman and Aunt Maggie lives by the river and Ma lives way up on the hill."—Judge.

The Branding Iron

Applied by Elias M. Ammons

The half million boy scouts in the United States will light bon-fires all over the country in celebration of the signing of the "Peace Treaty" whenever that shall occur. The real important thing connected with this performance will be the inspiration to patriotism and the appreciation of the peoples of the earth for the enforcement of Peace.

* * *

When the great war broke out in 1914, American securities to the amount of six billion dollars were held abroad; at the close of the war this country will owe, at least, twenty-five billion, but practically all of it to its own people and the more than six billion which we owed abroad will be changed into a credit from foreign nations of ten billion dollars. While we have a large debt to pay at home, we will at the same time be receiving interest on ten billion dollars instead of paying interest on two-thirds of that amount, as we were before the war began. Before foreign countries can recover their production their debt to this country will probably still further increase. There seems to be no doubt that the United States has gained a lead in commerce which can never be taken away from it and that this country will continue to be the money center of the world.

* * *

Alaska exported sixty-five million dollars in fish and fish products last year and will probably send out a great deal more the present season because that territory is receiving a large influx of new settlers from returning soldiers. Alaska is also making a strenuous effort to increase its industries in other directions. Its growth would doubtless be greatly accelerated by sensible modification of the leasehold laws that have been put into effect in that country in the past few years.

* * *

Fear has been expressed among tomato growers and local canneries that a large amount of canned tomatoes owned by the government for the use of the army may be thrown on the market with a corresponding reduction in prices at the close of the present season. The government is, however, changing its rations in the army so as to absorb most of these products. It is also a fact, that credits are being arranged with the various countries to take most of our surplus crops which would be sold very largely on a basis of cost in this country. Fear to grow a normal crop of tomatoes would probably have the effect of increasing the cost to the consumer of the canned product. It is usually safe for a grower of any special product to continue the business from year to year. Dodging about from one thing to another may have some advantages, but it certainly does not tend to steady prices.

* * *

The coming of the artillery unit at the Colorado Agricultural College does not eliminate the infantry. Over four hundred modern rifles have just been received for training of the boys in the School of Agriculture which will form the infantry unit. In addition to these rifles a lot of small gauged target rifles have been sent to the organization for rifle practice.

* * *

Reports from over the country indicate an 84 per cent peach crop, as compared with 52 per cent this time last year. While an 84 per cent crop would really be about normal, there are already a good many spots in the country in which the frost has destroyed the fruit buds and there are many other localities in which the blossoms may yet be killed, so that while the reports, as compared with last year, seem to be very good, there is still no assurance of even a normal crop the coming season.

* * *

The Forest Service is preparing to patrol the National Forests with aeroplanes. That's all right; there are plenty of treeless areas that can be safely used as landing places!

Comment by Farmer Putnam

GLAD TO BE OUT OF THE SCRAPE AT CASPER AND VERY THANKFUL TO JOSEPHINE

WELL, it's good to be back home ag'in. I feel like a licked pup. Josephine done right in not sendin' me the $3,500 to Casper, because them fellers was sure goin' to skin me outen it. They dropped me like a hot potato when they seen thar warn't no money comin' and I nearly got kicked outen Casper. I found out them two fellers from Sedgwick county, Kansas, warn't farmers, but was oil promoters from Wichita. My this is a sinful and wicked world! It's a shame to try to take advantage of a poor innercent old farmer like me, but anyhow I got a week of joy outen them fellers, although I been feelin' kind-a on the bum ever since. Casper is sure a fine town; you got to hand it to that place. I'd like to buy a ranch up near thar and run into the town every onct in a while just to watch things a little. I hain't no sport, but I allus did kind-a like to mix in a big crowd and look at the bright lights and other things in the big cities; I guess I just come natchurally by it. Anyhow, Josephine sez I ain't cut out fur farmin'. Just gittin' up a little sweat makes me feel weak in the jints right away. I hain't the man I used to be and I hope I kin soon retire and give all my time to writin', because farm work is beginnin' to tell on me. A man just has to have some recuration, but whar's he goin to git it after July 1st? They say even Casper is goin' bone dry—that is, in the open. Of course a feller that wants to hunt around dark alleys kin still git it, but that's resky and when you git what you go after it's liable to kill you.

Well, all I got to say about that thar Casper deal is that a feller is lucky to have a wife like Josephine; she's a juell, a 16 carrot juell. She's saved me many a dollar by puttin' her foot down at the right time and believe me it's some foot! When she gits it set a derrick won't move it. Well, I don't need to wórry fur a place to invest that $3,500, because the Colorado legislater quit without havin' passed a blue sky law and we'll git lots of chances to "invest" our wife's money in good things right here at home, just the same as allus. They is a tribe of vultures in the cities that lives offen us good citizens and the legislater was kinder to them then it was to the good people. Them members that helped defeat the blue sky law has got their home people to reckon with. I don't know who they are, but I do know two of 'em that done their part to have it passed, and they is Senator Agnes Ridle and Representative Warren F. Wilcox. I knowed them two and kind-a kept my eye on 'em. I seen where they done all they could fur the farmers. Mr. Wilcox is the Sage Brush Scribe from Montrose county and them fellers that was in the legislater with him found out that even if he did smell like sage and have some brush stickin' in his hair, he was right up to date and they couldn't pull no wool over his eyes.

I should ought to say somethin' nice also about Senator Agnes, but I reckon I better not, because Josephine is awful touchy when I git to boostin' the wimmin' folks. I keep tellin' her: "Who'd look at a old codger with whiskers like me?" and she sez: "Never you mind about them whiskers, Tom; you wear 'em in self defense so's nobody would fall in love with your good looks. That ain't what I'm referrin' to. If anybody makes eyes at you it'll be to git your coin; I know wimmin better'n you do. They don't marry men fur looks."

I tell her she gits them ideas from the movies in them Teddy Barry shows, but she sez they comes from real life.

I reckon that'll be about enough of our pussonel affairs. I was out to Sam Hanson's cow sale and got a few pointers on Holsteins which I'd like to talk about. Sam is a hustler. He got together a big bunch of fine milkers with pedigrees all a-goin' back to King Segis and Hengerveld de Kol and Ragapple de Etcetery. Long names and long pedigrees helps bring long prices in purebred cattle. If them Holstein bulls was called John Smith and Tom Jones why people wouldn't think much of them. It's just like with a man; you never find a John Smith that becomes president of the United States, and you never heard of 'em puttin' up a feller named Jones. It's due to prejudice ag'in common names, not because Jones and Smith ain't fine men fit to be president. So it is with the cow business; them old guys back in Europe that named the first families of the Holstein breed set up nights and thought out names that was hard to spell and pronounce and when they found a good name fur a bull why they rejoiced over it more'n they did when a fine calf was born.

When we begin to import we kept them old names fur their advertisin' value as well as because we had to keep family names in the breed, and we added to 'em in this country and git some jaw-breakin' combinations of English and Holland that takes up two lines in the catalogue and kin be pronounced only by auctioneers and men that follers the breedin' game.

Sam Hanson sure done fine on his sale, makin' the highest average fur registered Holsteins ever made in this part of the country. I was a-tellin' Josephine about it the other evenin' and sayin' that we had oughter go into the milkin' business on the dry farm we've rented in Arapahoe county, but she sez she's tired of milkin' and she knows I won't do it. But that don't need to stop nobody from goin' into the dairy business nowadays. I ast Sam Hanson about it and he sez: "Use milkin' machines. I use 'em and I don't spoil no cows. A feller has to oversee the job and strip the cow afterwards. It's like any chore, if you do it right the machines will give satisfactory service. If you leave it to careless help, why it's your own fault and not the fault of the milkin' machine if your cows is spoiled."

My, my, things is gittin' easier and easier fur us farmers every day and we don't seem to realize it. When I was a boy, back in old Missouri, I used to git up before daylight and go out to slop the hogs and milk six or eight cows, feed the mules, curry the hoss—we allus kept one hoss fur the buggy—and after that was done I could have my breakfast and begin my reg'lar day's work, the chores not bein' counted as work.

Out to Sam Hanson's place I walked through a barn all lit up with electricity, with clean cement floors, and managers, the cows all bedded on heaps of straw, a heater in the tank to give 'em water with the chill took off, milkin' machines to pull their tits, clean rags to wipe off their udders, a separate milk house where no stable dust could git in, a feed mixin' room, carts to haul the feed out to the mangers with, calf pens, corrals fur the young stuff, and fur the old stuff, box stalls fur the sires—say, honestly, them cows nowadays lives better then us humans done in the old days when I was a young feller. And still I'd ruther been through them pioneer days then been borned later, because the young people that grows up where the cows has all them luxuries don't seem to have the same stuff in 'em that we older ones had. Iife is gittin' too easy; all a farmer has to do nowadays when he wants to know somethin', or to have somethin' done, is to call up the county agent and tell him to come out right away.

THOMAS JEFFERSON PUTNAM.

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Lookabaugh Shorthorn Sale

H. C. Lookabaugh, Watongo, Oklahoma will be offering at public sale at his ranch May 15, his last season's show herd including three bulls that won the silver cup, Fair Acres Sultan, Junior Max Acres Sultan and Pleasant Fair Sultan and 37 cows and heifers. In speaking of his sale Mr. Lookabaugh says, "I have looked forward to this event for some time with pleasure, when I could announce to the public that I was going to offer to them for their approval a selection of Shorthorns by far superior to any I have ever sold.

"From the time I first showed cattle at the Topeka fair, (which now seems a long time ago,) and had a hard time to win one blue ribbon, I have tried continuously to show cattle year by year that would meet with your approval. What we have won remains for you to remember. I do not want to boast. I will say. however, that the last two years with a show herd which consisted nearly entirely of animals sired by Fair Acres Sultan at all the state fairs where we have shown that we have carried away every first prize blue ribbon and every champion and grand champion purple ribbon that we have shown for with the exception of two.

"And in the American Royal and the Great Chicago International that the last two years (the only time we have shown there,) we have won first prize senior heifer calf, first prize futurity heifer calf, a champion futurity heifer, first prize, junior bull calf, first prize calf herd, first prize junior yearling bull, first prize two year old heifer, senior champion female, first prize get of sire by Fair Acres Sultan and finished the project by winning the first prize for South American Silver trophy for the three best bulls bred and owned by exhibitor, the get of one sire. This we haven't done for the fun of beating the other fellow nor to advertise our herd exclusively, but to try and demonstrate to you and your children that good cattle can be grown in the Southwest as well as in any other part of the United States."

In American Shorthorn history there has never been a sale of such commanding eminence from a showyard and breeding standpoint as will take place at Watonga, Thursday, May 15. Of all the great collections of the breed that have been scattered in sales, the Lookabaugh collection stands paramount in its embodiment of qualities and its array of fashionable blood. A canvass of the merits of these cattle individually and from a pedigree standpoint will bring to the light the ideals and purposes of a man who has exerted every influence in his power to build up a herd that would be recognized as a foremost collection. He not only achieved his ambitions. but, by his enthusiasm that he has imparted to others and by his ever ready spirit to help the beginner and small breeder, he has been a never-to-be-forgotten benefit to the stock interests of the entire state. The place Oklahoma holds among Shorthorn states is largely due to Lookabaugh. His cattle have won highest honors for Oklahoma, and for this all Oklahoma Shorthorn men are proud. It is his wish that all of these 40 head of his best cattle stay within the state. The effect on Oklahoma Shorthorns in the years to come by now scattering these in different sections of the state cannot be overestimated. The bulls, if they bring anything like their value, should sell way beyond the breeder of average means, yet the breeder of average means needs just such an infusion into his herd. By forming a company, several breeders in one locality can easily afford to buy one of them and thereby enrich their herds proportionately at the least possible expense. When you read the ad. enumerating some of the entries, you will see that this sale towers above any other in importance in America for many years. Do not allow any feature of its greatness to escape your attention. Bear in mind that it is seed of the highest value and that it is aiming to reach the top in the production of the breed's best types. The catalogue will enlighten you further and may be had for the asking. See full page announcement on page 31 of this issue of Western Farm Life.

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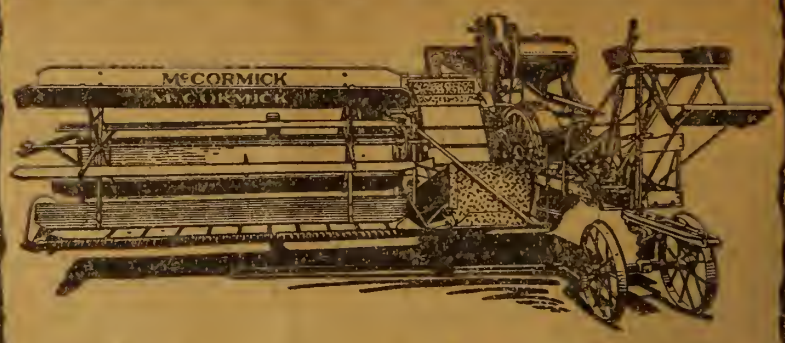

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International Harvester Company of America
(Incorporated)
CHICAGO U S A

This Farmer Likes Trucks

That farmers are realizing the practical value of the farm truck is apparent from a letter written by Mr. E. R. Adams of the well-known Adams Alfalfa Farms, Seward, Oklahoma, giving reasons why this company prefers trucks to horses. The following is quoted from Mr. Adams' letter:

"Because a truck places more power in the hands of one man. With a truck one man can do the work of four men, four wagons and eight horses.

"A loaded truck travels just four times as fast as a loaded team.

"Because we can leave a truck anywhere at any time; it will stand without hitching.

"Because a truck can always be made new again, but you cannot fix a dead horse with a monkey-wrench.

"Because no matter how hot the day, no matter how bad the flies may be, the truck delivers a full day's work as usual.

"Because a truck is economical—it eats only when it works."

Mr. Adams explains that the specialty on their farm is alfalfa hay and seed. They are located 3½ miles from the railroad station. By team it costs them exactly 35 cents a ton mile to deliver their product on board cars at the station, while with the truck the cost of delivering is cut to a fraction less than 15 cents per ton mile. This means a net saving of 20 cents for each mile of hauling. In figuring these hauling costs, they have included interest on investment, Insurance, license, drivers' wages, gasoline, engine oil, tires and depreciation. Nothing has been omitted. They have had trucks since 1916, so it is not an experiment with them. In fact, the first truck they bought, which they refer to as "old No. 1," is still in service.

"Experience has taught us," writes Mr. Adams, "that all truck troubles can be directly traced to careless driving." The letter points out how this carelessness consists in failure to keep the truck in good running condition and the tendency on the part of drivers to put off oiling or tightening. up bearings, etc., "until tomorrow."

"Some jitney drivers will hump up in the seat and burn every connecting rod bearing out in a 30-mile run, but they will brag because they took every hill on high and made the trip in 40 minutes!" (That's the way Mr. Adams writes it.) "Such persons have no business with a truck. A truck can be likened to a splendid draft team—built to pull loads and not for speed. To rush a heavy team is to punish them; to speed a truck beyond its rating means a ruined machine in a very short while."

A Potato Experiment

Last spring I planted two long rows of Early Ohio potatoes in my garden. Two-thirds of the patch was above the ditch, so I determined to try an experiment. I divided the rows into thirds. The upper third of both rows I mulched about a foot deep with old hay and let it alone till harvest time. The middle third I began hoeing as soon as the potatoes were well up and cultivated frequently till the tops became too large to admit of further hoeing. The lower third was both irrigated and cultivated frequently. I began to dig in August. The irrigated portion was ready for use first and yielded more heavily than the others, but the potatoes were, many of them, nobby. The middle portion yielded lightest of the three, and mostly small potatoes. The mulched portion did not yield as heavily as the irrigated, but the potatoes were uniformly large and smooth and of excellent quality.

The experiment was inconclusive, because I did not harvest the crop all at once, but dug as I needed the potatoes for home use. But so far as I was able to observe and judge, considering time, labor and expense involved, the results were all in favor of the mulching plan.—C. B. Lessig, Colorado.

Accurate Crop Data

Accurate data on farm products will in future be gathered by the state of Colorado under a law passed by the 1919 legislature, which provides for cooperative action between the State Agricultural college, the U. S. Bureau of Crop Estimates and the State Board of Immigration. The work will be in charge of the latter boards. Blanks have been prepared tobe used by county assessors, who are required by law to make certain inquiries as to acreages and production. The production tables have not yet been worked out, consequently the information gathered this spring will merely refer to crop acreages. The law will make possible a contract between the government and the state for the publication of circulars and bulletins dealing with crop acreages and prospective and actual yields. This information will be available to farmers, transportation companies and others interested.

What do you want to know? Ask Western Farm Life Service Bureau.

Work of the Farm Bureau

When county farm bureaus were first organized in Colorado the only prominent farm organization in the state was the Grange. The Union was just getting a start and the Equity was not then operating in the West. The Grange touched upon social matters, on the moral issue somewhat and somewhat on co-operative buying. The Union touches upon social matters and comes down strong on co-operative marketing and mutual fire insurance. The Equity is entirely a marketing organization. We have no other general farm organization save the Non-Partisan league, and that is political and can be passed by. The Union and Grange are "closed corporations," so to speak; that is to say, they operate within and not without their membership. Though they claim the privilege of soliciting membership wherever there are farmers, they also reserve the right to reject any application for membership, and in communities where the Union or Grange, or both, exist there is a considerable percentage of farmers belonging to neither.

Now such conditions will not meet the needs of farm bureau work. Farm bureau work has to do with the rural masses. It is an undertaking for the betterment of agriculture, and must be applied wherever agriculture is to be found, no matter by whom agriculture is being carried on. It is, in a way, an impersonal work, and only concerns the farmer inasmuch as he is engaged in agriculture. It is impersonal, but the propaganda of agricultural improvement and development is ultimately for the good of the nation and the welfare of humanity. It cannot be undertaken by any organization that works only for its members, as do other farm organizations. Its policy must be determined in terms of the welfare of agriculture and not in terms of the welfare of a Union or Grange. The farm bureau, therefore, stands for universal agricultural improvement and development, and its concern must be for the aggregate.

Mention has been made of the things the Grange and the Union touch upon, and, as a distinguishing function, it can be said, rather arbitrarily, however, that the work of the farm bureau in improving and developing agriculture, concerns more the processes on the farms as determining the trend of the aggregate. It goes somewhat outside of this when it organizes and operates labor exchanges, boys' and girls' clubs, home economic projects and touches upon marketing problems by way of instruction and the distributing of information. However, these latter activities are incidental to agricultural improvement and are not limited to a membership, but reach out to the aggregate.

Some of our farm organizations are busy with the problems of marketing, not so much the facilities of marketing as the price of farm products. They are too often inclined to employ the methods of the agitator and the operations of the agitator never cease, but become perpetual motion, so to speak, that never comes to rest no matter what the conditions are. Regardless of the fact that some good comes out of agitation, it concerns us to know that there are evils attached to it that threaten agriculture. The mind of the farmer is apt to be obsessed with the idea that he is a victim of society, that his long hours of labor are unreasonable, that the prevailing prices of farm produce spell bankruptcy, or at least are not satisfactory.

It is a function of the farm bureaus to hold the mind of the aggregate to the fundamental truths that good farming and good farm management always pay, no matter what the prices of farm products are, while poor farming and poor farm management never pays, no matter what the prices of farm products are. And why is it a peculiar function of a farm bureau? Because its work is the improvement of agriculture, and improvement must of necessity rest upon a foundation of such fundamental truths. It would be folly, would it not, for any organization to carry on its work without regard for the condition of the foundation upon which such work rests? Its form of organization, the nature of its work and its broad field in agriculture make the farm bureau the most powerful organization today to hold farmers level on the matter of fundamentals.

Now, as a matter of fact, farm bureau work is indirectly solving the market situation by directing agriculture so that it will not be dependent upon any one crop for its success, and inasmuch as it succeeds in this it is performing a much more valuable service in the aid of disposing of farm produce to advantage than a good many realize. The agitator's methods lead to a demand for an advance in the price of an article, but if the demand is not met, the farmer raises the article and sells at the old price. Neither buyer nor community can appreciate this practice. The farm bureau works out for the aggregate various rotations of well adapted crops. If it does not pay to use one particular rotation the aggregate uses another without materially impairing income or productivity. The effect of the bureau's work is very different from that of the agitator's. It makes the aggregate independent of conditions that surround any one particular crop, while it anchors agriculture to fundamentals. The agitator does nothing to make for independence, but drags the anchor of agriculture and permits it to drift into trouble. When the farmer is in position to say, I will grow a certain article if you can afford to pay me what I can afford to grow it for, he takes a stand that the buyer understands as perfectly reasonable, perfectly just, perfectly businesslike. When the attitude is to demand a price, then continue to grow the article, whether the demand is met or not, he is misunderstood by others because he misunderstands himself.

In Boulder county agriculture has had its ups and downs. The aggregate went wrong when it attempted in the early days to farm without regard for the replenishment of the fertility of the soil. We had no bureau; that is to say, we had no manager to direct the trend of the aggregate. We had the Grange, but the Grange was concerned, and rightly, about the Grange, and not about agriculture as distinct from the Grange. Later on we went wrong again when we shipped our alfalfa out of the county to enrich the farms of Kansas and Nebraska, while we were skinning our own lands. The aggregate, as a result, became financially embarrassed. There were no farm bureaus. Now the farm bureau is well established. It is directing the aggregate from such injurious practices. It is establishing rotations of crops well adapted to our climate and soil conditions. It is introducing the best varieties of the crops it is establishing in the rotations. It is encouraging the establishment of natural fertilizer factories on the farms to maintain the fertility of the soil. The farm bureau is the official organization of the United States Department of Agriculture and the State Board of Agriculture in the county, and whenever these agencies deal with the farmer in the county it should be through the organization that directs the aggregate in the development of agriculture through the improvement of processes on the farm. The farm bureau interpets the Farm Loan act and the Income Tax law and their bearing upon agriculture to the aggregate. The Union and the Grange are not concerned about such matters, or if so, not beyond their membership.

The growing population of the nation, crowding into our cities and industrial centers, busy in working up the natural resources in which the nation is phenomenally rich, demand that agricultural practices be maintained at the highest point of efficiency and the farm bureau's work is to meet that demand and in a way that no other farm organization can.

It might develop in time that projects carried on by county farm bureaus can be materially improved through a statewide campaign, and when that time comes, very naturally the state farm bureau will step out of its annual conference and take an active part in an all-the-year-around campaign. Should no such need develop, the benefits derived from an annual conference will richly justify the organization of a state farm bureau.—CHARLES L. HOVER.

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE. Denver, Colorado.

Ownership of Buildings

A bas lived on B's land for 16 years and in the meantime has put buildings on the place with B's consent. Can A move such buildings from B's property, or does B have the right of holding same? A put them up at his own expense.—J. D., Wyoming.

Ordinarily buildings erected on land become part of the realty and belong to the owner of the land. Our supreme court has held, however, that the intention of the parties governs, and that intention may be shown.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Reclaiming Overflow Lands

I am located in the Platte river valley, and to the best of my understanding there is about 50,000 acres between Denver and Greeley which are destroyed annually by high water in Platte river. This is some of the best land in the state and could be reclaimed at a comparatively small cost, but it is not for one man to do. All should be together or else it could not be done properly. Three years ago I spoke to Senator Thomas about this and he said that it could be done in this way: To place a special tax against the lands which were affected by these high waters, and he said to organize a committee and appoint three men to see the governor and state engineer and have some of the leading papers take it up, and he said he would be willing to take it up in Washington. I am thinking that the cleaning of the river channel should not cost over $1 per foot and about 4 yards to the foot taken out. I was working for the Bay and River Dredging Company in California, which did such work for a cost of from 3 to 15 cents per yard. What we need is someone to push and take it up, and I think it would be well worth the trouble, as all of this land is rich and there is none better in the state.—O. J. Adams county, Colo.

The water of the Platte river is all appropriated and only in excessive floods or in the winter is there any considerable volume of water flowing down the channel. The channel, almost without exception, is no larger than is required by the average flood and individuals are constantly encroaching on the channel through their own efforts. There is, of course, along the river bottom some wet or seep land but even this in in small and segregated tracts and had best be handled by individual or community effort. If a more comprehensive plan was desired, a drainage district could be formed, bonds issued and the work done as a district affair. Of course the channel might be straightened but the amount of land so reclaimed would hardly pay for the expenses and there would be conflicting interests concerning rights of way and also the changing of the channel would involve erection of new head-gates, and if the channel was shortened it would probably cut deep in places which would leave some head-gates high and dry. In fact, it has been found necessary recently to throw dams across the river in order to raise the water to the head-gates at the ditches.—John E. Field, Engineer, State Land Board.

Water Witching a Superstition

Is there any way of witching or testing for water that will prove effective in a section where the farmers have been unfortunate in locating wells?—I. G., Colo.

Water witching is an old superstition in which there is absolutely no value. There is no way of determining with certainty that you will strike water at any particular point unless surface indications show the existence of shallow ground water. Men who are experienced in drilling wells can usually pick out the most likely spot if they are familiar with the surrounding country and with the drainage area. Often the sinking of a well is pure guess work.

Starting With Alfalfa

I have 160 acres of bottom land, 14 to 16 feet to water, rather heavy soil. There is a dry creek running through this land. Some years it floods. I wish to get this in alfalfa. It has never been plowed and it rather heavy sod. Please have Mr. Parsons advise me as to depth of first plowing and treatment.—J. L. A., Morgan county, Colo.

You should first find out the condition of your subsoil as regards moisture. On many creek and river bottoms with water at from 10 to 15 feet there is often permanent moisture from the surface clear down to the water table. The water comes up and meets the precipitation going down and the drouth seldom dries out more than a few inches of the surface. This condition is much more frequent in sandy hills than in heavy, some clays being almost watertight to capillary action. Whether this is the status of your land or not, alfalfa in a year or two will reach the permanent moisture above the water table, and you should have eventually a field that you can cut as often as your neighbor who irrigates. If you find that your soil is permanently moist underneath there is no necessity to plow deep. Just enough to root the alfalfa nicely from 4 to 5 inches. If on the other hand your subsoil is dry a few feet down then it is a dry farming proposition, and I should break the land as deeply as possible, not less than 8 inches, work it until the surface is fine and mellow, and plant the alfalfa when the seed bed is full of moisture. Unless you conserve plenty of moisture before planting I should plow this year and plant next spring. The best chance of success with sod is to thoroughly pulverize it with repeated workings with disk and harrow. A good rolling after the plowing will flatten it out for the pulverizing process. If you have permanent moisture below, and conclude to plow shallow, pack the seedbed by rolling as much as possible, and do not plant until it is well wet up, for it often occurs that loose plowing, even over a water table, will dry out in dry weather just enough to knock out the alfalfa before the roots have reached the wet subsoil.—E. R. Parsons.

Sorghum Cane for Ensilage

Answer to G. D. R., Weld county, Colo.

In regard to your question about the use of sorghum cane for silage. It is true that cane put into the silo before it is mature often makes acid silage. However, there is a way of handling it so that it is practically as satisfactory as corn from the standpoint of palatability, although it does not have the feeding value of good corn ensilage. Tests were made several years ago by the Kansas Experiment Station with sweet sorghum, or cane. Prof. O. E. Reed, head of the dairy department of the Kansas Agricultural College, in reporting on this experiment, says:

"The first sorghum crop put into the silo was sweet sorghum, commonly but erroneously called 'cane.' Previous experiments with this crop and the experience of some farmers have given the general impression that cane contains too much sugar, and that silage made from it would be very sour and would not be eaten by the stock. Our results

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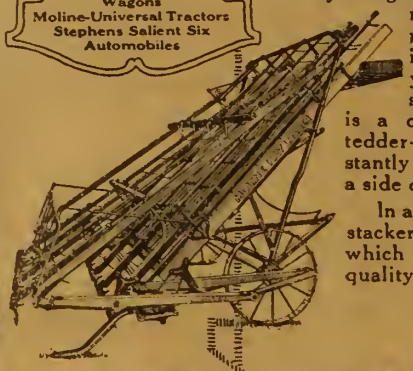

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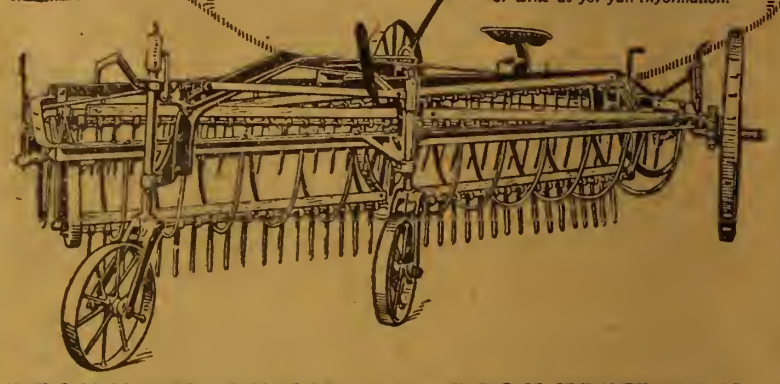

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Between 1913 and 1918, commodity prices advanced 112%, wages advanced 72% and **Telephone rates the country over advanced only 4%.** Adequate rates are needed if the service is to be maintained efficiently and on a comprehensive scale, so as to meet the increasing demands of the public.

This company is operating its telephone property under the direction of the Postmaster General for the United States Government and must secure sufficient revenue to cover the cost of rendering the service.

The Mountain States Telephone & Telegraph Co.

the first year showed that silage made from cane did not contain so much acid at any time during the year as did silage made from corn. This, of course, is quite contrary to the belief heretofore held by many, but is easily explained after thought and investigation. In the past, where cane had been made into silage, it had been put into the silo at the same time that they cut their corn for silage. At this stage of maturity, cane contains entirely too much moisture, or sap, and when put up at this time is certain to result in sour silage. With us, the cane was not put up until three weeks after the corn silage was made, at which time the cane seed was hard and the stalk was well filled with sap, but did not contain an excess of moisture. The cane used in this experiment was grown on upland soil on the College farm. One-third of the field was drilled and another third was listed. The remainder of the field was in corn. The drilled cane made 12.5 tons of silage to the acre, the listed cane 8 tons, and the corn made 5 tons."

In most of the territory of Western Farm Life we cannot wait three weeks after putting up corn for cane to ripen, but if we plant our cane early enough and use quick maturing varieties it will be in silage shape before killing frost comes.

Lime Needed for Legumes

I see a great deal in the farm papers and in bulletins about inoculating the soil with bacteria for alfalfa, sweet clover and other legumes, but have never found a satisfactory explanation of how these organisms work and how the different kinds are to be distinguished. Is it a fact that if I find no native legumes where I wish to grow alfalfa I must inoculate the soil? I would like to hear from Mr. Parsons about this.—R. K., Colo.

I have never done any experimenting with bacteria or bugs as the doctor calls them, because my microscope is not powerful enough; but I will tell you what I suspect. Any foreign body lodged in the muscle of a man becomes encysted; the same happens to colonies of poisonous bacteria. Nature builds a wall around them to prevent the infection spreading and causing blood poisoning. Curiously enough nature does the same thing in the plant world. In man this is manifested by boils, carbuncles, or by a plain cyst. In plants by galls, knots and nodules. If a bacterium lodged in an alfalfa root and formed a colony a nodule would form immediately and enclose the bacteria. I agree with you that it is most likely that the alfalfa supports the bacteria rather than that it can draw any sustenance from the nodule.

Now the question arises why does the nodule contain nitrogen. All bacteria are formed of protoplasm and the base of protoplasm is protein, which is nitrogenous. All legumes are highly nitrogenous, whether they have these nodules or not. Therefore, they are naturally the best home for these particular bacteria, which require more nitrogen and can do with much less oxygen than the regular soil bacilli. I believe the reason that the legumes do well in some localities and not in others is due almost entirely to the presence of lime. In the mountains above the lime belt the alfalfa is never so good; the same everywhere. Where you find the wild peas, vetches, tares, etc., is a lime soil always. In nature, no limes, no legumes. What has lime to do with legumes? In extolling the virtues of lime the professors generally miss the main point, because it has only been noticed lately by men like Cyril Hopkins and a few others, that lime has a strong affinity for the nitrogen in the ammonia of the atmosphere and in the rain. It combines with it, conserves it, and forms nitrate of calcium in the soil. I am always watching mortar made of lime for this reason and many a time I have scraped a thimble full of nitrate of calcium off a brick wall. It looks like white frost.

The old chemists knew that clay absorbed ammonia from the atmosphere, but they never gave any reason. I believe that reason can be suspected now. Most clays are of feldspathic origin and feldspar contains calcium. It is a very hard and difficult matter to differentiate such minute bodies of bacteria and I know that as far as the doctors are concerned they have been fooled hundreds of times by appearances. Some professors tell us that alfalfa and sweet clover bacteria are all the same, some say they are not, and so on.

I know I can raise magnificent alfalfa or peas, or any other legume without any inoculation whatever. All I want is a good fair soil with plenty of lime in it. They discovered at Rothamstead experiment station in England (a lime soil.) that the more you fallowed the more nitrogen you accumulated.—E. R. Parsons.

Have You Seen This Horse?

The Service Bureau has been asked to locate a stray horse colt, 3 years old, weighing about 900 lbs., sorrel, star in forehead, branded H Lazy H on left shoulder. Driven from Akron to Elizabeth, Colo., and strayed from the latter place probably toward Akron. Finder will please notify Western Farm Life Service Bureau, Denver.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Cow Has Milk Fever

Answer to A. T., Pueblo county:

The first thing to do is to employ a veterinarian, if one is available. The most successful treatment is inflation of the udder combined with stimulants, such as hypodermic injections of strychnine. It is not safe to attempt to drench a cow in this condition, for the medicine will be quite sure to enter the lungs instead of the stomach. The cow should be made comfortable and constant nursing is of utmost importance. If inflation of the udder is undertaken, it must be done under the strictest of asceptic conditions. Inflammation of the udder is quite liable to result if a dirty tube is inserted through the natural opening of the teat. The instruments should be sterilized by boiling in water and all quarters of the udder inflated until it is quite tense. So many cows have been ruined by the lalety in attempting to save them by this treatment that I feel it is questionable if the treatment should even be recommended, save to those who understand the importance of cleanliness and other things pertaining to the technique of the operation. The treatment, when properly administered, will save a very large per cent of cows suffering with milk fever. It is really a remarkable discovery in veterinary therapeutics.—G. H. G.

Cow Has Paralysis

Answer to E. T., New Mexico:

Paralysis (paraplegia) just prior to parturition is quite common in cattle and is also witnessed in the sheep and goat. This paralysis must not be confused with the paralysis of milk fever or with a paralysis which sometimes follows immediately after parturition. The disease in question may be designated the Paralysis of Gestation. It usually appears suddenly and without premonitory symptoms, being just as severe at the outset as at a later period. A cow in this condition does not appear to suffer, the eyes are clear and bright, the appetite remains normal and she continues to chew the cud. There is usually constipation. The paralysis usually persists until parturition when it disappears gradually. The cause is obscure but it quite generally believed to be caused by straining of the nerves and vessels by the tension of the gravid uterus. If paralysis continues for long after the calf is born hypodermic injections of strychnine, or dram doses of powdered nux vomica, given by the mouth, are indicated. The cow should be turned over several times a day and provided with a good bed of dry straw. Rubbing the legs with burlap and encouraging the cow to make frequent attempts to regain her feet should be part of the treatment. In case the cow shows no improvement after three weeks, subsequent to parturition, the case may be considered practically hopeless.—G. H. G.

Which Breed of Hogs?

Answer to E. S., Utah:

"Which breed of pigs will make 100 pounds the quickest under the same conditions?" The answer to that question would be a guess. There are three breeds which, under our Western conditions, will make quick growth and quick gains, and neither one of the three possesses any superiority. These breeds are: Duroc Jerseys, Poland Chinas and Berkshires. The rate of growth or gain depends upon the feeding program. Under some conditions the Durocs seem to put on flesh more rapidly than the other two breeds. That perhaps accounts for the fact that the Durocs are now more numerous in the West than either the Poland Chinas or the Berkshires. You cannot, however, get any Berkshire or Poland breeder to admit that these two breeds will not do just as well if properly handled.

Early Plowing For Corn

Answer to J. E., New Mexico:

Fall plowing is the best for corn when you can do it, but in your state where corn can be planted pretty late, spring plowing will raise fair crops in an average season. The idea is to give the land as much time to settle as possible. Therefore plowing in February or March will raise better corn than in April or May, and the later you plow, the more packing will be necessary. This packing can be done with a roller of the type of the Western roller, or by plenty of discing and harrowing alternately. Spring plowing for planting in three months' time to corn or sorghum may be 8 to 10 inches deep, but for planting in a few weeks, not over 8 inches with plenty of packing. When you plant be sure that the grains are deep enough to be in the moist dirt even if you have to put them down five or six inches. This is important in planting after a dry spell, which you often get in the spring of the year.—E. R. Parsons.

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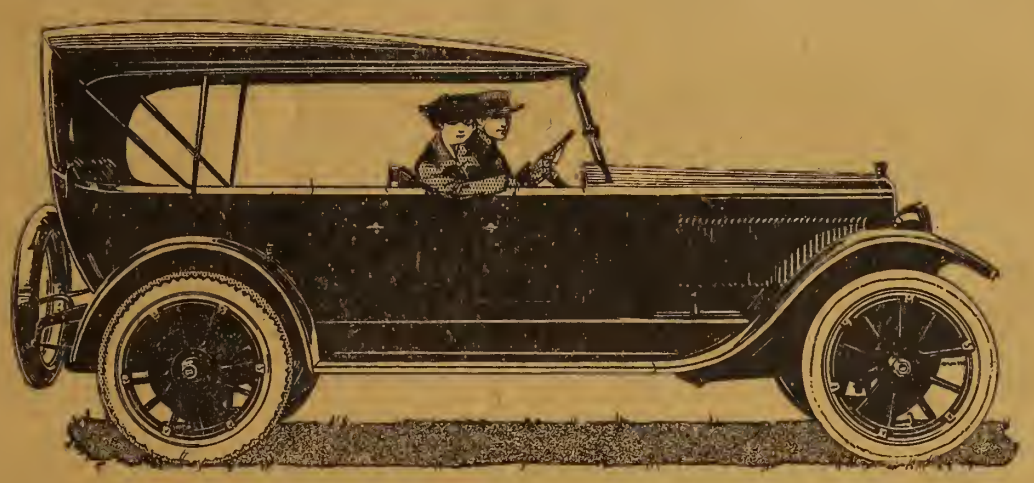

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CHAPTER XVI.

SWALLOWED BY THE NIGHT

"Left no word, you say, and seems to have been gone all night? Strange, for a man like Randolph, very strange."

"His cot's spread up as if he hadn't slept on it. I thought perhaps he'd spent the night here, or had been taken sick and come up for help."

There was anxiety in Hugh Atchison's manner. He stood in the morning sun before Moore's steps, his head bare, smoothing back his hair from his forehead with quick, hard strokes. His hand trembled a little, and that old strained look of whistling was drawn into his features.

Jonathan Randolph was missing from his camp. When the force from Gregg's arrived at the usual hour they found his bed untroubled, his camp deserted. Calling and searching had failed to discover him. No written word from him in explanation of his absence could be found.

"No-o, he hasn't been here, he didn't come up last night as he usually does. He must have got up early and gone looking around down there somewhere. He'll turn up after a while."

"We've looked around down there pretty well, but he isn't within a mile of camp, and I'm certain from the look of things he didn't stay there last night. If he'd gone anywhere he'd have left word."

"It would look that way," said the old man, trouble darkening over his face. "You found no trace of a—of violence, or a struggle?"

"Everything is undisturbed. It looks like he'd just walked away, intending to come back in a little while."

"He must be around there somewhere, maybe some accident has happened to him; I'll get my hat and go down with you."

Juliet appeared in the door.

When she saw the schoolmaster she came out, quickening from the melancholy that had fallen over her and hung like smoke in a cool valley since she had turned sighing from her fruitless watch at the gate for Randolph last night. She came forward quickly, with eyes turning from one face to the other in frightened inquiry.

"What's the matter, grandpère? What has happened? Has somebody been hurt, Mr. Atchison?"

Hugh passed the explanation to Moore with a brief glance, and turned his head away.

"Not exactly hurt," said Moore. He caught himself quickly, as if reaching back to recall his words, which had struck a whiteness to Juliet's cheek as if she had been given a blow with the open hand. "No, nothing has happened, child—there is no occasion for fright or worry."

"I thought Mr. Atchison had come—I saw something in his face when he looked at you," said Juliet, speaking rapidly, her eyes eloquent of her fear.

"Will you run in for my hat, child?"

"What is it, grandpère?" she asked, her hand on his arm, looking up earnestly into his face. "Has something happened to Mr. Randolph?"

Hugh turned to her, not having it in his heart to keep her in suspense over an incident which might be as simple as clear water the next hour, or as grave as death before the close of day. Moore saw what was in the master's face and lifted his hand to check him.

"Mr. Randolph has gone somewhere and left no word behind him." Moore explained, his hand on the girl's shoulder, his voice cheerful and deprecatory of her concern; "he—"

"Gone! When? How long?" She turned to Hugh, her face cold and white, her hands clenched, her breath drawn deep as if she braced herself to bear a pain.

"I think he went away early in the evening—"

"He will be back, it will be all right," said the old man, a little impatiently. "Fetch me my hat, child—I'll help them look around. He must have left a note which has been blown away."

Juliet did not stir. She stood looking from one to the other.

"He'll never come back!" she said.

"Why, child—"

"Others have gone that way," shaking her head sadly, "and none of them ever came back again. He is dead! I felt last night that he was dead—I was so troubled I couldn't sleep."

Arkansaw was coming, leaning forward as if walking against the wind, taking the ground five feet at a step. He had something white in his hand, but it was not much whiter than his face. Moore turned to him, went a little way to meet him, holding out his hand to receive what Arkansaw was bringing, in the belief, evidently, that it was a message from the missing man.

Arkansaw did not deliver the article to the old man, but pulled up a rod distant, gesticulating, his mouth working, but no sound coming out of it. Hugh and Juliet were beside him in an instant, making inquiry in a breath.

Arkansaw unfolded the strip of white cloth that he was holding in his hand, and drew it across his palm like a salesman showing a ribbon. In a certain place there were several spots of blood, in semi-circular arrangement. To these Arkansaw pointed, with fearful countenance.

"Well, well! what is the meaning of all this mummery?" demanded Moore.

"You know his arm was hurt yesterday," Arkansaw nodded to Hugh; "said he hurt it on the saw. Does them look like the marks of saw-teeth?"

Moore leaned to look at the stains, drew back, his countenance distorted, his eyes staring. He trembled; his face grew white. Juliet caught his hand and clung to him, and under the assurance of her warm touch the spasm of horror seemed to pass as quickly as it had come. Not so quickly that the schoolmaster had not seen it and marveled, nor that Arkansaw, excited as he was, had not wondered in his way.

"What's that got to do with it, Arkansaw?" Hugh inquired.

"This is the rag he had tied on his arm," said Arkansaw, "and them marks is the marks of teeth—not saw-teeth, but bitin' teeth. He's had a fight with the snappin' ghost and it come back last night and took him!"

"Have you found any trace of him around the camp?" Moore asked, his voice husky and unsteady.

"Not a hide nor hair of him! He's gone, I tell you folks—he's went the same way them other fellers went."

Hugh had taken the stained cloth from Arkansaw and put in in his pocket, in the thought that the sight of blood on it had moved Moore with that betrayal of fear, knowing that some people are subject to such qualms. Juliet had not spoken since her grandfather had shrunk back from Arkansaw's evidence, but now she said, appealing to Arkansaw:

"I don't think you ought to spread a story like that around—it would bring crowds of curious people here, and make it that much harder for us to trace Mr. Randolph, if he is gone."

"No, we don't want any of your wild ghost stories circulating around and drawing a pack of folks here with their tongues hanging out," said the old man with some heat. "Randolph will come back when he's ready—he's just gone to Richfield to send a telegram, or on some errand."

"The old man's goin' after the sheriff," said Arkansaw.

"Stop him!" said Moore, speaking to Hugh. "This is not a matter for the sheriff, we don't want any nosing around here. Give the boy time to come back, don't go making a flurry over nothing."

"No, no—we don't want the sheriff," protested Juliet. "Don't mind what I said a little while ago, Mr. Atchison—I was excited and hasty. I'm sure"—to Arkansaw—" that Mr. Randolph's gone to Richfield for something. He'll be back in a little while, by noon, I think. He wouldn't like it if you were to go telling a wild, silly story like that around, or your father went for the sheriff. Please run and stop him, Arkansaw."

Arkansaw was unwilling to surrender a theory that had so much comfortable horror in it for him. He shook his head in sad denial of her attempt to put a reasonable explanation to Randolph's disappearance.

"I wish he was gone to Richfield, or some place we know of, Julie," he said. "He make a mistake stayin' around there alone after fightin' the snappin' ghost. It slipped up on him, the way it tried to slip up on me the time I rasseled and fit it over yonder in them woods."

"Stop Gregg before he goes on that fool errand for the sheriff, and tell him to keep his mouth shut about this till we're sure there's something to talk about," Moore ordered, speaking sharply to Hugh again.

"I'll head him off around the bend and send him back," offered Arkansaw.

"Tell him to be careful what he says," Hugh cautioned. "It's more than likely John will be back before noon, and we don't want to make a fool of him or be made fools of, I guess, do we Arkansaw?"

"I'll tell him," Arkansaw promised, hurrying off to intercept his father at the bend.

Contrary to Moore's expressed expectations, Randolph did not return that day. Moore and Juliet had joined the others in searching for some trace that would give an explanation of the treasure-hunter's disappearance. It was an empty day, and it came to its close with a darkening of the cloud, which seemed to have drooped nearer to the rooftree of the gray house on the hillside.

The schoolmaster had seen Juliet go back to the house under the shadow of this new sorrow which had made her eyes look old. All afternoon she had waited in the shade of Randolph's tent, silent and expectant; listening for him to come rustling through the corn, or striking down the road with his soldierly tread.

It wrung the schoolmaster's heart to see that pain in her young face. When he told her that he would mount guard at the camp all night, and carry the first word to her, the look that she gave him was better than any praise of his valor or thankfulness for his fidelity to a friend that she could have uttered.

When Moss Gregg hitched up to drive home, he stood with his foot on the hub of his front wheel and protested against this watch at the camp. Arkansaw joined him, with fear in his voice and wild casting around into the shadows lengthening from bush and field, in urging the schoolmaster to go home with them and let the ghosts of that fateful place after their own.

"Other men have come like him, and went like him," said Gregg, "and I felt from the start he'd never live to make a hole down to that old hull. I done my best to turn him from it, and I held out till the fire of damnation and hell got into me from hearin' him talk about that money. If I never 'd 'a' hitched up with him I don't reckon he'd 'a' went ahead. I'll feel to my last day I've had a kind of

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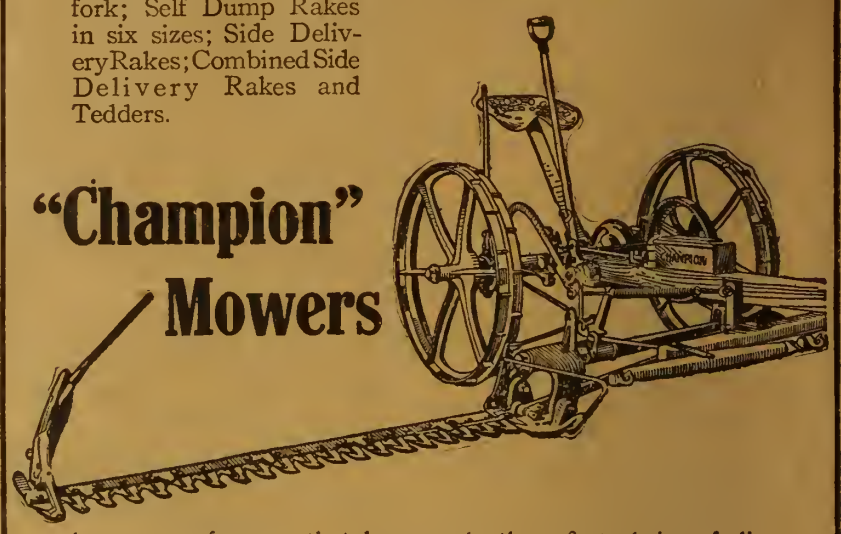

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a hand in his death, for he's a dead man, Hugh—he's as dead as the thief on the cross."

"I'll stay," said Hugh.

"Well, I'm done with it, for my part—"

"Here, too!" said Arkansaw.

"I ain't got many more years to live," Gregg went on, "and when I go I want to go like a good old Methodist orto go, stretched out on m' bed with m' britches off. The warnin'-bell's struck for us fellers that's been meddlin' in this trouble with him, Hugh; let it go before it puiis you down with it. I'm turnin' my back on this hell's graveyard this evenin', never to set foot in it agin'."

"I'm going to stay," said Hugh.

"Well, I wash my hands of the whole thing," Gregg said, throwing out his hands as if jerking water from them. "If we hide this thing, and try to cover it up, we'll be blamed for it, likely, when the sheriff comes in at the end. I've held my peace as long as I'm aimin' to, 'count of old man Moore. I'm a goin' to talk, and talk loud, and start the sheriff over here to see if he can scare up any track of that boy."

"I don't suppose it makes any difference who knows he's gone," said Hugh.

"It orto be knowed, and it orto be knowed right now," Arkansaw insisted. "I don't want to have no grand jury summonsin' me up and hintin' around I had a hand in it, 'y gunnies!"

"That's just about what they'll be doin', Hugh, they'll be throwin' their lead right and left, and the man that keeps still and carries this thing around with him he's the man that 'll fetch the blame. I'm a goin' to talk, I'm a goin' to tell all I know."

The old man appeared to feel that he had been put upon by Moore all day, and laid under a command of silence which was a taint upon his honor and safety. He buckled up and let down, buckled up and let down, and chewed his tobacco like a hungry calf at the teat.

"Perhaps it's just as well," Hugh granted.

"It's better, it's a hanged sight better, I tell y', Hugh. Keepin' still ain't goin' to fetch that boy back, and it ain't goin' to help me and you and Moore to slip up on them that took him away underhanded in the dark."

"Don't you reckon the snappin' ghost done it, Hugh?" Arkansaw asked.

"No, Arkansaw; there isn't any snapping ghost."

It was the first time that Hugh ever had expressed himself on that question, although he had heard Arkansaw's story many a time. Now father and son looked at him with the shocked surprise of devotees who had heard a denial of faith by a brother.

"Say, man, I rasseled it, right over in them woods!" Arkansaw protested.

"It tried to bite him—shucks! You've heard him tell it a hundred times, Hugh."

"I had m' hands on it, Hugh—I socked it in the ribs with m' fist!"

"You can't lay hands on a ghost, or hit it in the ribs, Arkansaw," said Hugh.

"Who said you couldn't?" Arkansaw asked with the surety of one whose authority is not to be denied.

"You can't lay hands on imagination. You fought something over there in the woods, I believe that just as well as you do, Arkansaw. But it wasn't a ghost."

Arkansaw was on one side of the wagon, his foot on the hub, hands on the seat, ready to climb in; his father stood similarly poised for the upward lift on the other.

Arkansaw roamed his eyes around the little cleared space in the corn, where the work was being done, and farther over to the margin of the field and the dark fringe of trees and brush along the shore of Skillet Lake, where his forest of dread memories began.

"If it wasn't a ghost, it was a devil!" he said.

"It's been seen by plenty of other folks, Hugh, if you don't want to take Arkansaw's word," said Gregg, a little sad over this late discovery of Hugh's treasonable belief.

"What 'll you do if it busts out of the brush along in the night and tackles you?" Arkansaw asked, hitching himself on his ground leg a little closer to the wagon.

"Yes, you ain't got no gun," said Gregg. He lifted himself a little, like a swimmer at a float trying the buoyancy of his body, making sure that he was set for a quick scramble into the wagon in case the dreadful specter should break all ghost conventions and make a dash for him out of the corn.

"It will be welcome," said Hugh, still unmoved.

"It's got breath as hot as a lime-kiln!" said Arkansaw.

Plainly both father and son were hattering themselves up to a state of skin-creeping fear. They looked around the valley, where everything drooped and hung limp after the day's battle with the sun, with senses tuned to the highest imaginative strain. It was very still there. No wind was moving, not a chirp of bird or insect sounded. All life was panting in this first respite of the hard-wearing day.

"I wouldn't be in your shoes to-night for a thousand dollars!" said Gregg, a shiver running over him. He lifted himself again in that little muscle-trying pull, this time keeping only the toe of his shoe on the ground.

"Not for double it!" said Arkansaw emphatically.

Gregg looked across at his son, his head turned a little, as if he had heard something moving, and listened sharply for the sound of it again. Arkansaw caught his breath, the color sinking away from his brown cheeks, and stood with mouth open, like a man stretching every faculty of caution that nature had given him. With sudden accord both of them heaved themselves up to the seat. Gregg threw off the brake with such sudden release that a little cloud of dust rose out of the bones of his old wagon. Arkansaw leaned over and lashed the drowsing horses into sudden activity.

The wagon went bouncing over the furrows, its end-gate jumping in the grooves. A little way along Arkansaw looked back; then Gregg. They looked as if Hugh's determination to stand watch there all night had placed him beyond nature. With every turn of their wheels their self-kindled fear increased.

Arkansaw "put the bud" to the team with unreasonable vigor; every blow of the long hickory gad across their ribs came sharply back to Hugh where he stood watching their undignified flight from terrors which they had raised by words. The team was on the gallop the last he saw of them, and Gregg was leaning over the dashboard, pushing on the lines.

CHAPTER XVII.
THE RIVER THREATENS

Arkansaw, being under no vow, and finding curiosity stronger in the fresh light of a new day than his courage had been the evening past, returned to the scene of exploration next morning. He skulked up cautiously through the corn with a shotgun in hand, like he was creeping up on game. Hugh was sitting in the tent door, reading his little blue book.

"Gosh!" said Arkansaw, standing the butt of his gun across his toe, making free with his big handkerchief on his face, "I felt my hairs drop down like a pacificated purp's when I saw you settin' there, Hugh."

Hugh put his little book in his pocket.

"Oh, she's all right," Arkansaw replied, grinning to see the schoolmaster blush. "John didn't show up?"

"No."

"Anything come around?"

"Moore and Juliet came down a little while after you left me up to supper."

"You didn't—wasn't nothing else happened in the night, Hugh?"

"Not a thing."

Arkansaw stood thinking it over, looking at the toe of his boot where his gun-stock rested.

"You don't expect him back, neither, honest and square, do you, Hugh?" he asked, looking up suddenly, like he had plotted to surprise the truth out of the schoolmaster.

"I don't know what to think about it, Arkansaw."

"Mystery says he won't never come back. I reckon you'll believe her, won't you?"

"In the light of all that has gone before, it seems only reasonable to believe that we've seen the last of John Randolph, Arkansaw. Is the river still rising?"

"Yes, it looks like the old man's marycle's goin' to turn out all right. That dadgan river she's a hummin' this morning nearly as high as she was last spring, and still a comin' up."

"It begins to look like a flood."

"The weather man in Kansas City, he telegraphed to the postmaster at Richfield to watch out for fifteen foot more of a rise that's comin'."

"When was that?"

"Last night. The postmaster sent the telegram over to Joel, and Joel he's roustin' out everybody along the Narris that can handle a shovel this morning to go up and throw a levee acrosst a weak place at the head where the river might bust in."

Hugh stood looking at Arkansaw as if he did not credit the evidence of his own ears.

"You mean they're going to throw up a levee across the head of the Narris to keep the river out—is that what you mean?"

"That's sure what I said."

"There's no danger up there," said Hugh with confident finality.

"There's a dreen that's been cuttin' down through a low place, and Joel he's afraid fifteen foot on top of what's already in the river might put her in there. Mo-nees! if she ever got a little stream as big as your arm started through there it 'd be Katy-bar-the-door for these here folks down in the Narris."

Arkansaw was anxious to be on his way to the head of the Narris, where he knew he would find a hungry crowd eager for his news from the treasure-hunter's camp. He had not been gone many minutes when the Narris dwellers began to arrive investigating the matter for themselves, the word of Randolph's disappearance having spread.

They were a poor, suspicious and credulous people. They lived scantily, and with little effort, and died in dry senility without resistance. Resistance of anything, save the innovations of civilization and progress, was against the Narris creed.

They did not marvel among themselves aloud, nor ply Hugh with questions nor inflict him with their opinions. Mainly they stood and stared with dull tobacco-drugged eyes, storing up sensations and theories to be discussed among themselves by and by. When Caleb Moore came up presently they drew off, afraid of his stern face.

Moore bore the marks of a worrisome night. His face was drawn into the look of age, a sad anxiety in it that was as sharp as a cry of pain. He spoke sparingly to Hugh, asking no needless questions, advancing no hollow hopes. Often he stopped in his slow, thoughtful walking about the tragic spot, drew himself up and stood with clenched hands and frowning face as if protesting against the unreasonable puzzles which had been set before him so frequently and so long.

"I suppose it is a matter that will have to be reported to the authorities if he doesn't come back to-day, Hugh," he said as he turned to go back to the house.

"I expect Gregg has done that already."

"Not because of any good the county officers can do," said Moore, "but because suspicion grows foul in the narrow minds of the people around us. God knows I have lived under a cloud of it long enough—I sometimes think I could not bear any more."

"Vindication will come in all things. Mr. Moore, as it has come in some of

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them, as it is coming in others. They laughed when you held out that the steamboats would come back to the river, but they are here."

"I'll never live to see it cleared away, Hugh. The going of this boy tears me like I'd lost another son."

"Have you heard that the river is threatening to break over into the Narris?"

Moore's breath stopped between his lips, his face grew pale. Where one would have looked for justified triumph there was only a dead grayness, a straining as of an added pain.

"I heard that it was rising, I didn't know it was that high."

"Langworthy and others are at work up there this morning building a levee across the lowest place. The weather bureau has sent out a flood warning."

Moore shook his head, his sadness still upon him.

"If it's to come in at this time it will come, in spite of all the levees they can build," he said. It seemed that he did not believe the fulfilment of his word was imminent. The news of the approaching flood appeared rather to overwhelm him and make his senses dull by its stupendousness. However it may have been, whatever turmoil it had stirred in his soul, the old man stood now looking away up the valley, choked with corn and elder-thickets, spread with green pastures and mowed meadowlands.

"I must tell Juliet," said he after a while, wrenching his gaze away from the line of trees that marked the head of the Narris. "I must tell her all these things, I must take away from her the last hope. Poor boy, poor boy!"

Moving slowly, as if his feet were numb, the old man left the schoolmaster, saying no other word. He did not glance behind him, nor lift his head from its thoughtful droop. His hands were clasped behind his back; there was a stoop in his shoulders, as if he had become suddenly conscious of the burden of his years.

All that day and night Hugh Atchison stood his vigil at the grave of the Morning Star, with little hope that the treasure-hunter would return. But there was a purpose in his watch aside from that small hope, although he made no mention of it to any living soul.

He slept little that night, and woke at dawn to doze no more, dew-chilled and heavy with a feeling of sickness. The dread of that man-swallowing mystery had grown on him during his solitary watch until it drowned him now in shadow and drenched him in fear. It was the soul-deep, primitive fear that comes over a man in the dark, the inherited terror of creeping monsters converging upon that little point of earth where his shuddering body stands.

After the sun had warmed away the paleness of his face and widened the circle of security around him, Hugh went to Moore's to report his empty night. The old man was watching his coming, and met him midway between gate and porch. There was no need asking questions; the schoolmaster's sad face told the news like a head-line in a red-letter newspaper.

Moore himself had been out of bed since before day. Ever since the steamboats had begun to ply the river he had spent a great deal of time on his second-story porch watching the stream through his field-glasses. But this morning he had not been watching for boats. The growing flood had held his eyes. He seemed saddened by it rather than rejoiced, as if he had called a stern and awful judgment upon those who had condemned him and made his life heavy, and that the shadow of it came sadly over his soul.

"If I had been firmer, not so foolishly responsive to the quick fire of youth, I could have saved him," Moore said, as he walked to the house with Hugh. "I should have denied him, I should have been firm to my old stand on the exploration of this thrice-cursed wreck!"

For a little Hugh was silent. Then: "I haven't given up hope that he'll come back to-day."

"You're a man out of a thousand to do what you have done, waiting down there through the night. I wouldn't have done it, I wouldn't have done it for all the gold in all the lost ships of the sea!"

Hugh looked at him in surprise, scarcely able to credit his ears. Moore did not turn his face; there was no sounding to be made of his eyes, no hazard of what lay behind his solemn declaration. Now he went on:

"You know me as a practical man, a man of material qualities, in spite of my current notoriety for unsoundness." He turned quickly to Hugh, in more of appeal than question.

"I never have doubted your balance, Mr. Moore."

"But I am either insane or I have seen what man— I have been warned. This sad event was foreshadowed to me. I tried to make it plain to that poor lad. Hugh Atchison, I have seen—I have seen—"

Moore stood, his hand trembling on the back of his chair, sweat starting suddenly from his forehead. His words were left swinging there like a broken bridge. He said no more, only stood there looking about him in a manner of fearful surprise, like a man finding himself walking abroad in his sleep. In a few moments he sat down again, and remained silent, as if his thoughts had dissolved and all recollection of his disturbing subject had passed away.

Hugh did not press him to resume it, but a sudden question of the old man's soundness had risen in him. Seeing that he was not going to pursue his remarkable declaration with any clarifying discussion, Hugh spoke of the river.

"Yes, the river looks big enough to-day to tear its way through the hills over there," said Hugh.

Moore began to march up and down the long porch, his shoulders pulled back, the briskness of his accustomed strength returning to him.

"Let them build their levees to keep the river away from me, let them shape up their little wall of sand! In God's own time and way the river will come back to the Narris, and to me, Hugh Atchison. And when it comes, I'll be ready for it. The boats will be stopping at my dock again. Price City will be revived."

In his excitement Moore walked away and left the schoolmaster, striking off across the lawn as if going to greet the first boat at his ancient wharf, the sun gleaming on his white head.

Juliet came out timidly. She stood a moment near the door, looking across the lawn toward the old man, and then came swiftly, gliding on tiptoe, to the place where the schoolmaster waited his host's return. In his troubled amazement over the old man's sudden erratic mind, Hugh had stood mentally groping, like one feeling for a door in the dark.

"He's been talking about the river coming back," she whispered. She was nervous and anxious, pale and worried. All of her movements were quick and furtive, as if she feared a rude sound would bring some new calamity.

"He spoke of it, Miss Juliet."

"It seems to have taken possession of him—he was up before day, he hasn't talked of anything else."

"The event justifies it, Miss Juliet. The river never has made a midsummer rise like this in the memory of man, they say."

"Do you believe it will break over into the Narris, Mr. Atchison?"

"There's no telling—it may. It must be that the danger of it is grave, or they wouldn't have gone to the trouble to build the levee."

"Grandpère has taken that greatly to heart, as much as he despises the uselessness of their effort. He seems to feel that Joel Langworthy has turned against him in that simply humane work to protect lives and property. I'm afraid, Mr. Atchison, that this new trouble over Mr. Randolph, and the excitement of the boats and the flood, have combined to strain his reason."

Hugh shook his head as if to discount her well-founded thought, glad that the old man had turned and was coming back to the house, walking fast.

"I'm going over to take a look at the river at close quarters," Moore announced. "It will be a sight worth seeing this morning, Hugh. Juliet, would you like to go?"

"I think I'd rather not, grandpère. I'm afraid of it when it hurries along that way, full of drift, and spreads out over the fields. It's the cancer of rivers, Mr. Atchison, it eats away fields and homesteads under its horrible black current."

"You have little cause to love it, my poor bird!" the old man said. He took up his soft black hat from the chair where he had thrown it, covered his white head and left them. They watched him go in silence, but there were tears in Juliet's eyes.

Hugh could see in her face that which told him life had broken off for her, leaving her shuddering on the lip of a chasm which her hope could not leap.

"I was going down there,"—nodding toward the wreck—"to see you this morning, Mr. Atchison, and beg you to give up this watch before this terrible mystery takes another life. Maybe you could do more if you turned somewhere else, maybe you could find some trace of where he went."

"I've been thinking the same, Miss Juliet, only for one reason I want to stay another night at the camp. Then, if nothing happens, we'll turn to other places."

"Where could he have gone—what could have happened to him?" She seemed to protest, impatiently, against the tangle that she could not penetrate, like one struggling against invisible bonds.

"It seems impossible that a strong and healthy man could drop out of sight that way, just like he'd walked into water," the schoolmaster said.

"If none had gone before him, in the same way, and in the same spot, it wouldn't be so—so stifling! You know how the others disappeared—just like they'd walked into water, too."

"It's heart-breaking, almost maddening, thinking of it and struggling with it," he said. "But what man has devised man can penetrate."

"Oh, it's cruel, it's unjust—the way these troubles come to us! This last blow is hardest of all—he was so courageous and honest! Oh, it's unjust, unjust!"

The words burst from her passionately; she stood straight and protesting, as if challenging the hidden force that had wrought so evilly in that family, and with all who touched it, to come into the open and fight where it could be grappled. A warmth kindled in the schoolmaster's heart for her, the glad, quick feeling of a wanderer who meets a friend in a far desert land. He knew what it was to hasten to meet hope, and turn away with empty hand.

"I will find out what has become of him—if I have to give years to it. I'll find out."

The schoolmaster spoke with no dramatic inflection, very quietly, but entirely convincing of the force behind his declaration.

"If you can find him—Oh, if you can only find him!" she said.

"Here is Langworthy coming," the schoolmaster said, looking down the road that ran like a mown swath through the corn.

CHAPTER XVIII.
VOICES IN THE NIGHT

Joel carried himself like one sent for and arriving full of concern. His face expressed with fine shading a mingling of surprise and shock, bordering on fright, and in his earnestness to throw himself into the service of Juliet Moore in solving this last and greatest tragedy

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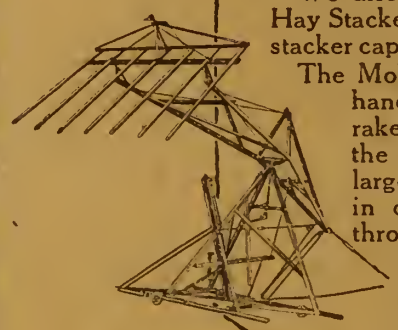

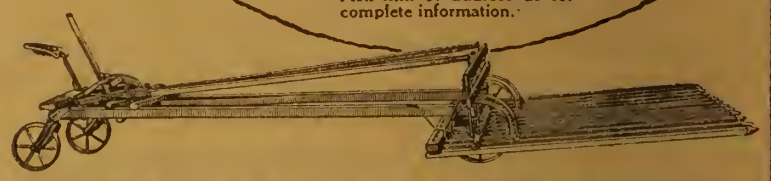

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of her sad house, he took no pains to turn his blasted cheek and hold it out of sight.

"I would have come before," Joel hastened to explain, "but I was heels over head in work on that levee. I couldn't take the story of his disappearance seriously yesterday, anyhow. I thought, just like you must have thought"—to Hugh—" that he'd gone on some sudden business and forgot to leave any word."

"We thought so yesterday," Hugh said, willing to put aside his dislike for Joel in the face of this friendly spirit to be of help where sharp minds and steady heads were needed in that hour.

"But he hasn't come," Joel shook his head, "I cut through past the camp to see."

"It is such a perplexing thing," Juliet complained, in her manner of throwing herself against the barbs, "that between the dread anxiety we are almost crazy. What do you think about it, Mr. Langworthy? How can a man disappear that way?"

"Well, the earth doesn't swallow men—especially not in Missouri, Miss Juliet," Joel said, the clear beauty of his cold face presenting in sharp outline as he turned his head to look down the cornfield road.

"Then you think he's still alive? You think you can find him?"

"I think we may find him, but I wouldn't go so far as to say we'd find him alive." Here Joel turned to Hugh again. "My theory is that he went to the river for a swim. The Missouri is a dangerous stream for a stranger."

"Oh, you believe he's drowned!" A shudder ran over her, as if she felt the thick waters of the Missouri dragging her down among the secrets which they covered and the crimes they hid.

"Did the others before him go to the river for a swim?" Hugh asked, with a cold contempt for this hypothesis.

"There's only a network of myths and superstitions to be faced in connection with the others," Joel replied, rather hotly. "We haven't a thread of evidence that they ever disappeared from here, or that they ever disappeared at all. You've got to prove corpus delicti in any case before you can establish that a man's dead."

"Then if Randolph never turns up dead, we are to take it for granted that he sneaked off and is still alive," said the schoolmaster, his scorn deepening.

"We'll not argue it," said Joel.

"No, let's combine all our efforts to find him, living or—dead."

The word was hard for her to speak; it seemed to stick in her throat like a burr. Joel looked away, as if his fine delicacy forbade witnessing her pain over the absence of this stranger who had come among them to dig for the golden key of the world.

"The best that I can offer you of my own efforts, Miss Juliet, and all that I can command in others are at your service," Joel said, with a certain high dignity to which even Hugh, with all his prejudice, was not insensible.

Juliet searched Joel's face for that subtle, unread something that had made her shrink from him and grow cold in his presence. To-day that repulsive mystery was absent; his face was as clear as sunshine.

"I expect the sheriff will be down this morning," said Hugh, "in fact I expected him yesterday, for Gregg left here determined to report to him."

Joel shook his head with frowning disapproval. He looked quickly at Juliet. "Does Caleb Moore approve such haste?" he asked.

"I'm afraid he doesn't," she told him sadly. "You know his dread of notoriety."

"He's right about it, too, in my opinion," Joel said. "If Randolph's seen fit to take his foot in his hand and walk off, the sheriff can't find him any quicker than the next man, and if he's just away on business he'll resent the flurry and publicity over it just like you or I would, Mr. Atchison. I'll go over to Richfield and telephone him not to come—I've got plenty of time to catch him before his train leaves."

"Perhaps it would be best," Juliet said. "Surely, if you two men can't find him the sheriff will be useless."

"You give us too much credit for our sharpness, Miss Juliet—at least me. I am as dull as an iron wedge, but I can put two and two together when I see them before my eyes."

Joel said it with a wise turn of the head, as if he hinted that he could piece out circumstances unseen by others to account for Randolph's disappearance if he wanted to be so blunt and ordinary as to speak his mind in the presence of a lady. Juliet must have caught this shrewd shadow in Joel's face, for she glanced up at him sharply, her cheeks fading pale again.

"You don't believe he's drowned!" She spoke accusingly, as if she felt that Joel had advanced that theory with the plain intention to deceive.

"When I said that, I jumped to the worst conclusion first," said Joel. "That possibility remains, for Arkansaw says he was always harping on the lack of decent water to swim in around here. School-teacher must have heard him."

Joel made short work of his withdrawal from Juliet's presence, usually enlarged to a ceremony. No further word passed between him and Hugh, although Joel turned the black side of his face on the schoolmaster with malignant look as he went by to mount his waiting horse at the gate.

With Joel's going Hugh returned to his post beside the old steamboat's grave. The day flamed up, and all green things on the shores of the Missouri hung limp as if fire had been kindled under their leaves. The river itself, grown great with its flood water, ran brown that day. The tawny yellow of its slack and lazy days had deepened, like the mane of a lion grown old.

Nobody came to break the long silence as the schoolmaster waited out the day in the shade of Randolph's tent; not even Arkansaw, moved by his fearful curiosity, nor Joel Langworthy, to carry out in deed his ardent protestations of willingness to serve. Only at evening when the sun had gone and dusk was falling, Juliet herself came, sorrowing as one who mourned the dead.

"Grandpère has gone to look at the river again," she said.

"Is it still rising?"

"Yes, or it was this morning. Oh, I hope it will not go any higher. It seems like disaster is hovering everywhere around us that it hasn't fallen already. Even grandpère—even grandpère!"

She sat on the box that Hugh had placed for her. He stood near, tender in his pity for the sorrow of her young life.

"He seems altered. I noticed it this morning," he said. Then quickly, in deprecation of what had slipped him. "It's this onrush of sudden excitement and worry. It's nothing for you to take trouble over, Miss Juliet. Naturally his interest in the river is very strong at this time."

"After all that he has gambled on it," said she, too weary and dispirited to put much stress of bitterness into her words.

"We're all gamblers in this life when it comes to that, Miss Juliet, but your grandfather has been a little more—a little more—"

"Spectacular," she supplied. "I didn't mean it just that way, I was casting around for something softer. He has been conscientious, he has played his game like a man."

"And paid his losses out of the hearts and souls of himself and his family! Mr. Atchison, poor old grandpère is paying the last stake with his reason—he is going mad."

"Oh, not so bad as—"

"I can see it. I have seen it in flashes and glimpses for the past two or three years."

There was no need in attempting a lame denial of what he had felt all day to be a fact, so Hugh did not undertake it. He walked away from her a few steps, the somberness of the situation pressing upon him a heavy load.

"Mr. Randolph had seen it, he could have told you."

"He didn't mention it to me," the schoolmaster said.

Juliet went to him, looking about her fearfully into the gathering dusk.

"Mr. Atchison, if I believed—if you believed—there were such things as demons and spirits, I would say that grandpère has seen them at the window in the night. Twice when Mr. Randolph was there, the last time on the night before he—went away."

"Did he see something that disturbed him?"

"He seemed to see something that turned his blood to ice. We couldn't see it," she whispered, "we looked—he threw a tumbler through the pane—but there was nothing, nothing that we could see!"

Hugh recalled what the old man had said of the warning that he had received, and wondered how much of it had been ghostly. No more of it, he believed, than had been ethereal of Arkansaw's snapping assailant which had turned to bones under his hand.

"The Narris is a place of strange fancies, Miss Juliet. I think they waver up from the accumulation of old tragedies which lay here unsolved."

"I haven't been free from them to-day myself," she confessed, nodding with the serious gravity of a child. "Several times this afternoon I thought" — she looked about in the deepening gloom, turning her white face this way and that as if she feared a surprise—"I heard somebody calling me. I heard it so plainly that it was all I could do to hold myself back from running and answering, just like I'd do if I knew somebody in the last extremity was calling on me for help. It was the strangest fancy! It left me tired and old."

"Nonsense! You're only a little tired-out girl, Miss Juliet, to be taken by the hand and led home. You musn't talk of being old, life is all before you yet, you've scarcely bitten into it with your baby teeth."

"There can be too much life in front of us sometimes," she sighed, with a forecast of tears in her wavering voice, "but do you know, Mr. Atchison, when I imagined I heard that voice calling me, urging me, drawing me on, I felt that it was—his, and that he must be alive."

"You're tired, you need rest away from these old troubles and new perplexities, poor child! We'd better be going back to the house—it's going to be so dark in a little while that you can shovel it like snow."

"There!" she whispered, straining forward eagerly, lifting her hand for silence. "There—there it is again! Did you hear it—did you hear it?"

"We'll go back now," the schoolmaster said, holding out his hand as if to lead her home. A great pity smote his heart, crushing it like a grape in the press until the balm of his sympathy flowed out to her, and laved her as if to purge away her sickness. For in that moment he believed that the taint had reached this fair young creature bending there like wheat in the wind, listening for a sound which mortal ears never heard. Juliet Moore was mad, mad as her old grandfather who nursed a nest of fantoms in his breast.

She turned to him, drawing her breath deeply, as one who sighs for an incomplete melody lost over the waters at night.

"Somebody was calling my name, whispering it soft, like the wind. I heard it as—there!"

She started away with a sudden bound, ran a few paces, stopped; leaning again in her eager, drinking pose. Hugh sprang after her, thrilled with a new terror that made every nerve in his body crackle.

"Juliet!" he called sternly; "Juliet!"

She faced him, starting as if he had roused her out of sleep. She held out her hands gropingly, confusion in her shadowed face and troubled eyes.

"Oh, I thought somebody—it was the same that I heard before, calling my name—down in that direction. I thought maybe it was—I thought it might be—"

"There is nobody calling you, Juliet—there is nobody calling you," said the schoolmaster slowly, as if repeating a hard lesson to a dull child. He laid his hands on her shoulders and bent near to look into her eyes, where there was a cloud as from vaporings of a subtle narcotic.

"Oh, how foolish of me!" she said, still far away from him in her understanding, like one staggering and sleep-heavy.

"When that fancy comes over you, Juliet, fight it, throw it off. Take hold of something, this way," he grasped her hand and wrung it sharply, "and pull yourself back, pull yourself back!"

"Back!" she repeated, still a little dazed.

"You must not listen to it, you must not listen to it, Juliet!"

"What is it, what makes me think—"

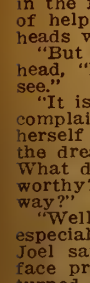
"It is madness, death!"

"Oh, if I could only sleep, and forget for one little hour!" She pressed her palms to her eyes as if they throbbed and ached. Presently the schoolmaster saw that she was crying into her hot little hands; her piteous low sobs came struggling against her will to hide them in her sore sad heart.

That grief was not the sorrow of childhood, those moans were not the lamentations of youth. Juliet Moore, the fair, the young willow swaying in the wind, was dim as one far away in his recollection then. This woman stood shuddering as one grown old under many sorrows; the voice of her affliction bitter as the pang of death. World-old was her plaint uttered into the falling night, world-gathered her inheritance of pain. In all places, in all times, a woman must stand in the end to weep her best-beloved.

"To-morrow you will leave the Narris," he said. "I will speak to your grandfather about it, he must send you away—back to New Orleans, or somewhere out

(Turn to Page 26)



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Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

Raising Hogs on Shares

I bave a farm of 160 acres, in Morgan county. The place is rented. I receive ½ of the alfalfa and ⅓ of the small grain. If I provide the pens and the stock, put in my share of the alfalfa and small grain, and my tenant takes all the care of the bogs and puts in a like sbare of alfalfa and small grain, and we share tbe losses equally, what share of the profits should come to each of us? Or wbat would be an equal division of the profits? I bave over a hundred acres in alfalfa, leaving 40 acres or more for grain. We would not range the hogs on all of the alfalfa. Wbat breeds of hogs would you prefer? Would you advise getting purebred or grade hogs? Or could both be managed together? I do not wish to go into tbe business too extensively at first.—E. W., Jefferson county, Colo.

I judge from your letter that you and your tenant would each furnish half of the feed for the hogs upon your farm. Doing this and sharing losses equally, you should get half of the profits. You have the interest on the original stock, and depreciation and interest on the pens and fences to stand. This is offset by the tenant's labor. Where only a sufficient number of hogs are kept, so the work may easily be done as a chore mornings and evenings, the labor item will not be heavy enough to put an undue burden on the tenant. If the farm should be turned mainly into a hog farm, then the labor involved would be heavy in proportion to the amount of interest and depreciation. As to breed of hogs, I can advise only upon the basis of popularity of breeds in this state. There may, of course, be a better breed than any that have been used and proven good in a given section of the country, but generally it is a very good test of the value of a breed of livestock when it has maintained its place and popularity for a considerable length of time. The demand in Colorado is chiefly for Duroc-Jerseys and Poland-Chinas. Berkshires and Hampshires are both good breeds, if one gets good blood of the breed. They are not found on the Denver market nor in the hands of farmers to the same extent as Durocs and Polands. I would advise you to start with grade hogs. If the tenant stays permanently by the position and proves to be a competent hogman, you may then think of going into purebreds. The breeding of purebred stock involves much more than the raising of hogs for pork production. A rigid selection must be practiced or a herd gets nowhere. With pork hogs, everything goes to the market with the exception of a few good sows that are saved out. If these sows are not as good as they should be, the next generation can be materially improved by the use of an extra good sire. In the case of purebreds, this is much more difficult and involves the use of more costly sires. G. E. M.

A Churning Oifficulty

Would you please tell me why we cannot make butter from our Jersey cow's milk? We have churned as long as two hours and did not get any butter We have a dairy thermometer and get it at about 60 degrees for churning. We have been getting it in about fifteen minutes until the last week. She took the bull last November; her calf is about seven months old. She has not fallen off in her milk yet to speak of. This is her fourth calf. She was like this about a year ago. I am feeding her good alfalfa, about 50 lbs. of beet pulp a day, she has all the salt she wants. We cannot whip the cream so it will get thick eitber. Could you tell me why it is and if there is any remedy for it.—E. S., Utah.

I cannot tell just why your cream from one cow will not churn. This trouble is much more frequent where one cow alone is milked than where you are milking a herd. Apparently the fat globules for some reason loose their viscosity, and the butter fat will not gather. You are using the proper temperature for churning, but it is quite possible that in saving the cream from one cow the length of time necessary to get enough to churn, you have some very acid cream and some that has just been skimmed with no acid in it. The mixing of such sweet and sour cream does not give satisfaction in churning. Occasionally, the putting of a little salt in the cream will cause it to gather when otherwise it would not. I saw a statement just recently that a tablespoonful of baking powder put in cream that would not churn would cause it to gather. I have not had a chance to try this out since seeing the statement. If you try it and it works, I would be glad to learn it. The feed you are giving is not the cause of the trouble. The average fat test of a Jersey is 5.5.—G E. M.

Inefficient Cream Handling

I am milking 15 cows and market my cream at the local cream station about twice per week. We are very anxious to place our cream on the market in the most sanitary condition, but the operator of the cream station returns our cans so unclean that it is almost impossible for my wife to clean them with the facilities we have on the farm. It seems to me there should be some way of inducing the operators of cream stations to clean all cans before they are returned to the patron. Besides tbe unsanitary condition of the cans the amount of cream that adheres to the cans is quite an item. I sold a can of cream yesterday that tested 42 per cent butter fat, and as near as I can estimate there was about 5 or 6 pounds of cream left in the can, which at the present price, if continued for a period of 10 months at two cans a week would amount to nearly double the tax on my milch cows. Of course, I can use the returned cream for bog feed, but it seems folly to do so, as skimmed milk would serve that purpose just as well.—R. M., Washington county, Colo.

The condition concerning which you make complaint is one that occurs frequently at outlying cream stations throughout the state. The State Dairy Commissioner attempts, through his inspectors, to prevent just such conditions. Colorado is a large state, and there have been only two inspectors provided for in the past, so that these men had to inspect over three hundred shipping stations, besides doing other inspection work. The Commissioner's office is in much better shape to go ahead now, however, as a bill has just passed the legislature providing for additional inspectors. As soon as the bill is signed by the Governor the extra men will be put at work, and inspections will be much more frequent. A man will be sent to your cream station, and the station operator required to handle his cans better than he has been doing. He is required to have a license for operating a station, and if he does not show a desire to run a sanitary station, his license can be cancelled.—G. E. M.

Feed for Growing Pigs

Ans. to A. T., Pueblo county:

In response to the request for information concerning the best breed of hogs and the best feed for growing pigs, I must state there is no best breed. Two breeds are decidedly more popular than any others in Colorado; the Duroc Jersey and Poland China. Berkshires and Hampshires are also up to a considerable extent. Any one of the breeds is satisfactory if good stock of the breed is secured. For growing pigs skim milk should be supplied if at all possible to do so. There is nothing that will get the growth out of pigs like skim milk. Spring rye can be sown for pasture, and when this gets to the stage where it shoots up the seed stock, green corn can be cut and fed the pigs. There should be an attempt to provide green feed throughout the growing season. With the skim milk, wheat shorts and corn meal can be fed, or milo maize meal, if it is grown in place of corn. Tankage, which is a packing house by-product, can be used in connection with the corn meal. I would feed a grain mixture of ten pounds of corn or milo maize to one of tankage. This grain mixture should then be fed in five times its own weight of milk. For example: If three pounds of grain mixture is used, feed with it fifteen pounds of milk, which is nearly two gallons. If wheat shorts or bran are used with corn, feed about one part of shorts or bran to three or four of corn. —G. E. M.

Otis Shipping Association

Western Farm Life:

I have just been reading Mr. Morton's article on co-operative shipping. It is worth any farmer's time to read it. I want the readers of Western Farm Life to know some of the benefits we have received from our shipping association.

Down in Nebraska where I came from in 1917 they had shipped for years in this way, so as soon as I had a few hogs to ship, I tried to get a few men interested. After several weeks of hard work I managed to interest a few. We organized with 17 members. We were to give our manager 10 cents per hundred for his services. The first load was a bad go. I put in 12 head of mixed cattle. Our manager had been buying on his own hook—he also had a competitior. The manager had secured 11 hogs. The other buyer wanted my cattle as he had six cattle and 13 hogs to ship. I offered to sell. We were $175.00 apart on the 12 cattle. He would not come across, so I told the manager to ship at any cost, but not to sell my cattle to the other buyer. They finally got together and we shipped the whole bunch in one car. It was light-loaded, causing excessive freight, but I received $198.00 for my trouble over what he would pay me here at Otis.

From that day to this we have continued to gain. That was three years ago last fall. We now have nearly 200 members. This last year we shipped a little over one car of stock per week for the entire year. We have applied for a site for a holding pen to the railroad company, and they granted it.

Some of our competitor buyers are able to stuff the farmers and have been known to take $1.50 margin. They seldom get below $1.00 margin. Every car shipped brings on the average of $50.00 to the farmers. This isn't much

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There is one cream separator that has been the acknowledged world's standard for over 40 years. It's the one cream separator that is used by the creamerymen almost exclusively. Dairy farmers the country over know the De Laval and its sterling quality. Experience has shown them that

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for the man who only has one or two in a load, but in a year's business of one car a week it is $2,600 to the good for the farmer.

We expect to erect scales and scale house as well as a good plank yard of our own in the near future. We charge $1.00 as a membership fee for each member. We also use $2.00 from each carload of stock shipped for a sinking fund till we get our yards erected. I hope I may see the day when every town in Colorado will have its own shipping association. I think Western Farm Life is a live wire that should be in every farm home.—A. L. Mason, President Otis Colo., Farmers' Shipping Association.

There Is No "Best" Silo

The question is often asked, what silo is the best? R. W. Clark, of the Colorado Agriculture College, says: "There is no best silo. The surface silo is more expensive than the pit silo, but aside from the first cost, it is equally satisfactory. Concrete and tile are preferable to wood and metal. Nearness to water or earth formations may necessitate the construction of a surface silo, but cost what it will, it is indispensable. Colorado erected a large number of silos in 1918, but the number is still too low. Every agricultural interest in the state should bend its efforts to increasing our supply of live stock, and the growing of silage crops and building of silos should receive special attention."

Scours and Thumps in Pigs

Perhaps the most common troubles caused by lack of proper attention to the feeding and care of pigs are scours and thumps, according to L. A. Weaver of the University of Missouri College of Agriculture. Scours are usually caused by changing the feed of the sow, overfeeding, dirty pens and troughs, or exposure of either sow or pigs to cold rain or to cold weather in such a way that htey become chilled.

Since the cause of scours is something which causes indigestion, the thing to watch especially is the feed. Changing from sweet to sour milk will often cause the trouble, as will also the feeding of too much of the high protein feeds, such as tankage or linseed oil meal, when the animal is not used to them. If the sow is fed too much, her milk flow ls so stimulated that very young pigs will get more than they can utilize, thus causing them to scour. Pigs should always be kept in dry, clean quarters and fed in clean troughs. They should not be allowed to run out in cold rain or allowed to become chilled in any way. Sows running through filth and then being suckled will often cause pigs to scour.

There are a good many remedies used for this trouble. The first thing to do is to cut down on the sow's feed and clean up her quarters if they need it. A tablespoon of sulphur in the sow's feed for two days is also good. If the sow is given a good physic such as Epsom salts, good results will follow. Scalded milk is also a good remedy. Each pig may be given a good physic, such as a teaspoonful of castor oil or Epsom salts. Charcoal is also good.

There is also a contaglous form of scours called whlte scours. The cure is to clean and disinfect pens and give a good physic.

Thumps often occurs in young pigs. It results from lack of sunshlne and exercise and from high feeding. The remedy is to cut down the sow's feed and force the pigs to take exercise out in the sunshine. Thumps may also occur in large pigs after they are weaned, but when old pigs have it, it is usually caused by some affection of the lungs or bronchial tubes.

Markings of Holsteins

Please give me the correct markings of a purebred Holstein bull.

Pine River, Wls. H. E. F.

The Holstein-Friesian Association accepts for registry, as did the Holstein and Dutch Friesian Associations before it, "only those large, improved black and white cattle," and will not accept anything which shows a reversion in color characteristlcs to anything other than black-and-white ancestry. With Holstein-Friesians the white seems to have been the prlmal color, and to have, as I may say, the black super-lmposed upon it as a body color. Thls leaves the extremities white, and forms a basis for the rejection of cattle that do not bear characteristic Holstein-Friesian color markings. An all whlte or an all black animal is rejected because an animal must show both white and black markings. An animal with a black switch ls rejected, because no Holstein-Friesian whose ancestry in uncontaminated could show anything but a whlte switch. An animal that is solld black with whlte on belly only is rejected, because such an animal shows a black switch and ln addition black feet.

An animal with black on legs beginning at the feet and extending to knees and hocks, there joining the white, ls rejected, because purebred Holsteins are not marked that way; it is the white that is found on the extremities, never black stockings and white above the tops. An animal showing below the knees, black interspersed with white, or a sort of speckled appearance, is rejected for the same reason as is the one with black stockings. An animal showing the black and white hair so mixed as to produce gray is rejected, because no matter how large or how small the spot, with a purebred Holsteln the spot will be clearly either white or black. An animal showing patches of other colors than black and white is rejected, because such colors show impure blood in the ancestry. A red and white animal is rejected because black and white are the only Holstein-Freisian colors.—Malcom H. Gardner, in Hoard's Dairyman.

Year's Profit From Cow $400

"Rocabie," a registered Holstein on the W. A. Purvis farm, has established a year record that is a wonder. During a year which has recently ended she produced 17,282 pounds of milk, which in turn produced 634 pounds of butterfat, the equivalent of 799 pounds of butter. The milk was sold at the condensery in Johnstown for $411.10. The cow's feed during the year cost $200.27, which leaves a profit from her milk production of $210.73 for the year. Aside from this she gave birth to two heifer calves which are eligible to registry and can easily be valued at $100 each.—Johnstown Breeze.

Summer Feed for Cows

While visiting a successful dalryman last summer, he showed me records proving that hls cows were giving as much milk during "fly-time" as they gave during May. I asked how he protected his cows during the summer so as to get such results. He told me that he noticed that cows got very little food from pastures during July and August. So he fed them plenty of ensllage and grain. And when he knew he would be short of ensllage, he had planted a field to sweet corn, which was ready for usé just when the pasture failed. This was fed green—enough being cut each evening for a day's feed. At other times, he had used feterita, kafir and cane in the same way. His experience led him to think that the falling off ln dalry production during the summer ls caused by lack of feed instead of by hot weather.—J. E. Payne, Agriculturist Frlsco. Ry.

Against Road Bonds

To the Editor:

In looking over your paper I came across an article "Shall We Vote Bonds?" I, for one, say we should not, as the farmer has enough taxes to pay at present and usually this money is used on roads where it does the farmer very little, if any, good. I also see a heading, "A Call for Organization," in the February 1st issue. I am for a good, sound Farmer's Union. It is just as this farmer says, the farmer takes what he gets, or what he is offered for stock and grain and pays what the other fellow asks. He has no voice in the price making of anything that he produces. If properly organized we would see how much different this would be. At present a man cannot even get a machine to suit his requirements. I have been trying to get a low down press drill, Superior make, size 20 x 7, to cover 140 inches; just the width to cover my engine gang, that is 10 14-inch moldboard bottoms; but they tell me that they are not allowed to manufacture this size. So there you are, the farmer has to take what he gets both coming and going.—A TRACTOR FARMER (who has plowed from 1,000 to 3,000 acres yearly since 1913).

Teat Cups Stay On Without Tying

EMPIRE teat cups "stay put" on cows with big teats or small teats, even or uneven udders. Their regular, gentle action is far more effective than hand milking and induces the cows to give down freely. Mr. J. P. Davis, Alliance, Ohio, says:

"After three years of Empire Milker service with our Holstein herd we can state that it milks the cows cleaner, quicker and better than hand milking. We consider it a paying investment. One of my sons milks from 22 to 25 cows in less than an hour with one double unit and one extra pail. It is quite a pleasure to milk with the Empire, *no changing of teat cups for different size teats.* It is easy to put teat cups on and see the machine put milk in the pail while the cows are at perfect ease. The cleaning of parts is quickly and easily done. We would not think of keeping our dairy without our Empire Milker."

From all sections of the country we get equally satisfactory reports from Empire users. They all agree that Empire Milking Machines cut dairy cost, insure cleaner milk and solve the hired help problem.

You, too, can increase your herd and handle it with less help. Write for catalog 28 and let us arrange for a demonstration with our local dealer.

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THE UNITED STATES DISC SEPARATOR

World's Record Skimming in Your Dairy

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You can make a world's record every day in close skimming by using the world's record cream separator.

Besides this the **United States** Disc Separator has constantly introduced new mechanical achievements that mean easy cleaning, easy running and long life. Seven exclusive patents on such refinements have been granted within two years.

Ask your dealer to demonstrate.

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BELLOWS FALLS, VT.
Chicago Portland, Ore. Salt Lake City
U. S. Farm Lighting Plants and Engines

Watch your newspaper for this advertisement telling where you can see the United States Separator. Agents and dealers wanted in some localities.

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Minnesota 13 At 7000 Feet

Rouse, Huerfano Co., Colo.,
February 24, 1919.

I received a letter from Mr. Kidder, county agent for Huerfano county some time ago and he said that you were the man who sent the seed corn (Minnesota 13) to be tried in this county. I received 10 pounds of the seed to test here at an altitude of 7000 feet. We had an extra late and

J. L. Morris in Field of Minnesota No. 13 Corn, Santa Clara Mesa, Altitude 7,200 Feet

cold spring to start with and I did not get the seed in the ground until May 22nd and then the ground was so dry and cold that I only got about one-third of a stand at first. The balance came up about the first of July. On account of the two-thirds that came up late, I was unable to plow it as soon as I would like to have done but gave it three good plowings during the season. The corn grew from 7 to 9 feet high with heavy foliage. The corn that came up first made fairly good corn and I got some good ripe corn from it which I expect to plant this year. I have not tested it as yet but I expect to have it all tested within the next two weeks. The fall was late here last year, but real dry.

It was really too dry to let the corn mature properly and I think that if it had had more moisture in September, it would have made larger and riper corn. The ears ran from six to ten inches long with good deep grain. It would have yielded somewhere around 60 bushels per acre if it had all ripened. I don't think it had a good chance to prove itself last year as it was such an off year. But I am going to give it a good test again this year as I am much impressed with it. I think it will make the best of silage and that is what I want it for. I am going to plant between 15 and 20 acres of it this year. I am going to get my corn ground plowed as early as possible and keep it worked down until time to plant. I want to get it planted about three weeks earlier than last year if possible.

I think that with proper culture, Minnesota No. 13 ought to make good in this state, especially in the lower parts of the state. There seems to be several different types of ears and grain in the 13; I am taking different types of ears and am going to plant them separately to try them out.—J. L. Morris, in Boulder County Farmer's Exchange Bulletin.

Profitable Livestock Feeding

Profitable livestock feeding, due to the unusual conditions, and particularly to the high prices of hay and grain, has become largely a matter of utilizing roughages to the fullest extent. Farmers who have or contemplate building a silo are fortunate, indeed, for they will be in a position to meet the situation and produce the maximum amount of milk, beef and mutton most economically. Evidence that the silo has become an actual necessity in most sections of the country for the production of these staple food products is not only borne out by the many experiments conducted by the different experiment stations throughout the country ,but by the experience of thousands of farmers everywhere who have changed from old to the new way of utilizing the corn crop.

There are many advantages in the use of the silo, but the principal one is that silage is the cheapest and most profitable form in which a succulent feed for winter use may be provided. Being a succulent, palatable roughage, it permits the use of the oil by-products, such as cottonseed meal, oil meal, peanut meal, velvet beans, etc., which are among the cheapest sources of protein. Owing to the nature and feeding value of silage, cheap and practically unusable roughages may be used profitably for wintering livestock. It has been found that straw and cottonseed meal, when fed with silage, are superior to timothy hay fed with silage. Its value is equally as great when fed in combination with the commonly produced legume hays. The cost of practically all rations for ruminants may be greatly cheapened by the use of silage.

Perhaps one of the greatest values of silage lies in the fact that it enables the farmer to greatly increase the carrying capacity of his farm. It ordinarily takes the production from one acre of meadow to carry a 1,000-pound steer or cow through the winter. The same area, if planted to corn or sorghum and put into the silo, would carry three or more such animals, the same being true when fed to fattening cattle or for the production of milk. Approximately the same amount of feed may be produced from one-third the area of crop land thus used, or three times as many animals may be fed from the same acreage.—U. S. Department of Agriculture.

Farm Land Values Increase

The value of farm lands is increasing steadily in the United States, the average for average grade plow lands being about $74,31 per acre on March 1, as compared with $68.38 a year ago, $62.17 two years ago, and $58.39 three years ago.

Great percentage increase in values during the past year occurred in the South Atlantic states, in the Carolinas and Georgia, and extended to Alabama, Kentucky and Arkansas. Small or no increases were made in the New England states, the Pacific coast states, and Louisiana, Texas, Kansas, and Montana. Material increases were reported from Nebraska and South Dakota.

Iowa stands first in value of plowing lands, her average being $169 per acre, followed by Illinois with $144, California with $121, and Indiana with $100. Alabama reports the lowest average value of plow lands, at $24 per acre, and Mississippi next, at $25.

The following are figures for Western Farm Life states:

	1919	1918	1917	1916
Wyoming	$43.00	$41.00	$30.00	$27.00
Colorado	60.00	55.00	55.00	50.00
New Mexico..	45.00	42.00	36.00	31.00
Utah	95.00	86.00	70.00	60.00
Idaho	76.00	70.00	58.00	53.00

Farmers and Dairymen

This is to announce that I have resigned my position as Agricultural Agent for the Burlington and Colorado & Southern railroads, and from the Bean Division of the U. S. Food Administration, to sell **Perfection Milking Machines** and other dairy supplies and equipment.

I have organized the **Liebers Farm Equipment Company**, with headquarters at Lincoln, Neb. We will sell Perfection Milkers and dairy supplies in the following states: Colorado, Wyoming, New Mexico, Arizona. Texas, Oklahoma, Kansas, Nebraska, Missouri and southwest Iowa.

As a practical dairyman I recognize the value of the Perfection Milking Machine. After years of close study of milking machines, I have selected the Perfection. It is the only machine that has a downward squeeze and milks Nature's way. The Perfection is simple, strong and durable; it will save you time, labor and money.

I have associated with me a number of expert dairymen. We are now in position to give high-class service. For full information about the **Perfection Milking Machine**, or when in need of dairy supplies and equipment write the **Liebers Farm Equipment Company, Lincoln, Nebraska**; or—Western Representative C. Z. Wight, 1055 Detroit Street, Denver, Colo.

A. Liebers.

Healthier Stock, Quicker Growth
Guaranteed with
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STOCK TONIC BRICK OR BLOCK

Our guarantee to you is based on scientific knowledge of what live stock needs and what Carey-ized Stock Tonic is, and upon the testimony of practical stock raisers who have fed it for years.

Prevents and destroys worms, whets the appetite; aids the digestion, enables animals to thrive better on less feed; keeps bowels, kidneys, liver in healthy activity; supplies necessary mineral matter; tones up the entire system to resist all disease.

NO BOTHER TO YOU—no dosing or drenching. Just place Carey-ized Stock Tonic Brick or Block where animals can have access to it all the time. They partake of it as instinct demands—supplies the medicines they need, also salts them regularly, without waste.

Try It 60 Days at Our Risk

Carey-ized Stock Tonic Brick or Block is sold by General Stores, Feed and Hardware Stores, Druggists and Grocers. If your dealer can not supply you write us his name and we will send him for you 12 bricks (35 lbs.) for $2.50 f.o.b. Hutchinson, or a 50-lb. block $3. Or if you prefer send us the amounts and we will ship you direct. *If you are not entirely satisfied with results in 60 days' feeding according to directions, we will refund all your money, including carrying charges both ways.* We are responsible.

Write for valuable book "Making Live Stock Pay

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BLACKLEG VACCINE

One dose—costing 40c—gives a calf lifelong immunity from Blackleg. 10c per dose extra—covering bare cost of papers—secures written guarantee for value of calf should it die of Blackleg. Over 1,000,000 single dose vaccinations without a single failure. We have only one quality of vaccine. It comes, ready to inject, in bottles of 5, 10, 20, 45 or 90 doses.

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Denver, Colo. Amarillo, Texas Pierre, S. D.
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WHITE SCOURS
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Your Veterinarian can stamp them out with **Cutter's** Anti-Calf Scour Serum and **Cutter's Germ Free** Blackleg Filtrate and Aggressin, or **Cutter's** Blackleg Pills,

Ask him about them. If he hasn't our literature, write to us for information on these products.

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Blackleg Aggressin (Kansas Germ Free Fluid Vaccine)
One Dose Immunizes for Life — It Saves the Calf

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Write us about it. Dr. F. S. Schoenleber, Pres.

25c Per Dose——WHY PAY MORE?

If you are in the market for purebred livestock, see pages 30 and 31.

Delta County Report on Sunflower Ensilage

(Continued from Page 3)

This will usually mean a cultivation soon after the crop is up and cultivations every week or two from then until the plants are 3 to 4 feet high. Shallow, rather than deep, cultivation is preferable. The common corn cultivating machinery can be used for sunflowers.

Irrigation

The amount of irrigation water needed by sunflowers and the time of applying the water will depend entirely upon local conditions. Sometimes it is necessary to irrigate the seed up and again water may not be needed until two or three weeks after planting. Most growers are of the opinion that sunflowers do not need as much water as does corn grown for silage. This is just a prevailing opinion, however, and no work has been done to determine the best amount of water for sunflowers, or the best time to apply it.

Harvesting

The best time for harvesting sunflowers for silage is a matter of some uncertainty. The Montana Station recommends cutting when one-half to three-fourths of the seed is in the milk stage, stating that if cut before this time the stalks are quite watery and a considerable loss will occur. The Nevada Station recommends cutting when the seed is in the late milk stage. Both of these stations have obtained excellent results with dairy cows fed on silage cut at these stages. One dairyman in western Colorado who has fed sunflower silage for four seasons claims, however, that if the plants are left standing until after the pollen falls a resinous flavor develops in the plant and is noticeable in milk when such silage is fed to dairy cows. Obviously, where the silage is to be fed to sheep or beef cattle, this factor would not enter and the sunflowers could be left in the field until in the milk stage. It is quite probable that the feeding value of the silage will increase as the plants develop toward maturity, and hence would be most valuable at the late milk stage.

The corn binder is quite generally used for harvesting the sunflowers. Where the area is small, they may be cut with a corn knife or a sharp-handled hoe. In making silage the sunflower plants should be cut into lengths of from one-half to three-fourths of an inch. It is essential that the plants be cut into very small pieces and that they be very well packed in the silo. No water need be added unless the plants have become very ripe, for ordinarily the plants contain sufficient water to insure good packing. Any good corn silage cutter can be used for cutting sunflowers. * * *

What the Farmers Say

Colorado farmers have the following to say regarding sunflower silage:

W. H. Bailey, Montrose. — Reports that he is very well pleased with sunflower silage. He can see no difference in feeding value for cows between sunflower and corn silage.

H. C. Marshall, Hotchkiss.—"We think enough of it (sunflower silage) to plant the largest part of our acreage to sunflowers this coming season." Says that silage made from sunflowers and corn mixed was liked better than the silage made from either sunflowers or corn alone.

George La Grange, Grand Junction. —Has fed sunflower silage for four years. "I am glad to note that cattle and sheep feeders in Delta county are well satisfied with the results they are getting from feeding this feed. My own experience has been entirely with dairy stock, and we have been able to get better results in butter-fat production from our herd of purebred Jerseys than we did from corn silage. While the increase in milk flow is imperceptible, there is a decided increase in butter-fat content. I know this is contrary to the old theory that butter-fat could not be fed into the cow, but there are a number who will bear me out in the statement that it can be done by feeding good sunflower silage. I am well enough pleased with the results obtained from feeding it, and the extra tonnage secured from a liimted amount of acreage, that I shall continue planting until I find something better."

E. T. Else, Plateau City.—"I am going to put about 75 acres in this spring, but I am going to plant corn with them. I think it makes better feed ,as it balances the feed. All kinds of stock will eat it and thrive on it."

E. G. Pettengill, Grand Junction.—"They (sunflowers) should be cut very fine and enough water should be added to make them pack well. More care should be taken in packing them than with corn silage. Keep center of silo at least two feet higher than the sides. Keep sides well tamped. There is danger of sunflower silage settling away from the sides and spoiling. I think sunflowers compare very favorably with corn. We have been feeding it for three years to our herd of purebred Jerseys with good results, but I find it takes a little more hay with sunflowers than corn."

O. F. Wilson, Hotchkiss.—Thinks sunflowers, cut fine, make best silage. Says it is ideal for sheep.

J. E. Hanson, Hotchkiss.—Will plant 110 acres this year. Says cattle eat sunflower silage readily. Found that sunflowers will go through silage cutter easier than corn will.

A Holstein cow on the government experiment farm at Beltsville, Maryland, has made a high record in a year's test, during which she produced more than 11 tons of milk. The record shows her production to be 22,547.8 pounds of milk containing 855.5 pounds of butterfat. The cow is Calamity Wayne Pauline 2d. She was bought by Department of Agriculture specialists from a Michigan herd in July, 1917. The test ran through the coldest winter the Maryland section has experienced in 40 years, followed by a summer abnormally hot.

The United States Department of Agriculture announces the appointment of Francis W. Peck of the University of Minnesota to the position of farm economist in the office of farm management. Mr. Peck, under the immediate direction of Dr. H. C. Taylor, the new chief of the office of farm management, will have charge of the studies and investigations relating to the cost of producing farm products.

Eventually, why not now? This applies to the silo as well as to some other things.

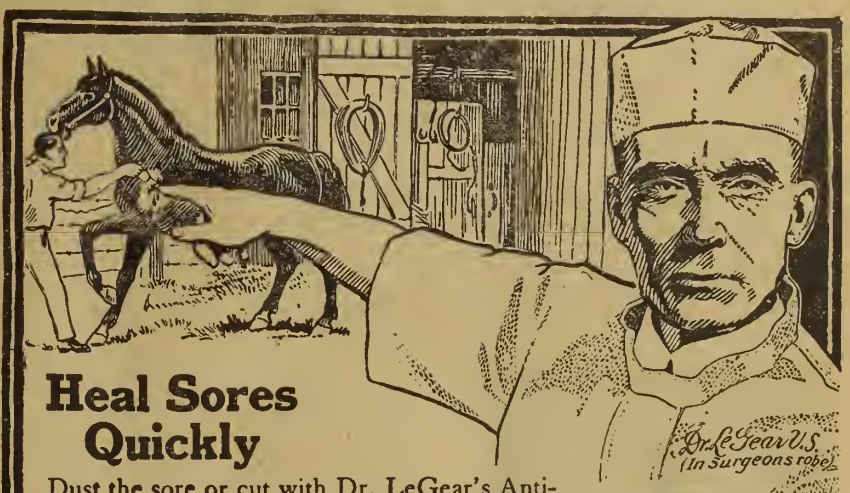
For sale, purebred Herefords, Shorthorns, Holsteins, Jerseys, Aberdeen-Angus, Galloways, Duroc and Poland China hogs. By Western Farm Life's advertisements, you do not find what breeder advertisers. If after reading you want, write our breeder's department and we will place you in touch with some breeder or breeders that have just what you want. Address Breeder's Department, Western Farm Life, 1400 Arapahoe, Denver, Colo.

Start the Silo Now

What would a silo full of good, nourishing ensilage have been worth to you during the last snow?

Saved a lot, wouldn't it?

Why not start a silo now, and plant enough corn or sunflowers to fill it, and prevent any such loss next year?—Huerfano County Farm Bureau Reporter.



Heal Sores Quickly

Dust the sore or cut with Dr. LeGear's Antiseptic Healing Powder. In handy sifter top can, easy to use. Forms a coating that stays on—protects from insects and infection. Heals quickly.

Guaranteed to do all I claim, or dealer will refund your money. This is my personal prescription for collar and saddle sores, barb wire cuts, chafed spots, open sores, etc.

Get FREE Sample Can from your dealer.

Just ask your dealer for *free* sample can. If your dealer hasn't samples, write me, enclosing 3c postage, and I will send you sample can, with my 64-page reference book on stock and poultry.

Dr. LeGear's Lice Killer. Dr. LeGear's Poultry Prescription. Dr. LeGear's Stock Powders.

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Order anything desired for wear or household use or ornament. If price or quality is wrong, return at our expense —we prepay to your home station excepting on furniture, bedding, linoleums, paints and groceries.

THE DENVER DRY GOODS CO.

The Farm Home

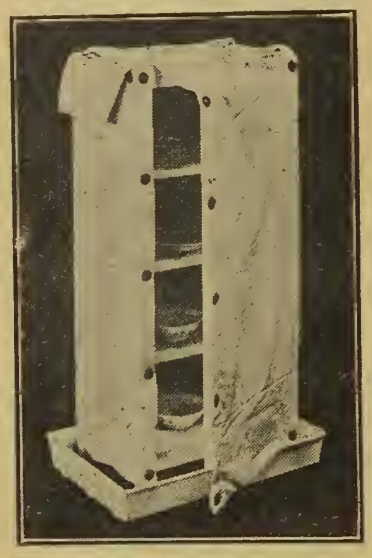
MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Never yet was a springtime
Late though lingered the snow,
That the sap stirred not at the whisper
Of the south wind, sweet and low;
Never yet was a springtime
When the buds forgot to blow.
—Margaret E. Sangster,
(Copyright, 1897, Harper & Bros.)

The Iceless Refrigerator

Accompanying this article is a cut of what may be either a step saver in your home, or perhaps, in some cases, the best means of keeping left-over food, butter, cream and milk in a sweet and palatable condition. The cut is the one used in U. S. D. A. Bulletin on Farm Home Conveniences. The Re-



The Iceless Refrigerator
(Courtesy U. S. Dept. of Agriculture, Farmers' Bulletin No. 927)

frigerator pictured is supposed to be six feet high and four feet square, though this shape may be varied somewhat, provided that it is not too low, interfering in that way with the best evaporation.

This one is made of 1"x2" framework with light material such as lathing for shelves. We have seen very successful ones made from boards from the heavier dry good boxes, or by sawing out part of the sides of smaller boxes and placing three, one on top of the other, or the whole made from lathing alone. This last is scarcely strong enough and gets wabbly after the first season. The shelves are of small strips of wood, or of heavy plaster screening. It is a good plan to cover the whole refrigerator with window screening, as that helps to keep out the flies, but if the cloth covering is tight enough this is not absolutely necessary.

The other two points necessary are a good cover and a pan or pans of water. You will note that the one illustrated has two pans of water, one at the top and one at the bottom, and that the cover has "flaps" at both top and bottom, extending into these pans. This is better than having only one pan of water, as the liquid is drawn both ways and the evaporation is better. The cover may be made of canton flannel, heavy coarse weave muslin, old soft cement sacks, or burlap where no other material is available. An old and worn cotton blanket makes an ideal covering. It should be fastened so that it may be easily removed and washed in order to do away with all danger of odors.

In the use of this type of refrigerator these points should be kept in mind. Its success depends upon the rapid evaporation of water. It should be built with as open a framework as possible; it must be placed where there is a good circulation of air, even though it is in a spot where the sun shines upon it a little. The pans must have plenty of water, and the covering material must be soft and loose enough to "draw" the water easily. The cover and water pans must be kept clean to prevent odors. If you haven't ice, this type of refrigerator can be made a great help in your kitchen, and will at least save many a trip to the cellar.—E. D.

Your Enemy and My Enemy

We have been charted and lectured and read to continually upon the subject of the "deadly fly;" and it sounds like preaching from a text to say more. But as long as there is whiskey there must be prohibition you know, and as long as flies persist in breeding and growing in the conditions we set for them, we must expect to hear about it. Perhaps the day will come when those of us who have flies in our homes will be shunned as a plague by those who have gotten rid of them, and rightly so.

We know the old list of indictments against the fly—that he breeds filth and brings it to our food; that his presence may mean sickness; and yet we keep him in our homes. The time to get rid of the danger is now. Begin on the fly today, screen him, trap him, swat him, kill him and utterly destroy his breeding places. Have manure boxes for stable refuse. If you still have an outside toilet, make it sanitary by either treating its contents with chemicals, or burying them or burning them before the flies have a chance to reproduce there.

A Ton of Water Every Day

The getting of water from the source of supply to the point of application requires more manual labor than any other item of housekeeping. The water has to be lifted from the well, carried to the kitchen, poured out of the kettle into the dishpan, and from the dishpan out of doors. This makes six times the water is handled, and a bucket of water containing two gallons, with the containing vessel weight 20 pounds.

When this is handled six times, the total lifting is 120 pounds. The cooking of three meals a day necessitates ten buckets of water which will make for cooking alone 1,200 pounds of lifting a day. When to this is added the water for bathing and the weekly wash, it will bring the lifting per day up to a ton, and the lifting of a ton a day will take the elasticity out of a woman's step, the bloom out of her cheek, and the enjoyment out of her soul.—From "The Plowman."

Two More Soap Recipes

Dear Editor:

I notice Mrs. Theresia Miles asks for a recipe for home-made soap. After trying many recipes here is one I have used for more than ten years:

Borax ¼ lb.
Resin ½ lb.
Lye 1 can.
Grease or scraps 4 lbs.
Water 8 quarts.

Dissolve lye, borax, and resin by heat. Add grease; let come to boiling point, stir often to mix. I only put in ½ of water until well mixed, then add boiling water for balance, and stir until soap drops from stirrer like honey. — Mrs. E. M. Downs, Yuma, Colo.

Empty 1 can of lye in a kettle or crock. Over this pour 1½ pints of cold water, stir with iron spoon or stick. The lye will dissolve and become quite hot. Allow it to cool. Now take 5 lbs. of melted grease; have it lukewarm, then pour the cold lye solution into the grease, gradually in a small stream. Stir slowly until well mixed and drops from spoon the thickness of honey. Cover up good and as soon as it becomes cold, cut up in pieces like shavings, cover up and let stand over night. Next morning pour in 6 pints of hot water. Put mixture on stove and let dissolve good; then add half cup of ammonia and add two tablespoonsful of borax. When all is well mixed and looks like very thick honey, pour out in moulds or in large vessel and cut in squares.—Mrs. F. M. Jones, East Las Vegas, N. M.

His Left Hand to Shake

Cactus Cal—"That there new minister of ourn'n ain't no tenderfoot. See, he's usin' his left hand ter shake hands with th' members of his congregation."

Englishman—"What does that action signify?"

Cactus Cal—"It doesn't signify nothin', stranger, but it leaves his gun hand free."—Hillsboro Gazette.

Waist 2793, Skirt 2796—An Attractive House Dress.—This model may be developed in serge, satin, taffeta in shanting, linen, or gingham. It is nice also in separate skirt and waist style. The waist pattern 2793 cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. The skirt is cut in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure. It will require 2⅜ yards of 44-inch material for the waist and 3 yards for the skirt for a medium size. Width of skirt at lower edge is about 2 yards, with plaits extended.

2788—A Smart Gown.—This attractive model may be developed without the tunic portions. The waist has a fitted lining to which skirt and tunic are joined. Taffeta, duvetyn, voile, gabardine, tricotine, serge, satin, and linen could be used for this model. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5½ yards of 44-inch material. Width of skirt at lower edge is about 2 yards, with plaits extended.

2792—Girls' Over-Blouse Dress.—This season shows many pretty styles in over-blouse effects and sleeveless smocks. The pattern here portrayed will be nice for cloth, silk, or wash fabric

combinations. The over-blouse may be omitted. Cut in sizes 6, 8, 10, 12 and 14 years. Size 10 requires 3⅜ yards of 36-inch material for the dress, and 1⅜ yards for the over-blouse.

2795—Pretty Dress for Growing Girl.—Here is a splendid model for lawn, organdie, dimity, nainsook, taffeta, or satin. The tucks on the sleeve may be omitted, and the skirt may be finished without the tunic. Cut in sizes 12, 14, and 16 years. Size 14 will require 4½ yards of 36-inch material.

2642—An Easily Made Apron.—Seersucker, chambray, gingham, lawn, percale, drill, linen and alpaca are nice for this style. Cut in sizes: Small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. Size medium will require 2½ yards of 36-inch material.

2774—A Practical Work Dress.—This style may be developed with sleeve in wrist or elbow length. The closing is reversible—a practical feature of this model. Gingham, seersucker, lawn, drill, khaki, flannellette, galatea and percale are good materials for this design. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5⅜ yards of 44-inch material. The dress measures about 2¼ yards at the foot.

2637—Pretty Style for Little Miss.—Gingham, chambray, galatea, repp, poplin, gabardine, voile, plaid and checked suiting, all these are nice for this model. Cut in sizes 4, 6, 8 and 10 years. Size 8 will require 4⅞ yards of 27-inch material.

2787—Popular Suit for Small Boy.—This style may be developed in gingham, drill, khaki, linen, flannel, galatea, or serge. The blouse may be of contrasting material. Cut in sizes 2, 3, 4 and 5 years. Size 4 will require 1⅞ yards of 27-inch material for the blouse and 1⅞ yards for the trousers.

Tells How To Make Money

Western Farm Life is one of the best papers that ever came out in the western country for all farmers. It tells how to make more money from your cows, sheep, pigs, hens and all kinds of animals. Everybody ought to have it in their homes. It also has good stories for all you people to read. I am one of the family of Western Farm Life and have been for four years. This year I subscribed for Practical Farming book, price $1.50. It is the best book I ever saw for that price. Everybody ought to have one. I would not be without it for five times the cost of it.—James M. Thompson, Mayfield, Utah.

Steamboat Gold

(Continued from Page 21)

of the shadow of this damned and blighting place."

He held out his hand; she took it and clung to it, trembling and afraid. The darkness was down behind them, shutting out the trees on the shore of the boggy lake where the frogs were chanting; deepening ahead of them over Caleb Moore's cornfield. And there was the gloom of hopelessness for his lost friend as deep as the night in the gentle schoolmaster's heart as he led her home through the corn.

Hugh Atchison had a purpose in his long watch at the camp, which he had not disclosed to any person. It was his belief that the hands which had snatched Randolph away between two days would reach out to smother his own life if he remained there. warder over the treasure hunter's unfinished work. He waited for this. If a man watched, he could not be taken unaware.

When he returned from escorting Jullet home, Hugh lit the lantern and moved about the tent as if preparing for bed. He sat under the swinging light and removed his shoes, but there his preparations for turning in ended. When he had put out the light he slipped from the tent, and crouched away through the corn.

Several rods below the camp he came out, and proceeded with great caution and silence into the cleared space around the excavation. From there he crept on hands and knees to a position which brought the tent between him and the sky-line. The stars were brilliant in a clear sky; only the ground-darkness was thick.

He was as completely hidden in his shadowy valley as if the Missouri already had come back to its old road and covered him with its muddy waters, but any prowler who approached the tent, its canvas tucked up on all sides, could be seen by him. The schoolmaster had no firearm. He had provided himself with a piece of the sounding-pipe of convenient length, and this he kept under his hand as he laid himself along in the shadow of the valley. Man or devil, he was ready to meet him, and there was not a hair on his head that felt a nervous shiver at its root.

Close by his hand as he fumbled in the dark, aimlessly breaking spangles from the brittle purslane which grew cool and rank around him, he found one of the holes which they had driven in the first days of their exploration. This one had remained open, untrampled by the feet as they had come and gone around it all those weeks. Here was a new marvel for him in a moment. That little spot scarcely bigger than a dollar, had remained untrodden in that trampled place, as a man walks in battle with a million balls flying around him and passes through untouched.

As he turned this thing over in his mind he began snapping short pieces of purslane and dropping them down the hole, as if some new and serious business had come into his hands. He wondered vaguely in the background of his rabble thoughts how long it would take him to fill the hole. It would be a good way to pass the hours if the purslane would hold out within reach.

Nobody came prowling to the tent; no living thing big enough to make a sound with its body had come into the swale where he waited for the unknown. Now the Big Dipper indicated two o'clock. Soon there would come a leak of daylight into the night; in three hours more the earth would be drenched again in day.

The schoolmaster stopped in his dropping of purslane into the hole, his hand hovering over it, the muscles of his arm still as if paralysis had struck him. Out of the bowels of the earth an unbelievable thing had issued, a sound that sent a shiver over his body and moved the roots of his hair like a wind.

A human voice, faint, smothered, low; calling him by name!

For a moment the schoolmaster doubted that he was awake. He looked up at the north star, and listened to the whir of night life; he put out his hand and felt the iron pipe among the purslane at his side. Awake, but full of imaginings, induced by fatigue and an over-labored mind.

It could not be otherwise, for that voice that called up to him out of the ground was Jonathan Randolph's voice, and poor Jonathan Randolph was among the dead.

To be Continued.

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

The Busy Season

Probably no month in the year offers such varied problems and such exacting duties as the month just past, April. Fortunate are the readers of Western Farm Life who found it so, for even though the work with the flock has been strenuous and trying, they are on the high road to a successful winter season when eggs are high, and they will be spared much of the grief incident to a long and late season of hatching. In spite of the controversy appearing in the poultry press at the present time in favor of May hatches, there will be more eggs laid next November and December by April pullets than by those hatched in any other month. Incubator manufacturers have a right to boost their products and to urge late hatching, if by so doing they can keep business going, but writers who have no axe to grind, should either recognize the fact and state it, that not many May pullets will be ready for business next November; or if they do not know this they should get into the business long enough to find it out for themselves.

Remember we are speaking in general terms and do appreciate the fact that Leghorns with proper care can be hatched in May to good advantage; but when we mention poultry in a general way we always refer to the larger breeds usually found on the farm. Some time ago Western Farm Life sent to some of its readers a questionnaire bearing on questions of such a nature. Very soon a summary of the answers received will be published and the opinion of Western Farm Life readers on the subject of hatching and winter eggs will be found not so far different from the writer's. But April is past; those who have their chicks hatched will be amply repaid for the extra care and expense necessary in caring for them when the next egg harvest is due; those a little late can make up just a little lost time by extra attention during the growing season; those who are not in a hurry will also reap a harvest, but of thistles.

Warm weather will wake up the mites and other vermin and unless later months offer more time for this job, the buildings, roosts and nests should be given a good dose of liquid lice killer, sheep dip or other disinfectant. We have found auto engine oil, drained out of the crank case, a good thing for this purpose. We use a paint brush and go over and into every place a mite might choose for hiding in. It helps to have the roosts and nests removable and no crack or hole should be overlooked.

HEAD LICE get whole broods of chicks and the only reason is carelessness. Hardly a chick comes into the world in the natural way without being exposed to this danger and whether or not we *think* or *know* a sitting hen is not lousy, prevention is still a cheap and effective cure. Just a little dab of lard or vaseline smeared on top of the chick's head will do the business, either kill the lice lodged there or prevent any from moving in. This may be done as the chicks are removed to their first home and the operation should be repeated in about a week. There will be no great danger from lice after this if the mother hen has a good chance to dust herself.

OVERCROWDING is often the result of carelessness or thoughtlessness. Chicks, whether hen or incubator hatched, that find plenty of room in their first quarters, soon, and very soon, outgrow those quarters unless they were more than roomy enough at the beginning. Especially is there danger on cold nights after heat has been taken from them. We have lost more or less chicks from this cause, some weighing half a pound or more. Roomy quarters are a good investment and when large numbers are kept together, sharp corners should be eliminated to prevent the smothering of those that might be pushed into the corner.

IF CLEANLINESS is next to godliness, an ungodly man has no place in the poultry business. Clean sand and straw are not so expensive that we can afford to be without them in abundance. The more chicks that are kept together the more danger from filth and contamination. It may not be necessary to clean the coop oftener than once a week when the chicks are very small, but if they are kept in the same coop when a month old the need of cleaning oftener should be very apparent. The water dish should be kept clean, the milk dish ditto, of course. Feeding troughs and dishes should not be allowed to become filthy. Every bit of carelessness in respect to cleanliness may be very costly.

PACK EGGS NOW—Never in 1919 will they be of better keeping quality and the time of lowest prices is past. I never could see the philosophy of putting up eggs in September and October when the price is 50 per cent higher than in April and May and when the quality is not so good. The money saved by putting up eggs when lowest in price is one of the strong arguments for home preserving. We still have some 1918 eggs in water glass, having overloaded just a little, but we have been enabled to sell higher price eggs and eggs for hatching by reason of having these to use in cooking. About all the recipes sent out for using the waterglass solution call for nine parts water to one of water glass. We have been using fourteen parts to one for years with satisfactory results. Try both. Fertile eggs are as good for packing for home use as the infertile, providing eggs are gathered fresh and are packed immediately. Pack a case of eggs for your family use—induce your customers and friends to do the same. Think what it would mean for prices if every family put away from fifteen to thirty dozen of eggs during the season of plenty and low prices. Send to the State Agricultural College for pamphlet on preserving eggs with water glass, probably the safest and best home method.

Leg Weakness in Chicks

I am writing you for information in regard to leg weakness in brooder cbicks. I have been told that a brooder heated from below was apt to cause leg weakness, that is, cbicks would become crippled so tbat they bad no use of their legs. I have used a brooder heated from beneath and one constructed of featbers in which by means of a lamp beat is radiated through the feathers, causing the chicks to bove under feathers like under mother hen. But with tbis brooder I had the same trouble only not to so great extent. I bave read to keep the place where chicks eat and drink a little damp, but tbis did not alleviate the trouble entirely. I think if heat causes leg weakness, too mucb dampness would be the other extreme. I have had chicks which were raised with hens act the same way when weather was damp. I thought perhaps it might be the kind of food I fed, but I notice the article written by Mr. H. W. Sanborn in last issue of Western Farm Life that he advocates same food I sed. I also gave green clippings. If you can give me any further light on the subject, I will greatly appreciate it.—Mrs. E. L. K., Logan county, Colorado.

We have had more or less leg weakness in chicks but are not satisfied as to the cause of it. When we were feeding beef scrap heavlly we thought that that might have been the cause of it. When the brooder was too hot we blamed the brooder and when we had our chicks on board floors we blamed the floor, but we do not know that any of these things are to blame. Later on we let all of our chicks on wooden floors, keeping them inside until they were more than a month old. We now have a brood of chicks which have been on a board floor for two weeks. They get wheat, corn, oats and all the beef scrap they want and there is yet not a sign of a weak chick. I think I would not blame the brooder although I do prefer overhead heat. Inasmuch as you have had the same trouble in both types of brooders I would not be hasty in condemning the brooder that furnishes some heat from beneath. I am sorry that we have not definite advice to give you but this is one of the problems that each must work out for himself. I always come back to the same argument, that sanitary conditions, variety of feed, exercise, and plenty of fresh air for the chics will bring success and that year by year we have less of these troubles to deal with.

Eggs Shipped from China

Eight thousand miles to market is a long way for even staple foods to travel, but when eggs make such a long trip it is "going some." These eggs—3,500 cases of them—came all the way from China to New York City, via Vancouver, and traveled slowly by boat and train.

When they arrived at New York they were examined by a representative of the Bureau of Markets, Department of Agriculture, who reports that the eggs were packed in cases similar to the ones used in domestic trade but made of heavier material, resembling pine, of about the same thickness as is used in domestic export cases. The average net weight of eggs per case was about 40 pounds.

The Chinese eggs were of a deep brown color and slightly smaller than the average domestic egg. The shipment showed losses of from 12 to 18 eggs per case. Under the light, some of the eggs showed quite a heavy shrinkage, while others were very full. The whites were weak in a number of eggs, and when they were broken showed very watery, though the eggs were sweet, and the yolks stood up well. The shells of these eggs are much thicker than the average American egg, and the yolk is of a somewhat deeper color. When candled these eggs are said to make first-class cheap eggs for the use of bakers and hotels and for cooking purposes. As received, before candling and repacking, they sold at about 3 cents below the quotation for firsts.

China is one of the principal sources of dried and powdered eggs. Manufacturers of prepared products in this country are said to be interested in the possibilities of dried and powdered eggs, especially in view of the increased use of such products in ready-mixed flours and in bakeries.

Eggs To Continue High

At the present time (right now) eggs are being put in cold storage in Denver at 5 cents a dozen higher in price than last year and in Chicago and New York at 6 to 7 cents a dozen higher than last year.

All regulations controlling prices on cold storage eggs that were in effect last year have been removed. This being the case the wholesale prices for cold storage eggs the coming winter may be more than 5 to 7 cents a dozen higher than last year. The prices will depend upon the demand, which should be heavy; for eggs as an animal food are worth more for the nutrition they contain than they sold for last winter when compared with other meat foods for human consumption.

The demand for eggs as an animal food is steadily growing as the people more and more are learning to appreciate the value of them as one of the most desirable foods in all respects.

These facts are of special interest to all producers of eggs whether farmers or commercial poultry raisers and are very encouraging to all indicating as they do the probability that fresh eggs the coming winter season will bring as high or even higher prices than they did last winter.

In view of the bright prospects ahead and a reasonable expectation that feeds the coming winter season will be much lower in price than last winter, all should take courage and give the poultry more attention, better care and feed than ever before that the largest possible returns may be obtained from the hens kept. All should try a little harder to so feed and care for the growing pullets that they may develop as quickly as possible, mature and start laying in the fall or early winter producing the fall and winter eggs that command the highest prices.

Do not crowd the growing pullets. They should have sufficient coop room, have free range if possible and be fed liberally a rich growing ration. Coops and houses should be kept clean and sanitary and the lice and mites kept down.

Early hatched pullets properly grown from good vigorous breeding stock selected for egg production, comfortably housed and rightly fed can be and should be the most profitable thing on the farm.

Give the poultry a definite place in the farm operations; make definite plans for them and follow these plans regularly and consistently the same as other work; in other words give the poultry a fair chance and they will prove that more can be realized from them for the effort expended and money invested than anything else done on the farm.

If you do not know the best rations for the growing pullets, how to feed for high egg production, what kind of a house to build, how to preserve eggs when cheap for winter use, how to keep the mites down, etc., etc., ask your county agent or home demonstration agent. They will give you or get for you the information desired.

It is the desire of our department that all producers of poultry and eggs do so profitably. It is simply a question of right practices in all phases of the business. It is our desire to furnish to all information as to good poultry practices and help in any way possible for more and better poultry and better net returns to all.—H. W. Sanborn, Extension Poultry Husbandman, U. S. Dept. of Agriculture.

Oat Straw for Work Horses

Mature farm horses and mules, doing the light team work required in the winter months, can be maintained on a ration that includes oat straw in place of hay. This was demonstrated in a feeding test at the University of Missouri College of Agriculture last winter. Eight head of purebred and grade Percherons, averaging 1,439 pounds, were fed for six weeks on a ration in which the roughness was oat straw. The average daily ration was: Corn and cob meal, 14.77 pounds; linseed oil meal, 1.67 pounds; and oat straw, 14.34 pounds. The horses were at light work five and a half hours daily. At the end of the six weeks the horses averaged 1,415 pounds, a loss of 24 pounds. "These horses were in sufficiently good flesh at the close of this test to go into the heavy work of spring," says E. A. Trowbridge, "in fact, they were in much better condition than are horses and mules on a good many farms when they go into spring work."

In order to make comparison of oat straw and timothy hay, the same horses were fed for three weeks on this ration, following the first test: Corn and cob meal, 15.42 pounds; linseed oil meal, 1.93 pounds; mixed clover and timothy hay, 16.71 pounds. At the close of the period the horses, which had been worked an average of 6.9 hours dairy, weighed 1,404 pounds, showing an average loss of 11 pounds. It is evident that there was no great difference in the feeding value of the oat straw and the hay used.

Needs Western Farm Life

You are quite right in believing that I don't want your paper to stop coming to my home. Any dry farmer, homesteader or stockman that hasn't got a place for Western Farm Life had better go back East and read the farm papers that tell them how their grandfathers farmed. I am a dry farm homesteader with a wife and three children, and until I get my place improved so that I can make a living on it I have to get out and make a grubstake in the fall and winter and that accounts for my neglecting to renew. Don't get my mail regular out in camp. I inclose two dollars to extend my subscription five years. Please send me Practical Farming and combination fence pliers.—W. C. Phelps, Cody, Wyo.

At present more than 1,000,000 farmers are members of organizations assisting the county agent in his work. Through these organizations the American farmer and his family are now in close personal touch with a large corps of well-trained men and women so linked with federal and state institutions for the promotion of agriculture that farming people can readily avail themselves of the results of scientific research and practical experience the world over to aid them in their work on the farm and their life in the home.

All it costs is a three cent stamp. Ask Western Farm Life Service Bureau.

WHITE LEGHORNS

Hatching Eggs and Baby Chicks

Do You Want Eggs and Big Profits This Winter?

Then get your hatching eggs and baby chicks from our strain of TOM BARRON ENGLISH bred-to-lay LEGHORNS, TESTED 9 YEARS for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for circular, prices and facts from customers before you buy eggs or chicks. It's free, write.

The Fowler Egg Farm, Fowler, Colo.

FOR SICK CHICKENS

Preventative and curative of colds, roup, canker, swelled head, sore bead, cbicken pox, limber neck, sour crop, cholera, bowel trouble, etc. Mrs. T. A. Morley of Galien, Micb., says: "Have used Germozone 17 yrs. for chickens and could not get along without it." Geo. F. Vickerman, Rockdale, N. Y., says: "Have used Germozone 12 years; the best for bowel troubles I ever found." Frank Sluka, Chicago, Ill., writes: "I have lost but one pigeon and no chickens in the 3 years I have been using Germozone." C. O. Petrain, Moline, Ill.: "I never had a sick chick all last season." Bernard Horning, Kirksville, Mo., says: "Cured my puniest chicks this spring." Ralph Wurst, Erie, Pa., says: "Not a case of wbite diarrhoea in 3 years. I raise over a thousand a year." Good also for rabbits, birds, pet stock.

GERMOZONE is sold generally at drug and seed stores. Don't risk a substitute. We mail from Omaha postpaid in new 25c, 75c and $1.50 sizes. Poultry books free.

GEO. H. LEE Co., Dept. 445 OMAHA, NEB.

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

S. C. BROWN LEGHORNS, EGGS 15 $1.25—100, $7. Mrs. E. L. Zeiner, Ramona, Kans.

S. C. BLACK LEGHORNS; STOCK AND EGGS for sale at all times. Harry Grimes, Chula, Mo.

CHOICE YEARLING S. C. WHITE LEGHORN hens. Extra layers; reasonable. Mrs. Geo. Stephens, Overton, Neb.

PUREBRED SINGLE COMB BROWN LEGHORN eggs, $5.00 per 100. Manda Godard, Mound City, Kans.

PUREBRED ROSE COMB WHITE LEGHORN eggs. 15, $1.50; 100, $5.50. Prepaid. C. Nesselroad, Attica, Kans.

EXTRA QUALITY S. C. BROWN LEGHORN eggs, 17, $2—50, $5. L. Hastings, Thayer, Kans.

S. C. WHITE LEGHORN EGGS, 15, $1.50—100, $6. Stock headed by 200-egg Yesterlaid Strain. Linna Seaver, Egbert, Wyo.

S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

HEWITT'S S. C. BUFF LEGHORNS, BLUE ribbon winners. Eggs $2.50 a setting; $6.00 per 50. Mrs. Philo Hewitt, Lexington, Neb.

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

EGGS FOR HATCHING FROM EXTRA HEAVY laying strain of Purebred White Leghorns. $6.00 per hundred. Mrs. H. C. Brookhart, Las Animas, Colo.

HATCHING EGGS FROM SINGLE COMB WHITE Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Robert Shumway, Fountain, Colo.

FOR SALE—PURE-BRED WHITE ROCKS AND S. C. White Leghorn eggs for hatching, $6 per 100; $1.25 per setting. Lloyd Willeman, Central City, Nebr.

FAMOUS YOUNG STRAIN SINGLE COMB White Leghorns costing $20 setting, $7 hundred, $2 setting. Elsie Thompson, Mankato, Kans.

PURE BLOOD SINGLE COMB BROWN LEGhorns. Settlng eggs from healthy range flock. $1 per 15; $6 per hundred, prepaid. Order today. C. O. Johnson, Boyero, Colo.

BARRON'S ENGLISH WHITE LEGHORNS, winter layers. 248 to 308 eggs per year. Baby chicks. Eggs. Royal Oaks Poultry Farm, Jas. Dickey, Cabool, Mo.

SINGLE COMB WHITE LEGHORNS. 95-96½ scores. Winners, layers. Finest eggs, cockerels. Reasonable; honesty. Mrs. Albert Ray, Delavan, Kan.

SINGLE COMB WHITE LEGHORN EGGS from excellent laying strain of vigorous, farm range fowls, bred especially for high egg production. $1.50 per fifteen; $6.00 per hundred. Ellen M. Donahue, Inland, Neb.

'RUSSELL'S RUSTLERS," AMERICA'S Famous Single Comb Brown Leghorns. Free catalog. Winners at largest shows. Eggs prepaid, $2.00 per 15 and up. Geo. Russell, Chilhowee, Mo.

WILKINSON'S S. C. W. LEGHORNS—BRED to lay. They also won all firsts and specials at Eastern Colorado sbow, January, 1919. Eggs, $1.50 to $5 per 15. E. C. Wilkinson, Box 94, Fort Morgan, Colo.

BREEDING OF BRED TO LAY SINGLE COMB Brown Leghorns in large quantities a specialty;; 50 for $4.00; 100 for $7.00; 150 for $10.00, prepaid. Cockerels, $3.00 to $6.00. Chas. Bowlin, Olivet, Kan.

BUFF LEGHORNS, BEST LAYERS ON EARTH. Baby Chix, not the cbeap kind. 25c each. One or a hundred. Hatchlng eggs, $1.50 for 15, prepald. You will be pleased with my stock. Champney, 25 So. Logan, Denver.

SINGLE COMB WHITE LEGHORN CHICKS, 15 cents; from world's best strains, Young Smith and Ferris, from hens that pay $8 each per year from eggs. Layers, winners and payers, $5 to $25 each. Clara Colwell, Smith Center, Kans.

SINGLE COMB WHITE LEGHORNS. THE LAYing kind; the paying kind. No hucksters, but genuine business birds that fill the egg basket all seasons of the year. Standard bred, line bred and trapnested continuously. I breed from nothing but the best. Selected for prepotency, size and vigor, and verified the trapnest route. Eggs, $2.00 per setting. Incubator lots 8c each. Send for folder. J. S. Stever, Rock, Kans.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and facts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Colo.

PLYMOUTH ROCKS

WINTER LAYERS, BARRED PLYMOUTH ROCK eggs, $1.50 for 15. Mrs. Lon Edwards, 1105 Garfield Ave., Loveland, Colo.

BIG-BONED WHITE PLYMOUTH ROCK COCKerels for sale at $2.00 and $3.00 each. Mrs. John Rbudy, Pilger, Neb.

WHITE ROCKS, WINNERS IN SIX STATES, utility eggs, $10 per 100. Williams Poultry Farm, Cedar Bluffs, Nebr., Box F.

PUREBRED WHITE ROCK EGGS FROM PRIZEwinning stock. Fishel strain. $1.50, 15; $4, 50; $7, 100. J. S. Cantwell, Sterling, Kans.

BARRED ROCKS—EGGS $2.00 PER 15, $7.00 per hundred. Mrs. H. E. Bacheider, Fredonia, Kan.

FIVE-POINT COMB WHITE ROCK EGGS, $1 for 15, $7 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kans.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Blunt, Route 1, Greeley, Colo.

LAYMORE BARRED PLYMOUTH ROCKS. Eggs, $3.00-$5.00 for setting (15); $12.50 per 100. Prize winning stock. Buy eggs of this stock and you buy the best. I can furnish a few hundred Rhode Island Red baby chicks at $20.00 per 100. J. R. Anderson & Son, Fort Morgan, Colo.

WHITE PLYMOUTH ROCKS THAT HAVE won the Silver Trophy cups at the Northeastern Colorado Poultry Show for three years. Pens headed by 1st cock 93½, scored 94¾ and was 1st cockerel at Denver in 1917; 1st cockerel scored 94½ mated to hens and pullets scoring from 91½ to 95½. Eggs, $5 per 15, $25 per 100. Baby chix, 50 cents each, or $40 per 100.

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WHITE ORPINGTON EGGS, $6.00, 100. Nellie Penticuff, Knobnoster, Mo.

PURE BRED BUFF ORPINGTON ROOSTERS, $2.50 to $5.00 each. Mrs. H. Swan, Hugo, Colo.

"SHANK'S ORPINGTON'S S. C. BUFF." YOUR chance to get great layers from Madison Square Garden Blood. After this date I will sell hatching eggs at—utility $1.75 for 15; $5.25—50; $10.00—100. Pen 1 eggs, $4.00 for 15; $7.50 for 30. Pen 2, $3.00—15; $5.75—30. A pleased customer is my motto. F. M. Shank, Route 2-A, La Junta, Colo.

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WHITE WYANDOTTE EGGS, $5.00 PER HUNdred. Charles Elliott, Haviland, Kan.

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WHITE WYANDOTTE STOCK AND EGGS. Also Fox Terrier Ratters. Ginette & Ginette, Florence, Kans.

PUREBRED WHITE WYANDOTTE EGGS, "farm range," $1.50, 15; 30, $2.50; 100, $7.00. Homer Fleury, Concordia, Kans.

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WHITE WYANDOTTE EGGS FROM TRAPnested stock. $3.00 per 15 eggs, $5.00 per 30 eggs, $12.00 per 100 eggs. Mrs. Mary M. Wright, Route 2, Box 205, Boulder, Colo.

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EGGS. S. C. RED. TROPHY CUP, BLUE RIBbon winners. Get mating list. Mrs. John D. Shaw, Rt. 1, Atlantic, Iowa.

ROSE COMB RED EGGS FROM WINNING DENver Stock Show strain. Get my prices now. C. E. Dewey, Fort Morgan, Colo.

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EGGS FROM ROSE COMB RED PEN HEADED by cockerel taking second Oklahoma State Show. $4.00 for 15; range $1.50. Mrs. Geo. L. Thornton, Eureka, Kan.

PURE-BRED SINGLE COMB OX BLOOD RHODE Island Reds, 15 eggs $1.50; Mammoth White Peking ducks, 15 eggs, $1.50. Mrs. Chas. DeBrier, Aroya, Colo.

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EGGS FROM BUSHBY'S WINTER LAYERS. Single Comb Reds, $7.50 hundred, expressed from Pueblo. Flock established 12 years. H. A. Bushby, Rye, Colo.

HALL'S RHODE ISLAND REDS—WE HAVE A fine lot of cockerels and pullets bred from our great stock show winners, at reasonable prices. Liston L. Hall, Gering, Neb.

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PEN OF CHOICE ROSE COMB RED HENS headed by cockerel taking second Oklaboma state sbow. Eggs, $4.00 for 15. Second pen, $2.00 Range, $1.50. Mrs. George L. Thornton, Eureka, Kans.

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ANCONA HATCHING EGGS FOR SALE; PRIZE winning strain at the Heart of America and Kansas City shows; greatest winter layers from the largest stock west of the Mississippi. Our best, $3 setting; other pens, $12 per hundred; guaranteed 85 per cent fertile; now booking orders for baby chicks from March 1 and thereafter, $35 per hundred. J. E. Diveley, Diveley's Ancona Egg Farm, Excelsior Springs, Mo.

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ROSE COMB RHODE ISLAND WHITE COCKerels and hens, $3, $4; prize winning, trapnested, vigorous, large as Reds, mature earlier; eggs, 15, $2.00; 50, $5.50; 100, $10.00 Catalogue. Col. Warren Russell, Winfield, Kans.

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SPLENDID BARRED ROCK COCKERELS FOR sale at a reasonable price. Mrs. Mary Welty, Rt. 6, Sterling, Kans.

BUFF COCHIN BANTAMS, CHINESE RINGneck Pheasants, stock and eggs for sale. E. A. Miller, Alma, Nebr.

CRITTENDEN'S FAMOUS BLUE ANDALUSIANS, winter layers; eggs, 15, $1.50; 50, $4; postpaid. S. D. Crittenden, Mansfield, Ark.

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BARRED ROCKS—EGGS FOR HATCHING from 3 fine Pens, $5.00, $3.00 and $2.50. T. W. Drummond, Fairmont, Neb.

PURE BRED BARRED ROCK COCKERELS, $5.00; winter laying strain. Eggs, 15 for $5.00. E. Plessinger, Cheyenne Wells, Colo.

PURE BRED ROSE COMB RED EGGS, 15 FOR $1.00; 100 for $5.50. Mrs. B. F. Weigle, Winfield, Kan.

WHITE ROCK EGGS, $1.10 PER SETTING, $6.00 per hundred. Henry Luers, Columbus, Neb.

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

75 BLACK LANGSHAN COCKERELS. WON first ckl. at Illinois and Kansas state shows, 1919. John Lovette, Mullinville, Kan.

EGGS—BUFF ORPINGTON BARRED ROCKS, R. I. Reds, Black Minorcas. T. J. Pugh, Fullerton, Neb.

PUREBRED BARRED ROCKS—EGGS IN SEAson, one dollar for thirteen; seven dollars per hundred. Peter H. Friesen, Lehigh, Kan.

BLACK LANGSHAN EGGS, 15, $1.50; 50, $4.50; postpaid. Elmer White, Sorrell, Mo.

SPECKLED SUSSEX EGGS FOR HATCHING. B. K. Hanbury, La Salle, Colo.

EGGS FOR HATCHING, SILVER CAMPINES. $3; Barred P. Rocks, $2; Blue Andalusians. $2; Single C. R. I. Reds, $1.50 for 15 eggs. John L. Miller, Arvada, Colo. Phone Arvada 10J.

BARRED ROCK EGGS—PARKS PEDIGREED 200-egg strain. Pens headed by pedigreed cockerels, 15 for $3.00. Utility, 15 for $1.25, 100 for $7.00. Mrs. A. E. Huff, Lancaster, Kan.

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BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

REV. LEE WHIDDON, BOGARD, MO.; ADVICE free; how any minister, teacher or farmer can make from $200 to $500 as side line out of fancy chickens and rabbits; stock and eggs from the best strains of White Wyandottes, Anconas, Black Minorcas; 200 eggs per year hens; eggs, $2 to $10 per 15; Buff Orpingtons, White Rocks, White Leghorns, Barred Rock eggs, $1.50 to $5. Chickens, $10 each; rabbits, Flemish Giants, New Zealand Reds, Belgians, $1 to $7.50 each; guaranteed tablets to make your hen double egg production, $1 box.

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BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatcbery, Smith Center, Kans. Shipped anywhere, 15 cents.

BABY CHICKS FROM LARGE BONE DARK Rose Comb Reds, mated to males from winners in egg laying contest. Hen hatched 16c. Mrs. Alex. Leitch, Parkerville, Kans.

UNIVERSITY PARK POULTRY RANCH—BABY chicks and hatching eggs. Single Comb White Leghorn chicks from 241 egg trapnested stock, $18 per hundred, prepaid. Write for circular. 2520 S. Clayton St., Denver, Colo.

COLUMBIA HATCHERY — ALL LEADING VArieties of Baby Chicks, Cockerels and batching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

DENVER BABY CHICK CO., 2436 W. 43RD Ave., Box 1323 Denver, Colo. Booking orders now for quality baby chicks. White Wyandottes, Buff Orpingtons, White Orpingtons, Rhode Island Reds, White Rocks and Barred Rocks and Legborns. Strong and vigorous chicks from carefully selected, heavy-laying stock. Live delivery guaranteed. Prompt attention to all orders, large or small. Write at once for prices.

WE ARE THE PEOPLE WHO CAN SUPPLY baby chicks that live, lay and pay. We have hatches coming off almost daily. We ship everywhere. Gnarantee live delivery. We send either mail or express. We prepay mail charges. We hatch from thorobred flocks and send only strong, vigorous chicks. All leading breeds hatched. Red Rocks, Leghorns, Orpingtons, Wyandottes, Black Langshans, Minorcas, Brahmas, etc., etc. We execute orders in the order received and can ship most breeds within a few days. Book on Poultry Raising sent free with order. Write us for prices which are reasonable and quality the best obtainable. Columbine Baby Chick Co., 459 South Gaylord St., Denver, Colo.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have heen making the Denver Incubators and hatching and selling baby chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18. Why not buy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live. Hatching eggs, $7.50 per hundred. Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

DUCKS

PUREBRED MAMMOTH PEKIN AND MUSCOVY (dry land) duck eggs, $1.50 per setting. H. Glitzke, Tonganozie, Kan.

RUNNER DUCK EGGS; $1.00 SETTING OF eleven; $3.50 for fifty. Mrs. Baker, Route 1, Arvada, Colo.

BUFF DUCK EGGS, $1.75 PER 12, PREPAID. Laylong strain. Mrs. E. C. Grizzell, Claflin, Kans.

PUREBRED BUFF INDIAN RUNNER EGGS, $1.50 for 15; duck and Leghorn; parcel post. Oak Grove Poultry Farm, Kell, Ill.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatcb and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

LIVE STOCK

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CATTLE

FOR SALE—Pure-bred Ayrshire bull calf; price $75. Box 15, Gurley, Nebr.

ABERDEEN ANGUS BULLS AND TWO YEAR old Percheron Stallions. R. R. Lucore, Arriba, Colo.

200 HEAD YOUNG HEREFORD COWS AND 100 head calves and yearlings; 300 head in all, $14,500. Or will sell 100 head bred cows, $7,000. Address owner, Box 35, Hillside, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLbred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

HOLSTEINS—HAVING DECIDED TO QUIT milking, I will sell my 16 head of high-grade young cows, all real producers; also 14 head of yearling heifers. Prices right. W. P. Perdue. Carlton, Kans.

FOR SALE—SHORT HORN BULL, BETTER Goods 4th., 418157, four years old, color red, a prize winner at Denver Show in 1917 and 1919. Priced right. A good breeder. G. W. Ball, Pierce, Colo.

SHEEP

3,300 GOOD BREEDING EWES — 10-LB. shearers, 50 yearlings. 16,000 acres grazing land, all in Coconino, Arizona; with forest per-

mit, plenty of water and well-improved ranches. For prices and terms apply to R. C. Creswell, Winslow, Arizona.

HOGS

PUREBRED POLAND CHINA PIGS FOR SALE. P. L. Younger, Route 1, Golden, Colo.

REGISTERED BIG TYPE DUROC-JERSEY hogs for sale; September gilts and boars; one fine July boar. R. C. Van Scoy, Highland Sta., R. 5, Denver, Colo. Phone Arvada 105R2.

HORSES

FOR SALE—THE SURPLUS STALLIONS from small herd of registered Percherons. Lanyon Stock Farm, Gresham, Neb. Branch barn, Harrah, Okla.

FOR SALE—BLACK PERCHERON STALLION, 7 years old, good individual. Quitting the business, so is priced to go for cash, Liberty Bonds or bankable note. F. Gilgen, Eaton, Colo.

SEEDS

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CHOICE BLACK AMBER CANE SEED, $3.75 per 100. Gus Herfert, Julesburg, Colo.

CHOICE PINTO BEAN SEED—NO BLIGHT and no rust; $8 per 100, sacks free. G. H. Kellogg, Cornish, Colo.

EXTRA GOOD RECLEANED SHROCK KAFIR seed, $3.50 per bushel. Sample on request. J. P. Nachtigal, Buhler, Kans.

FOR SALE—HAVE ON HAND FIELD PEA seed. Sold in car lots only, F. O. B. car. Felix Garcia, Garcia, Colo. Phone No. 25W4.

ALFALFA SEED—CERTIFIED GRIMM AND Common. Extra fine seed. Prices and catalog free. J. D. Long, Seedsman, Boulder, Colo.

SEED CORN, $3.00. NINETY BUSHEL KIND. Must suit or I will return money. Wiltse, Rulo, Nebr.

WHITE SEED CORN, TEST ALMOST PERFECT; $3.25 per bu.; send cash and sacks with order. Henry Sevart, St. Paul, Kan.

BLACK AMBER CANE SEED, $4.00 PER CWT. Kaffir seed, $4.50 per cwt. Both 1918 crop, recleaned. Sacks free. F. E. Eakins, Oberlin, Kans.

BLACK CANE, 3c; KAFFIR, 4c; FETERITA, 5c; schrock kaffir, 7c; milo, 4c; red millet 5c; per pound. Early white seed corn, $4.00 per bu. Track Concordia, Kan. Sacks free. Bowman Bros. Seed Co., Concordia, Kan.

FLAXSEED—YOU CAN FIND A MARKET FOR large and small lots with Uncle Sam Breakfast Food Company, Omaha, Nebr., who will quote you full market price. Send samples and advise amount on hand.

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WANTED—TO HEAR FROM OWNER OF GOOD farm for sale; state cash price, full particulars. D. F. Bush, Minneapolis, Minn.

IF YOU WANT TO SELL OR EXCHANGE YOUR property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

320 ACRES IMPROVED NEAR BYERS, $18.00. 640 acres, fine section, raw, Byers, $17.00. 640 acres near Bennett, $15.00. Snap. States Realty Co., 207 Century Bldg., Denver, Colo.

WE LOAN OUR OWN MONEY ON NON-IRRIgated land. Write for particulars. The Eastern Colorado Farm Loan Company, 410 First National Bank Bldg., Denver. Colo.

WANTED—WE HAVE EASTERN BUYERS FOR farms. List your farm with us and we will get results. Western Securities Investment Co., 410 First National Bank Bldg. Phone 1866. Denver, Colo.

320 ACRES OR 160 ACRES, 8 MILES FROM Denver, $17.50 per acre; 10 acres adjoining Littleton for $2,500; 40 acres, half in alfalfa, well-improved, bargain for quick sale; 1,100 acres, good place for cattle, $15 per acre. Sydney C. Osmer & Co., 308 15th St., Denver, Colo.

10 SECTIONS CHEYENNE COUNTY LAND, $9 to $12.50 per acre; 10 sections Kiowa County land, $9 to $15 per acre. Write me for legal description, price and terms on any of these tracts. A. N. Mitchem, 305 Gas & Electric Bldg., Denver, Colo.

160-ACRE FARM, HIGHLY IMPROVED, BEST water rights, 8-room house, 4-room bungalow, barns, granary, chicken houses, artesian well, water piped all buildings, good fence, 5 miles to Broadway. Price, $32,000; terms. A. J. Simonson, 314 Cooper Bldg., Denver, Colo.

HELP WANTED

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AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

MEN—WOMEN, 18 OR OVER, WANTED IMmediately. U. S. Government positions. Commence $92 month. Vacations. Common education sufficient. Hundreds Permanent Peace Positions. Write immediately, for list. Franklin Institute, Dept. E171, Rochester, N. Y.

NEGRO SOLDIERS IN WAR. BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

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INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

PIPE — PIPE — PIPE — CASING. 4,500 FT. 2-inch std. second-hand black pipe. 6,000 ft. 1½-inch s. h. light weight black pipe. 1,000 ft. 3¾-inch s. h. casing. 2,500 ft. 3¼-inch s. h. casing. 1,000 ft. 10-inch s. h. casing. 1,000 ft. 9-in. riveted pipe. 600 ft. 18-inch riveted pipe. 3,000 ft. 22-inch riveted pipe. 1 mining whim, 1 Spence heater, 1 boiler feed pump. Get our prices on pipe not listed above. Havens Bros., 1622 Wazee St., Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES—Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

PURE EXTRACTED ALFALFA HONEY. 60 lbs. in can, $13.50. One case, two cans, $26; guaranteed. J. Van Engen, Producer, Crawford, Colo.

DELICIOUS EXTRACTED HONEY ON APPROVal; quality guaranteed. Thirty pounds, $7.85; 60 pounds, $14.90; 120 pounds, $29.75. Sample, 15c. Wesley Foster, Producer, Boulder, Colo.

FARM MACHINERY

ONE-MAN SLING. CHANGES HEAVIEST HAYracks. F. Lovering, Fremont, Nebr.

FOR SALE—HAPPY FARMER TRACTOR, 12-24. L. A. Engle, Wiota, Iowa.

CABBAGE CUTTERS—6 KNIVES—SLICES all kinds vegetables rapidly; fine for potato chips. Prepaid, $1.00, three for $2.00. Agents wanted. Lusher Bros., Elkhart, Indiana.

Bulletins for Stockmen

Stockmen will be interested in a bulletin by Dr. George H. Glover, on "Prevention of Blackleg." Inquiries for copy should be directed to the Extension Department, Colorado Agricultural College at Fort Collins. The bulletin contains timely information which, if applied, means the saving of many calves which otherwise might fall victim to the disease that is causing enormous losses on the range.

A bulletin by Dr. I. E. Newson entitled "Hemmoraghic Septicemia in Sheep," should be in the hands of every sheep raiser in the state. It is number 154-A and can be obtained free of charge on application to the Extension Department, Colorado Agricultural College.

Another useful bulletin is No. 156-A, "Prevention of Some Hog Diseases," by Dr. Glover and may be had free from the same source as above.

Starting With Purebreds

An easy way to start in purebred livestock is to buy one or two purebred females and keep the female increase until stocked up. With hogs, this is a very quick business; with cattle, it is much quicker than you might think. According to the Kansas City Star, a Kansas farmer bought a registered Shorthorn heifer in 1906 and produced from her and her descendants, 94 head in 12 years. Two brothers in Wisconsin started in 1904 with one registered Shorthorn cow and kept a careful record of the increase, and produced in 14 years, 119 head.

Of course, this is true of all other breeds; the Shorthorn was mentioned simply because we happened to have figures on them.

The bulls which come along from year to year, will sell for more money than grades; and you will want to keep the heifers. A purebred should have plenty of feed and good, ordinary care, just what a grade should have; and the purebred will be just as prolific as the grade. Without care, it doesn't pay to keep any kind of an animal, purebred or scrub.

In answer to inquiries regarding a Calf club in Rio Grande county, I believe the thing is very timely, provided we can get a limited number of boys and girls who are of a mature turn of mind, and who are so situated as to be able to feed and to care for the animals properly.

My idea would be to start in with registered heifers, yearlings past, and better yet, bred heifers, in which case returns would come more quickly. This would prove a wonderful thing for the right lad; it might mean the difference between leaving the farm and not leaving it; and it would surely and quickly result in the building up of a business anyone might be proud of.—C. D. Hyatt, County Agent, Rio Grande county in Monte Vista Tribune.

Farm Craft Lessons

"Farm Craft Lessons" is the title of a volume issued by the educational section of the U. S. Boy's Working Reserve. This volume was prepared and edited by Prof. Eugene Davenport, dean of the College of Agriculture of the University of Illinois. It contains, in concise, well illustrated and graphic form, the essential fundamental information needed by young men who expect to make themselves useful as farm laborers. Among the many subjects covered are the following: the horse, harnessing and hitching, working farm horses; the cow, handling milk on the farm, separating and handling cream; care of farm equipment; the wagon and its parts, care of the wagon; the plow, mower, the gas engine; preparation of the seed bed, cultivation, shocking wheat and oats, etc., etc.

The booklet is put up in such a practical and handy form that its use in our rural schools is highly desirable. It is published by the U. S. Department of Labor. Judge Edward C. Stimson of Denver, who is in charge of the U. S. Boys' Working Reserve for Colorado, will be glad to furnish information about the booklet to any rural teacher who might be interested.

Columbian Ground Squirrel

Poisoned oats is not effective in killing Columbian ground squirrels which infest the wooded sections of northern Idaho. A special mixture must be prepared to kill these rodents as they hull the oats before eating them and thus avoid the poison. Poisoned bait for the Columbian squirrel is prepared by combining in a dry mixture one ounce of powdered strychnine (alkaloid), and one ounce of baking soda, one teasponful of saccharin and three tablespoonfuls of flour, adding a little cold water and stirring thoroughly to a smooth creamy paste. This mixture is distributed uniformly over 12 quarts of oats and the poisoned baits scattered at the rate of one teaspoonful to a place. Oats thus prepared must be used within 10 days or two weeks or the poison will dust off. If the bait is dry it may be placed in a tub or other vessel and sprinkled with a little water to moisten it before distribution.

Care of Breeding Animals

At this season of the year breeding animals should receive more feed and special care and attention than is usually given them. The herd bull should not be allowed to run with the herd during the winter, but be kept in a separate box stall with outside paddock for exercise. If inclined to be restless a few dry cows or heifers should be kept with him. The bull should receive sufficient nutritious feeds to keep him in good breeding condition. Unless silage is provided, a small allowance of grain should be fed in addition to the roughages.

The breeding cows, especially those bred to drop calves in the spring, should receive enough feed to keep them in good physical condition. Silage and nutritious hays, such as clover, alfalfa, and other legumes, should be used for the cows and calves and the coarse, cheap roughages utilized for wintering dry cows, stockers, and feeders. The breeding cow, if only in moderate condition, should also have a small amount of grain. Unless legume hay is available, one or two pounds of cottonseed meal may be used to good advantage. Protection from cold and wet weather should also be provided, especially at time of calving. When the calf is old enough to eat, see that it gets sufficient feed to make a satisfactory growth. To withhold feed from a growing calf is to waste it. The calf that lies down at night without having made some gain has largely wasted the feed that was given it.

Live Stock Notes

An exceptional opportunity for buying purebred registered Holstein cattle will be offered on May 28th by the dispersion sale of L. M. Boston of Mount Morrison, Colo., whose advertisement appears in this issue. Outstanding individuals of the leading Holstein strains noted for their milk production and true to breed type in form and color, will be offered. Besides the thirty head of registered cows and a number of registered bulls, there will also be a good selection of high-grade animals. This herd is headed by the senior champion bull of the 1919 National Western Stock Show. The sale takes place on Sunny Flats Holstein Farm, four miles west of Englewood on the Morrison and Fort Logan road.

The herd of registered Duroc Jersey hogs maintained by Caldwell Martin at Edgemoor Farm, near Littleton, Colorado, have made a splendid record in the show ring during the past few years. This herd took 9 premiums in 1917, 18 in 1918 and 20 in 1919 at the National Western Stock show.

G. H. Pettengill & Son, Grand Junction, Colo., are offering some high-producing Jersey cows and also a few heifers. See their announcement in this issue.

Wm. Duncan, Yoder, Colo., who is a breeder of high class Scotch Shorthorns, has for sale, Avondale's Goods, 430634, and other registered Shorthorn cattle. See his announcement in this issue.

Wynnewood Ranch, Overland, Colo., owned by L. G. Davis, the well known Hereford breeder of Saratoga, Wyo., last year established a Poland China foundation herd and is now offering young stock for sale for the first time. See his announcement in this issue.

Some two year old registered Shorthorn bulls and seven yearling Shorthorn bulls are being offered for $250 per head by Samuel Ball, Wray, Colo.

Moisture conditions are favorable in practically the whole of Western Farm Life territory, indicating another prosperous crop year.

Edgemoor Farm Durocs

Our spring litters are the best we have ever raised on the farm. Every spring pig which we will offer for sale is sired by a prize-winning boar and out of a prize-winning sow. We can sell you a boar or gilt good enough to show at the State Fair this fall, or the Denver Stock Show next winter, and which will make money for you as a breeder. Put in your order early. Prices reasonable and satisfaction guaranteed.

Edgemoor Farm
CALDWELL MARTIN, Owner
Littleton, Colo.

Polled Herefords

Big-boned, blocky, double standard Polled Herefords. One more yearling bull for sale.

SMITH LIVESTOCK CO.
Chivington, Colo.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

Guernsey Bull Calf for Sale

We have for sale a five-months-old registered Guernsey bull calf, sired by a line bred son of the France family and out of a daughter of Longwater Royal 4th 19331. Five nearest dams to this calf average 563.8 pounds butterfat. Write for price and pedigree.

A. L. HARSH, Kersey, Colo.

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

GEO. R. GILMORE, Ft. Morgan, Colo.

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted

Col. G. M. Banks
LIVE STOCK AUCTIONEER
Residence
709 East 11th Avenue
Phone York 7625 DENVER, COLO.

Col. H. E. BUCHANAN
Live Stock Auctioneer
1904 Logan
DENVER, COLORADO
Pure bred Sales a Specialty
For Sale Dates at My Expense
PHONE CHAMPA 5655
Anywhere in the United States My Territory

Majestic Sunbeam Herefords

Herd headed by "Majesty Sunbeam" by "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" by "Statesman". Dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM weighs 2,500 pounds. He is the biggest boned Hereford bull in the country.

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Will sell 20 head of Majestic Sunbeam heifers, from two to four years old, all bred to "Beau June," guaranteed to be in calf, at private treaty.

Also have several head of big-boned yearling bulls sired by Majestic Sunbeam, and a few yearling bulls sired by "Beau Andrew" from Majestic Sunbeam heifers.

If you are looking for best blood and quality and the biggest boned bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and bulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards DENVER, COLORADO

FOR SALE

I also have for sale two registered Airedale dogs three months old. The best bred Airedale dogs in Colorado. Price, $15.

Forty head of full-blooded Poland China gilts by my great head boar, "Wonderking," bred to my great boar "Standard Darkness," the biggest boned Poland China boars in Colorado. Get in the hog business. Fifteen head White Leghorn cockerels one year old; Tom Barron and Ferris strains. Show birds, $3.00.

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyoming
406 New Live Stock Exchange Building,
Union Stock Yards, Denver, Colorado

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent JAMES C. ADAMS, Salesman

L. M. BOSTON DISPERSAL SALE

Wednesday, May 28th, 1919, at Sunny Flats Holstein Farm, six miles south and four miles west of Denver, Colo.; four miles west of Englewood on Morrison and Fort Logan road.

50 Head of Holsteins

30 Head Registered Cows and 5 Head of Registered Bulls

15 Head of High Grades

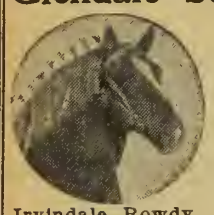
In this sale you have a chance to buy world's record breeding and show ring winners. Herd headed by Senior Champion Bull of last National Western Stock Show. Catalogs will be ready by May 10th.

L. M. Boston, Owner, Mt. Morrison,, Colo.

Col. G. M. Banks, Auctioneer, Denver, Colo.

Col. H. E. Buchanan, Ring Man.

Glendale Stock Farm



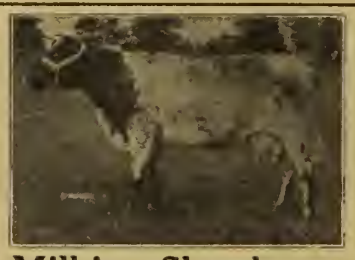
Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

Irvindale Rowdy Grand Champion Belgian Stallion, Chicago, 1917 Denver, 1918 and 1919

J. D. BRUNTON, Aspen, Colo.



Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Duroc's, am sold out of boars, have one or two bred yearling sows at right prices, bred to a son of "Top Sensation."

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

WYNNEWOOD RANCH

BIG TYPE POLAND CHINA HOGS

Junior Champion Gilt, Denver Stock Show, 1919, exhibited by Wynnewood Ranch

FOR SALE—Two young boars, sired by the Sensational BIG BOB WONDER No. 252987, dam Master Queen 2nd No. 696650, weight 600 pounds.

These boar pigs are out of a litter of ten, their color and marking are perfect. They are six months old and weigh 200 pounds, not fat. They are of the best Poland China blood lines.

Address C. E. GORDON, Manager, Overland, Colo.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

THE HOME OF BIG SENSATION, Weight 1,204 Pounds

LARGEST HOG IN THE WORLD

Big type Poland Chinas, choice bred gilts for sale at all times. Call or write.

A. J. ERHART & SONS
Ness City, Kansas

KING RAG APPLE SUPREME

a son of RAG APPLE KORNDYKE 8th, the greatest bull in the world today, heads my herd.

I have some registerd Holstein bull calves for sale, ranging in age from six months to three years. These calves are mostly white and are richly bred, Pontiac Korndyke and King of the Pontiacs, two of the greatest Holstein bulls that ever lived, appear on both the dam and sires' side of the pedigree of these calves. They are fine individuals, absolutely straight and tuberculin tested. Send for pedigrees and prices.

F. M. KING, 1117 West 43rd Street, Kansas City, Mo.

HOOD FARM JERSEYS

Take Farmer Putnam's advice and buy a good daddy for your herd. They are sired by Hood Farm Pogis Warder and from high producing cows.

Also a few heifers for sale.

G. H. PETTENGILL & SON
Grand Junction, Colo.

SHORTHORN BULLS

From herd established 35 years. Breeding sires at head are Choice Goods, Avondale, Cumberland—all champions. Some 2-year-old bulls that are priced at $250. Seven yearling bulls offered at $250. These yearlings were sired by two of the best herd bulls in America. Write for price and particulars.

SAMUEL BALL, Wray, Colo.

SHORTHORNS

Avondale's Goods 430634. Roan, dropped October 15, 1914. Sire, Avondale's Best by Avondale. Dam, Gloster Lady 3d by Victor Sultan, son of Whitehall Sultan, tracing to Imp. Duchess of Gloster 12th, by Champion of England. All Scotch. Sure and gentle; thick and low; $1,000. Or other registered Shorthorn cattle.

WILLIAM DUNCAN, Yoder Colo.

HOLSTEIN CALVES

Extra choice, beautifully marked, high-grade Holstein heifer and male calves. Write W. C. KENYON & SONS
Holstein Stock Farms, Box 39, Elgin, Ill.

Registered Hampshire Boars

For sale at reasonable prices. Sired by Culbertson Senator, a great son of the Grand Champion boar "The Senator" at the National Swine Show, in 1917.

GEO. W. HERTZ, Culbertson, Nebr.

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

Shorthorn and Polled Durham Cattle

Valentine's Last X12316 452008 at head of beef herd. Claywood White 127350 at head of milk type.

STATE INDUSTRIAL SCHOOL
Golden, Colorado

Lookabaugh's Shorthorn Sale

SELLING THE ENTIRE SHOW HERD

WATONGA, OKLAHOMA, MAY 15

40 Head--37 Females--3 Bulls :: THE BEST LOT OF CATTLE I EVER SOLD

In addition to our show cattle we are selling the best cattle I have been able to buy or breed. Every individual in this offering is of the best. For years the winnings of this herd at the best shows are a matter of record. The last two years the get of Fair Acres Sultan, largely composed our herd. At the State Fairs where we showed, we won every first prize and champion and grant champion ribbon shown for, except two. At the American Royal and the Chicago International only times there, we won first prize senior heifer calf; first prize futurity heifer calf; champion futurity heifer; first prize junior bull calf; first prize calf herd; first prize junior yearling bull; first prize two-year-old heifer; senior champion female; first prize get of sire, by Fair Acres Sultan and first prize for South American silver trophy, for the best three bulls bred and owned by exhibitor, the get of one sire, besides a great many other premiums.

Ten Daughters of Fair Acres Sultan. All in the sale except two. This boquet will reflect glory on their purchasers and the state and locality to which they go

Two daughters of Snowbird's Sultan, one a Bonnie Bell, bred to 2nd Fair Acres Sultan, the other a Lady Douglas, bred to Maxwalton Commander.

Fourteen daughters of Fair Acres Sultan, Pleasant Acres Belle, grand champion at the State Fairs; at the American Royal and International she was first in class and champion futurity winner. Fair Acres Belle, her full sister, was first in class at the State Fairs where shown—great senior yearling for next year. Pleasant Fairy Queen, second junior heifer calf at American Royal—a great prospect for this fall. Pleasant Violet Bud, our senior heifer calf, which I believe is the best we have ever shown. Pleasant Acres Julia, a prominent prize winner of the imported Julia family. Pleasant Gloster, a great prospect. Pleasant Rosebud, defeated only by her stall mate at the State Fairs. The remainder of the fourteen daughters of Fair Acres Sultan are equally as good as those mentioned above.

Three daughters of the famous Avondale Maxwalton Jealousy, the dam of two grand champions and three successful herd bulls; Maxwalton Jealousy 2nd, calf at foot by Max Acres Sultan, Roan Victoria 2nd, and calf at foot by Max Acres Sultan. Maxwalton Averne, the dam of 2nd Fair Acres Sultan and Max Acres Sultan, and a cow with more intrinsic value than some herds. Calf at foot by Fair Acres Sultan, Jr. Seven imported cows: Graceful 27th, with a roan calf at side by 2nd Fair Acres Sultan; Gowan Cardigan 25th, the best cow I ever imported, bred to Pleasant Dale 4th, grand champion of five State Fairs; Lady Dorothy, a great individual; Golden Marigold; Mayflower 12th; Undine Main, mother of McAllister, and Arugask Cowslip 2nd.

Wellington Amanda 9th, by Double Dale; (full sister to the dam of Fair Acres Sultan, Jr.). Duchess of Gloster M., by Fair Acres Gloster, a Cruickshank Duchess of Gloster, with roan heifer calf by Snowbird's Sultan.

Four daughters of Watonga Searchlight: Orange Blossom 2nd, first prize junior yearling heifer at the State Fair last year, a Cruickshank Orange Blossom; Pleasant Jealousy L., noted especially for possessing one of the best pedigrees in the herd book; Pleasant Snowflake, a Campbell Bloom; Pleasant Marrigold, a Marr Marigold; Lespedza Bracelet, with a calf at foot by Snowbird's Sultan.

Lavenwer Beauty 7th, the dam of the $2,500 Pleasant Acres Sultan, with a herd bull prospect at foot—a better individual than she was never born; Lady Orange Blossom 4th, one of the great cows of the Shorthorn breed.

All cattle tested for tuberculosis and sold subject to a 60 day retest.

All females will be kept at the farm and bred to one of the sons of Fair Acres Sultan, Maxwalton Commander, Avondale's Choice or Pleasant Dale 4th.

Six representatives of the best live stock publications have carefully inspected this offering, and have made the following statement: "This is the best lot of Shorthorn cattle we ever saw offered for auction by one firm."—W. S. Edmiston.

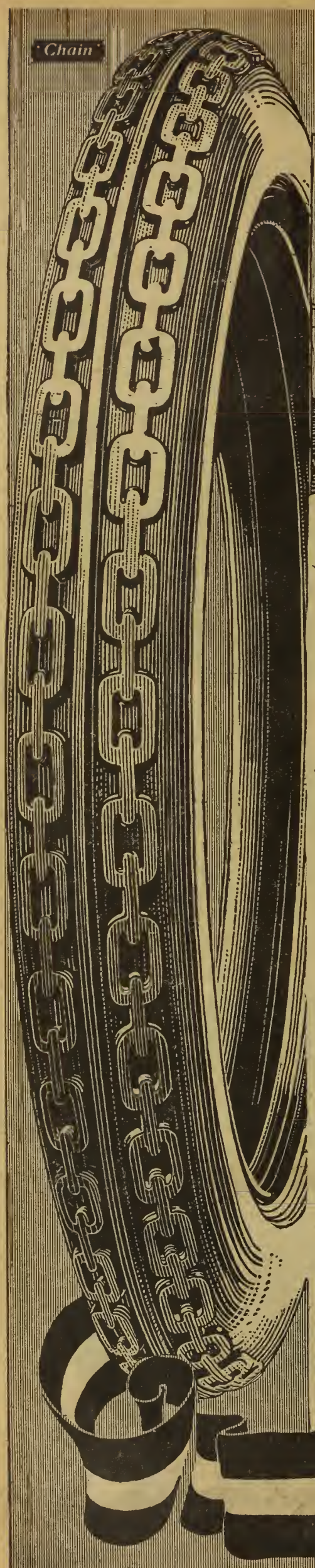
Please send for catalog early and mention Western Farm Life.

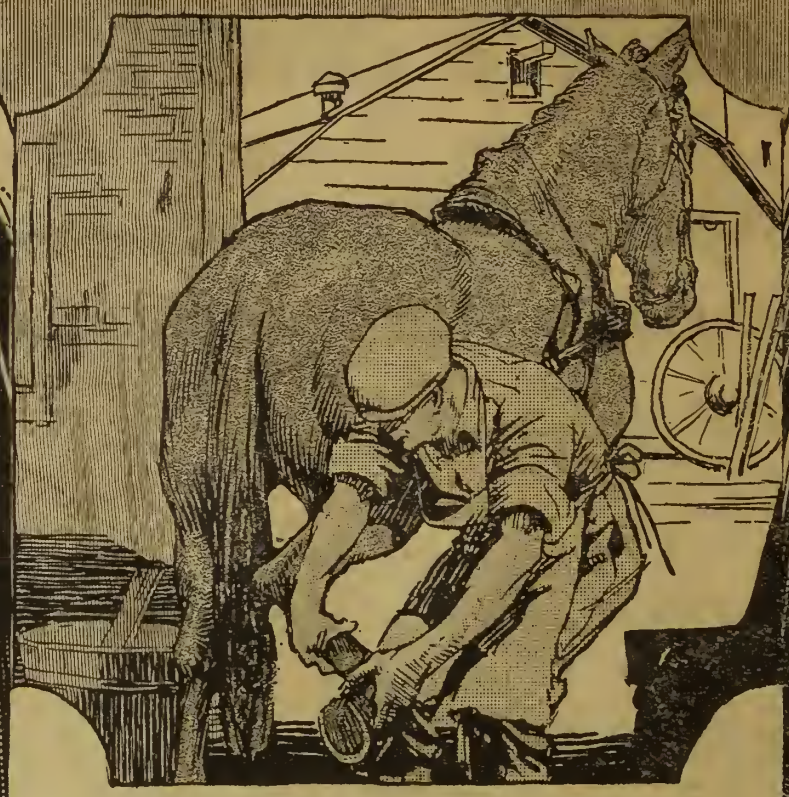
FAIR ACRES SULTAN JR., first prize bull calf at International, also head of the first prize calf herd at the International. One of the three bulls that won the South American Silver Trophy. First Prize Jr. yearling American Royal. Considered the best bull Fair Acres Sultan ever sired, and one of the best bulls in the United States. Who can estimate the value of this Great Young Bull?

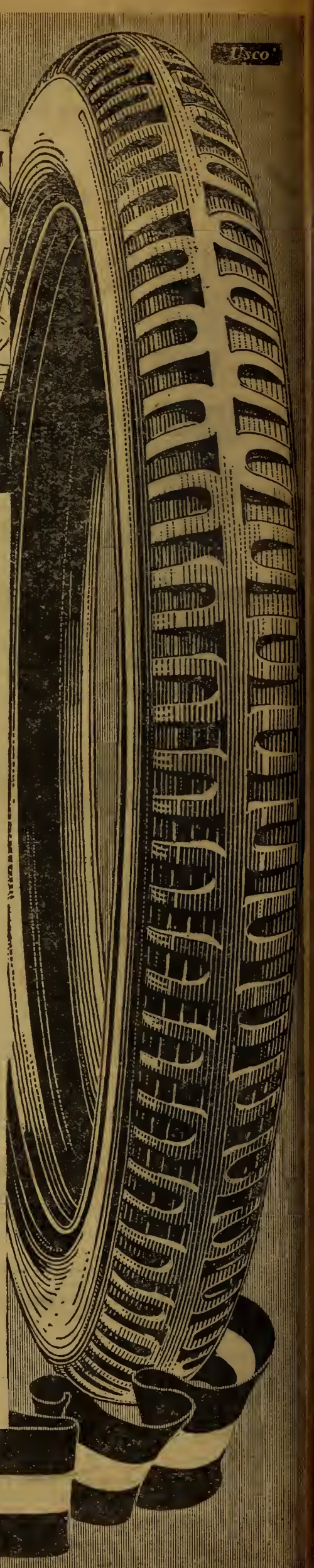
H. C. LOOKABAUGH, Route 8, Watonga, Oklahoma

Auctioneers: Jones, Reppert, Gross, Herriff, Hurt, Odell and Smithhisler

The Sale Circuit: May 13, Frank Scofield, Hillsboro, Tex.; May 14, Crosbie, Suppes & Kramer, Tulsa, Okla.; May 15, H. C. Lookabaugh, Watonga Okla.; May 16, Park Salter, Wichita, Kans.







You Wouldn't Have Your Best Horse Poorly Shod!

Unsuitable tires will cripple an automobile as surely as poorly fitted shoes will lame a horse.

Your car must be properly shod to give its best and most economical work.

Give it tires *you know* are exactly suited to its use—tires that are perfectly adapted to the roads you travel.

The line of United States Tires includes tires to meet any possible need. It is the only complete line built by any tire manufacturer.

No matter what type of car you drive or what kind of roads surround your farm, you can find United States Tires that will fit your needs to a nicety.

There are five separate types for passenger cars and both pneumatic and solid for trucks.

The nearest United States Sales and Service Depot Dealer will gladly assist you in making your selection. He will save you lots of those good hard dollars you get from those fields of yours.

Let him help you.

United States Tires are Good Tires

UNITED STATES RUBBER COMPANY
US
RUBBER SYSTEM
AND ASSOCIATED COMPANIES

Western Farm Life

DENVER, COLO.

May 15, 1919

DOUGLAS COUNTY SILO INSPECTION TOUR

does it pay?

A NEBRASKA rancher located 45 miles from the railroad used to spend four days on the road with a team going and returning from his shipping point. With his International Motor Truck, he makes the trip in a day and saves three days for productive work.

An Iowa farmer living ten miles from town required the greater part of a day to make a round trip haul with horses. With his

International Motor Truck

he makes the trip in about three hours. The rest of the day he has for productive work. To the farmer living closer to market, the saving accomplished with an International Motor Truck is relatively as great.

This truck is built by a Company that knows farm and country road conditions. The engine is a simple, heavy duty type, transmitting ample power to the famous International internal gear rear axle, that converts it into mileage at lowest cost.

When need arises for repairs, or an adjustment, an International owner has always at ready command a service organization that is thorough and complete. This is an important consideration to the farmer, whose hauling must so often be done at just a certain time.

Figure up the time you and your help spend on the road in the course of a year. Two-thirds of that time is the approximate number of days an International Motor Truck will save you for productive work. There is a style of body and size of truck to meet practically every hauling requirement. Write for full information.

Motor Truck Sales Department

International Harvester Company of America
(INCORPORATED)

Chicago -:- U S A

Branch Houses, Distributors and Dealers Everywhere

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

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WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, MAY 15, 1919 | Number 10

Implements For Dry Farming and Their Uses

DISCUSSION OF RELATIVE MERITS OF VARIOUS FARM TOOLS

E. R. PARSONS

THE most important factor in raising crops on any dry farm is the plowing. The only place where profitable harvests can be obtained by shallow plowing is on bottoms above a water table, where the moisture comes up by capillarity, but this is sub-irrigation, not dry farming. One reason that so many farmers do not take kindly to deep plowing is because they much prefer to ride on a sulky than to walk behind a moldboard. We don't blame them; but nevertheless it is impossible to raise the maximum crops with a sulky plow and two horses, although it can be done with four horses or a tractor. The best plow for the farmer with two work horses of 1,300 to 1,400 lbs. apiece is a 12-inch walking plow; but if his horses run from 1,100 to 1,200 he had better make it a 10-inch for it is the depth of the furrow that counts more than the width.

All the implement houses sell good walking plows with a clearance of from 18 to 22 inches between the plowsole and the beam, allowing plenty of room for deep plowing. Ordinary plowing should not be shallower than 10 inches in order to get the best results, but a second plowing for the same crop need not be deep. The single disk plows have their uses, but they do not do such good work as the moldboard, and the writer believes should be used more as emergency implements. The cut of the disk is round not square, and this naturally leaves round furrow bottoms in which the corners are not cut out. Another objection to this style of plow is that they scatter the earth to some extent rather than turning it under. On this account a field plowed with nothing but the disk for a number of years will lose more in fertility than one plowed with the moldboard. Nevertheless the single disk plow is a very handy implement at times. When the ground is too wet for the moldboard to scour it can be used to advantage. When the ground is so dry that the moldboard raises nothing but clods it will do much the best work of the two.

In summing up this matter the writer, who has used both plows, believes that every other plowing at least should be done with the moldboard, and in the course of experiment has found that the seedbed prepared by it will usually beat the one prepared by the disk by at least a bushel per acre.

Another plow which is a double disk plow and must not be confounded with the single disk, is the plow which works with two disks, one cutting behind the other in the same furrow. It will be noted that the first disk cuts five or six inches of the top, tumbling it down into the bottom of the furrow, then comes the second disk taking the deep cut and throws it on top of the other; thus the soil is completely turned over. There is no better type of plow for dry farming; but at least four heavy horses are needed and usually more for breaking which it accomplishes better than any other plow.

Harrow Should Follow Plow

There are many makes of harrows on the market nowadays, but the most useful and necessary is the old pegtooth with levers for sianting the teeth when necessary. The harrow should follow the plow, disintegrating the soil and leveling the furrows before they have time to dry out and become set. The exception is fall plowing or listing which is left in the rough state all winter to act as a snow trap. The harrow is used for harrowing corn and grain and even potatoes. By giving a slant to the teeth it slides over the plants instead of tearing them out.

Novices are always afraid to harorw their crops for fear of injuring them; but although the teeth when about half slanted have just enough penetration to destroy weed seedlings just coming through, they cannot damage a rooted crop which has not yet jointed. This harrow with the teeth slanted is also the best to use on newly broken sod until it has been thoroughly cut to pieces with the disk. For harrowing in broadcasted seed the teeth must be set perpendicularly and it is best to harrow only one way; not to cross harrow. The spring tooth harrow is something of a cultivator, and will cut out weeds better than the regular harrow. It is used much for orchard work and some use it on the summer fallow. The teeth or blades leave a wider and deeper impression on the surface than the regular harrow. It is a handy implement, but not absolutely necessary on the dry farm.

Quite a favorite with some farmers is the Acme riding harrow. This is a good implement for breaking small clods and fining the surface for small seeds such as alfalfa, sweet clover, millet, etc., but the farmer can obtain much the same effect by slanting the old harrow teeth and attaching a brush drag.

An implement that we cannot very will dispense with is the disk harrow. It is now made reversibie, so that the soil may be thrown either in or out just by loosening a bolt and reversing the gangs. These gangs are also made to slide on a bar, so that the cut may be extended to work under trees leaving space in the middle which is covered by lapping the next round.

Loosening Up the Sod

Before plowing, the disk can be used to loosen up the sod, and after the breaking it is used again to tear it to pieces. Before the coming of the disk even the most resolute farmer would shy at the idea of making a sod seedbed; but now thanks to this handy implement, we can raise first-class crops on the newly broken prairie. The disk may be used also as a packer, in which case the blades should be set straight, or almost straight, and some extra weight placed on the bar above the gangs. It is very useful to use on a summer fallow where the water from the violent rains or cloudbursts runs off. In this case the land is simply disked and cross-disked as deeply as possible without lapping. The criss-cross ridges made by the outside blades dam the water back in every direction.

There is besides the disk harrow a combination of disk and drill which disks and seeds at the same time. They are much used by those who run in crops on stubble. Winter wheat planted in this manner seldom makes much of a crop; but rye will do very well for fall pasture, or for hay the following season. For seeding grain crops there is nothing better than the press drill, which compacts the seed row and thus anables it to steal moisture from the looser dirt for germination purposes.

For cultivating row crops the old-fashioned riding two-horse cultivator with six blades, three on either side of the row, is still as popular as ever and leaves the ground in better shape to accumulate and conserve moisture than any of the double shovel arrange-

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The Mountain States National Tractor Show

DENVER will be host to thousands of farmers the week of June 9th to 14th inclusive, when the Mountain States National Tractor Demonstation takes place on grounds located three miles southeast of the suburb of Aurora. This demonstration will be in many ways the biggest ever held anywhere, because of the large tract of level ground available for showing everything that can be accomplished on the farm by mechanical power.

While many will come to Denver by auto, there will also be thousands who expect to come by train. For the benefit of these it is announced that ample street railway and auto transportation has been arranged for. The show is held less than three miles from the end of the Colfax-Aurora car line, and there will be quick auto service directly from hotels in the city and from the end of the car line.

Fifty tractor and farm implement makers will take part. Many makers will be here in person to oversee the demonstrations. There has never been a national demonstration in the mountain states, and as this is the farming territory that, because of unused areas of arable land, will see the greatest development of farm power in the next five or ten years, interest is keen among the manufacturers as well as among farmers who expect to, or have already, begun to modernize and motorize their farms.

Behind the big show is the National Tractor Manufacturer's Association, with A. E. Hildebrand as General Manager. Mr. Hildebrand is one of the originators of tractor demonstrations, having handled all of the national shows. He is already in Denver, supervising arrangements, and is chairman of the executive committee, the following being the other members: Ex-Governor E. M. Ammons, L. L. Clinton, A. J. Simonson, F. M. Ross.

The publicity committee is composed of Fred P. Johnson, chairman, W. S. Edmiston, William L. Drier and Alston M. McCarty.

Roads and transportation: Fred L. Lucas, chairman; H. W. Moore, J. L. Adams.

Water Supply: L. M. Hibbs, chairman; George T. Wells and George W. Martin.

Tents and ground layout: F. I. Carruthers, chairman; F. M. Ross, E. E. Scott, A. F. King, Lee A. Reynolds.

Concession and Commissary: Zeph Charles Felt, chairman; Charles O. Elwood, R. R. Boyce, W. C. Baker.

"We expect from 50,000 to 60,000 persons a day to come to this show from fifteen to twenty-five states," declares Mr. Hildebrand. "There will be fifty manufacturers represented. They will exhibit 125 tractors and about 500 tractor-operated farm implements. In fact, a demonstration will be given of every motorized piece of farm machinery and that includes every kind of impiement that ever has been or can be used in farming.

"This show will open up more than 10,000,000 acres of untilled Colorado land in the next five years and will increase materially the production on the 10,000,000 acres which are now being farmed.

"Five years ago I was in Denver and found five tractor companies represented here. Their annual sales ranged from one to one and one-half millions. Today there are thirty-five tractor agencies here with annual sales of from eight to ten millions and in the next five years, after the Eastern manufacturers are awakened to the possibilities of this Western country, Denver tractor sales will be more than $25,000,000 annually."

Government reports show that the best and deepest plowing is done where the farmers have the most power; and a good job of plowing and seed bed preparation is naturally followed by higher yields and greater profit to the farmer. Bigger profits means more money to expand farming opeartions and still greater returns. Mechanical power for plowing and seeding preparations cuts both the time and cost of the preliminary crop work. The same power plant—the tractor—may then be used for cultivating the crop, harvesting it, threshing the grain and for cutting the ensilage. When the harvest work is done the tractor does not need to be retired to the machinery shed, but it may be used for belt work; it is a portable power plant that will run all the machinery of the farm.

Think this over and then arrange to spend the week in Denver to see tractors doing every sort of work that power is needed for on the farm. There will be plowing, disking, harrowing, drilling, cultivating, harvesting; in fact, everything that a tractor is ever called upon to do will be done for the benefit of the farmers.

Credit for bringing the big demonstration to Denver is due the Denver Tractor Club, an organization composed of the western representatives of mechanical power farming concerns. Co-operating with the Tractor club is the Denver Civic and Commercial association through its Agricultural Bureau, which is financing the show.

Douglas County Farmers To Build More Silos

A SHOW ME TOUR OF THE BIG BEEF AND DAIRY FARMS

ALVIN T. STEINEL

DOUGLAS county is the pioneer dairying section of Colorado and silos are not new to the farmers. However, there are still many dairy and beef farms not so equipped. For the purpose of stimulating interest in silo building, the Douglas County Farm bureau recently arranged an automobile tour for the benefit of farmers who contemplate erecting silos during the coming summer. The party was in charge of County Agriculturist L. J. Wormington. Farmers participating were so greatly interested in asking questions of those whose silos were inspected that not much more than half of the itinerary was covered during the day. There was only one side to the story—every silo owner, regardless of the type of silo, or kind of cattle being fed, was positive in the statement that ensilage cut the feeding cost and increased the profits from beef or milk.

Prof. R. W. Clark, livestock extension specialist for Colorado Agricultural college, and the editor of Western Farm Life made the tour with the farmers, and learned much at first hand from practical dairymen and beef producers about the making and feeding of ensilage.

The first farm visited was that of E. V. Blunt, who has a Tunglok silo; capacity 110 tons. This silo is constructed of prepared fir lumber 2x4's and 28 feet high, 8 feet of it being in the ground. It is octagonal in shape. The material cost $420.

Mr. Blunt is milking about 30 cows, mostly Shorthorn grades, and has a registered Shorthorn bull. His herd is producing well, the milk check during the winter months averaging around $450 a month. He uses a milking machine and says it is a great labor saver.

On the farm of Charles Heir, which was next visited, there is a concrete silo, capacity 130 tons, which was built in 1913. At that time materials were much cheaper and the cost of the silo, not including the roof, was only $315. It would require more than double that sum to duplicate it now. Mr. Heir has high grade Holsteins and is milking 32 cows. He has had a little trouble with silage freezing in zero weather, but attributes that to the fact that the silo is on the north side of the barn. If he had it to do again he would build it on the sheltered side. He expects to double his silo capacity this year. He fills with corn, using White Australian and Swadley mixed. It takes from 20 to 35 acres to fill the silo. The farm is located at 6,000 feet.

Corn throughout that section yields heavily of grain, but does not make much forage, as the varieties are bred for short season and high altitude use. This makes a fine quality of ensilage, but the tonnage is limited when compared to lower altitudes. The farmers are interested in watching experiments with Russian sunflower ensilage.

C. W. Curtis & Sons, well-known breeders of registered Holsteins, were next on the itinerary. They operate a 2,000-acre ranch with a lot of good rich bottom land which produces alfalfa and splendid upland pasture. Over 100 head of milk stock are carried on the place, there being 42 head of registered stuff. King Piebe Pride Pontiac is the herd sire, this bull being from one of the noted Wisconsin herds. Another good bull which they are using is Oaks Home Farm Esprit, from Dr. Hubert Work's herd in Pueblo county.

There are many high producing cows in the Curtis herd, one of them having a record of 63 lbs. daily over a period of nearly two months. The ranch is now shipping 100 gallons of whole milk a day from 25 cows to a Denver dairy by auto truck. The truck gets the milk to market in a little over an hour's time.

Two concrete silos help out in winter feeding. The question of feeding is given much study on the Curtis ranch, on the theory that cows of good breeding such as they have, need to be well fed in order to keep up production. Ensilage has cut the cost of feeding in winter about in the same proportion as grass cuts it during the pasture season. The cows get an ample quantity of concentrates in addition to succulent feeds and dry roughage and their condition and milking records show the advantage of feeding for high milk production.

The next farm visited was that of Herbert Stewart, a breeder of registered Milking Shorthorns and registered Poland China hogs. He has several grade cows in the herd that made him a net profit, according to the records of Douglas County Cow Testing association, of $109 a year. His principal herd sire is Scottish Star, a bull bred in Missouri of good Milking Shorthorn strain. He runs about 75 head of Shorthorns including the young stock and is milking 17 head at the present time. Here we found another Tunglok silo, capacity 100 tons. Mr. Stewart has an exceptionally well arranged dairy barn built on a hillside, the south exposure level with the corral, using the lower floor for the dairy cows and the upper floor, which has a wagon entrance from the hillside, furnishes ample space for hay. The barn is 70 x 36 feet. Alfalfa, prairie hay, ensilage and oats are produced on the farm and furnish a good feeding program for the dairy herd, with grass for the summer months.

Dairy Barn and Silo on E. V. Blunt Farm, Sedalia, Colorado

On the ranch of Richard Dillon, the next place visited, the chief business is the production of Hereford cattle. Two silos are in use, one of them being of the wood stave type, the other a pit silo, 18 feet deep, which will be built up from the surface this year. There are 5,000 acres in the ranch which produces alfalfa, hay, corn, oats and other feed crops. Ensilage has been used for some years to carry through the beef cattle and is much more satisfactory than dry feeds.

On the Joe Nixon ranch, the chief business is registered Shorthorns, both beef and milk type. This is a 2,000 acre ranch with ample pasture and plenty of land to grow alfalfa and other feeds. A concrete silo provides succulent feed during the season when pasture is not available.

On the J. N. McInroy ranch, which was last on the list, the visitors were much interested in what is considered one of the best herds of milking Shorthorns in Douglas county. Registered bulls are used and at present 21 head are being milked. A cow from this herd made a remarkable record in the testing association, being winner above all breeds for net profits during the first year of the test.

"We could not do business without our silo which is filled with good corn ensilage every season," was the comment of young Mr. McInroy. This ranch is located at an altitude of over 7,000 feet, but corn is produced every year and yields ample tonnage for ensilage purposes.

The visitors were interested also in Mr. McInroy's new dwelling, which looks like a town house and is modern in every respect with bath on both floors, hot and cold water, electric light, and, in fact, every convenience that might be found in a city home. Water service is easily provided from mountain springs near by and a Delco light plant furnishes electric power and lights. The ranch comprises 960 acres of pasture, hay and crop land, and is located on the Perry Park road, about 2½ miles from Larkspur.

Mr. H. L. Lowell of the O. V. Ranch was with the party, but lack of time prevented a visit to his farm. He was probably the first man in Douglas county to build a silo, having put up one on the home ranch 13 years ago. At that time he was in the dairy business, but he later changed to beef production, now running about 400 head of

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Expert Holden Says Aim For Smooth Type Corn

SOUND ADVICE FOR COLORADO GROWERS OF MINNESOTA NO. 13

Rough or smooth type Minnesota No. 13 corn is a question that was discussed with some animation at the Boulder County Corn show in March, and later in Western Farm Life. In order to get light on the subject from a source of unquestioned authority we took the matter up with Prof. P. G. Holden, who is rated as one of the foremost corn experts of the world. It was Prof. Holden who capitalized the corn crop for Iowa. He got the farmers of that state to realize what corn meant to them. His personal work and the efforts of his staff of extension men, while he was with the Iowa State College, resulted in a tremendous increase in the per acre yield of corn through seed testing, varetal improvement and other methods of betterment. For seven or eight years now he has been in charge of agricultural work for the International Harvester Company. Following is the substance of a letter addressed to him by Western Farm Life, in reference to the type of Minnesota No. 13 that should be produced in Colorado:

As you are no doubt aware Colorado has been making great strides in corn production during recent years, because of the desirability of corn for ensilage in milk and beef production. Boulder county, altitude about 5,000 feet, has been the chief section for corn development. Minnesota No. 13 is the variety with which County Agriculturist H. H. Simpson of Longmont is working through the corn clubs and many adult farmers.

We have come to a point now where the selection of an ideal type of Minnesota No. 13 is an important matter. Mr. Simpson has in mind a corn such as is described in Prof. Bull's statement appearing on page 3 of our issue of March 1st, copy of which is going forward under separate cover. This calls for a type of kernel having only a slightly wrinkled cap or crown. There is a type of Minnesota No. 13 being pushed which has a very rough kernel cap.

The point we are uncertain upon is this: Those favoring a very rough type claim that this is an indication of great vitality and early maturity. The judge at the Boulder county corn show in February went so far as to say that he had grown rough type corns in Indiana and when he found a tendency toward smoothness in the kernel cap, he thought the corn was running out. Now please tell us, is there really any basis for the statement that a smooth crown should be avoided and a rough crown emphasized? Is not this just a fad? Do you know of any particular objections, from the standpoint of vitality and powers of resistance to adverse climatic conditions, to corn having smooth capped kernels? What influence, if any, would this point have and what would be your suggestions as to the type we should strive for in this locality? Our farmers will greatly appreciate a word from you on this subject.

The reply of Prof. Holden indicates that County Agriculturist Simpson's selection of the ideal type is the proper one and that there is no virtue in the rough type of kernel:

Prof. Holden's Reply.

I note what you say regarding the question of a smooth or rough type of Minnesota No. 13 corn for Colorado. The matter of roughness or smoothness is largely a question of lateness and earliness; the rougher the corn, that is the deeper the dent, the greater is the tendency towards lateness and towards a deep kernel. A smooth type of corn generally tends towards an earlier maturing type and with a shallower kernel.

Again, roughness is a question of variety, for example: the Boon County White is not a deep dented corn and has a tendency towards being rather smooth, while the Silver Mine is a rough type of corn and yet is earlier than the Boon County White.

In Colorado if you should attempt to secure a rough type of Minnesota No. 13, you would be working away from the breed characteristic and you would also tend to produce a variety that was too late for your altitude, and earliness is a matter of great importance with you.

People who have lived in the corn belt of Illinois and Iowa naturally lean towards a rough type of dent corn. However, in our breeding experiments on the Funk Farms where the work has been carried on for a number of years, we have found that we get better results, larger yield, and a better quality where we tend towards the smooth rather than the rough type of kernel. Smoothness and flinty character of the dent corn may be an indication of its running out when it has been carried to such an extreme that the kerneis are very shallow and the space is very wide between the rows, but under ordinary conditions, the smoother type of dent corns have a greater vitality, are more apt to be thoroughly mature and give a little higher germination than does the rougher type which tends to be later, somewhat more immature and consequently a little more apt to be frosted or frozen in the fall before the corn has become thoroughly dried out.

It is my opinion that there is more danger from trying to get the Minnesota No. 13 corn too rough rather than too smooth, especially for northern latitudes and for high altitudes, such as yours. It is a pretty good sign for any dent corn in the northern regions to have rather flinty kernels at the tip of the ear and not hold its size too full at the tip of the ear; in other words, an ear that gives away somewhat at the tip and has rather flinty kernels is apt to be early and well matured and apt to possess a great deal of vigor or vitality. I am glad that you and the county agent are developing the corn work in Colorado. There is a great opportunity for the development of the corn business.

Some years ago Prof. Moore of Wisconsin lamented the fact that they were not in the corn belt. I told him that the thing to do was to get busy and develop some corn suited to Wisconsin conditions and put Wisconsin into the corn belt, which he has so well done as you know. It was only a few years ago that Wisconsin, Minnesota, South Dakota had the impression that they were in the small grain belt, but they have come to realize that they are as a matter of fact in the corn belt. Corn has a much larger place in the agriculture of Colorado than has been accorded to it in the past.—P. G. G. Holden, Director Agricultural Extension Department, International Harvester Company.

First Shorthorn Hereford Joint Auction Sale

BUYERS WERE FAVORED IN THE DENVER CONSIGNMENT AUCTION

BUYERS found the first annual joint auction sale of purebred Herefords and Shorthorns in the Stock show arena at Denver April 29th and 30th a favorable market. Breeders were not so well satisfied, but they consoled themselves with the knowledge that this was just a starting point for the dissemination of good blood which could be reflected in a greater demand and figures more in line with true values at the next sale. No record prices had been expected and none were received. The two breeds were closed together on general averages for the best offerings than has usually been the case, which is evidence of the fact that the mountain country is passing out of the range game rapidly, and taking to cattle other than the white faces, which originally had the exclusive call. It was a harmonious session, Shorthorn men lending their presence on the opening day, and Hereford men returning the compliment on the second day of the sale by fraternizing with their fellow breeders of the Scotch game.

Col. P. M. Gross, who cried the sale, had something to say about the world's food needs which was encouraging to the producer. On opening day his remarks were followed by John Painter, secretary of the Western Hereford Breeder's association, with an admonition regarding the disappearing pastures and the urgent necessity for better cattle and better feeding of them. On the second day the preliminaries by Col. Gross were supplemented by a brief talk from A. G. Cornforth, president of the Western Shorthorn Breeder's association, who, having just returned from an eastern trip, during which he visited some fifteen herds, had a message of good cheer for the breeders and farmers in the outlook for the future of the industry.

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SHORTHORNS

Allen Cattle Co., Colorado Springs, consignor.
Bulls
White Chief 710708, James H. Andrews, Fort Collins $200
King's Heir, Delph E. Carpenter, Greeley. 200
Cornforth Livestock Co., Elbert, Colo., consignor.
Bulls
Lot 3, William Smith, Aurora, Colo..... 215
Colorado Type 729040, Henry Watts, Byers, Colo..... 260
Cows
Forest Glen Lassie 525199, C. A. Hauf, Glendo, Wyo..... 340
Buttercup 178045, James H. Andrews... 300
Forest Splendor 729050, C. A. Hauf..... 200
Florence 112067, Harris & Son, Julesburg 325
Martha Dale 729053, R. L. Ripley, Ft. Morgan 175
Diamond Girl 729049, W. A. Sargent & Son, Ft. Morgan..... 160
Glenwood Splendor 129434, W. A. Sargent & Son..... 610
Miss Valentine 238655, W. A. Sargent & Son..... 305
Gleason & Blazer, Kiowa, Colo., consignor.
Bulls
Sunnyside Prince 723843, F. E. Erwin, Ogden, Utah..... 215
Sunnyside Boy 2nd 691879, J. J. Kruse, Kiowa 170
Sunnyside Excelsior 670789, Lowell Cattle Co., Denver..... 230
Sunnyside Dale 691880, H. M. Mennenenga, Strasburg, Colo..... 215
G. W. Graham, Lily, Colo., consignor.
Bulls
Victor D. 722432, Lowell Cattle Co..... 80
Dale's Masterpiece 722429, D. E. Carpenter 115
Red Dale 685380, Lowell Cattle Co..... 105
Roan Victor 685381, Harris & Son..... 80
Dale Monarch 722430, Lowell Cattle Co.. 95
Cows
Linwood Lawn Nora 83018, A. O. Duffield, Roggen, Colo..... 190
Everett Harmon, Boulder, Colo., consignor.
Bulls
Scotch Knight 718947, Lowell Cattle Co.. 155
Scotch Goods 718946, Lowell Cattle Co.. 175
Gladiator 718945, Lowell Cattle Co..... 170
Sultan Lad 698170, Lowell Cattle Co.... 100
Scotch Lad 718948, F. C. Erwin..... 165
H. F. Harmon, Boulder, consignor.
Bulls
Pershing's Waterloo 698167, John Wikstrom, Golden, Colo..... 200
G. W. Hixon & Sons, Simla, Colo., consignor.
Bulls
Roan King 705184, Harris & Son..... 130
King Snowball 2nd 699763, Harris & Son 125
Colorado King 705186, F. C. Erwin..... 185
C. A. Melburn, Elbert, Colo., consignor.
Bulls
Rubin 731803, Lowell Cattle Co..... 175
Marquis 723636, Portis & Link, Jefferson, Colo..... 175
Jeffrey 723635, F. C. Erwin..... 195
Monarch 639415, August Brumm, Golden, Colo..... 210
Carr W. Pritchett, Steamboat Springs, consignor.
Bulls
Loyal 682519, F. C. Erwin..... 200
Loyal Gloster 716870, H. C. Rice, Holyoke, Colo..... 210
Adrian 716868, F. C. Erwin..... 210
Adonis 740061, Lowell Cattle Co..... 260
Jones Bros., Elbert, Colo., consignor.
Bulls
Golden Crown, J. P. Klug, Greeley..... 220
Golden Prince, Lowell Cattle Co..... 170
D. Warnock & Sons., Loveland, Colo., consignor.
Bulls
Diamond Dale 676069, F. C. Erwin..... 200
Nonpariel Sultan 741977, F. C. Erwin... 225
Royal Champion 610925, Lowell Cattle Co..... 155
Bonnie Lad 646867, F. C. Erwin..... 220
Lancaster Boy 610987, G. Ehring, Elbert, Colo..... 350
Haigler Boy 646872, H. C. Rice, Holyoke. 200
Barmpton Model 690453, W. Wilson & Son, Lucerne, Colo..... 230
Cows
Red Bessie 500686, B. H. Gleason, Kiowa, Colo..... 460
Strawberry 248705, William Dickens, Longmont 500
Millcraig Princess 2nd 711972, (Imported in dam) C. A. Hauf, Glendo, Wyoming 475
Victoria Model 665562, W. A. Sargent & Son..... 715
Lavender 7th 247277, W. A. Sargent & Son..... 510
W. M. Wilson, Lucerne, Colo., consignor.
Bull
Dorothy's Lad 718115, Lowell Cattle Co. 150
Cows
Success 521720, A. O. Duffield..... 400
Louise 474832, C. A. Hauf..... 300
Hartnaugle Bros., Louisville, Colo., consignor.
Bull
Premier's Pride 440504, F. C. Erwin...260
Delph E. Carpenter, Greeley, Colo., consignor.
Bull
Dairyman 769352, A. O. Duffield..... 220
W. A. Dickens, Longmont, Colo., consignor.
Bulls
Victor's Pride 608211, F. C. Erwin.....200
Diamond's Lad 703655, F. C. Erwin.... 175
C. A. Hauf & Son., Glendo, Wyo., consignor.
Bulls
Scottish Lad 707594, G. W. Hixson & Son, Simla, Colo..... 350
Type's King 714045, William Dickens... 300
Woodburn Star 649816, Warnock & Sons. 280
Dale's Reliance 619550, J. H. Andrews.. 270
Gloster's Pride 619455, F. C. Erwin.... 320
Victoria's Rex 676766, Sargent & Son... 405
HEREFORDS
W. N. W. Blaney, Denver, consignor.
Bulls
Wyoming Prince 695726, Field Bohart, Colorado Spring, Colo..... 630
Cows
Wyoming's Anxiety 699794, A. J. Campion, Denver, Colo..... 625
Colorado Columbine 634248, Dolan Tipton Cattle Co., Crestone, Colo..... 450
J. D. Craighead, La Junta, Colo., consignor.
Bulls
Sir Robert 776977, Field Bohart, Colorado Springs, Colo..... 200
Dandy Santos 2nd 678659, J. P. Currie, Ft. Morgan, Colo..... 250
Beau Triumph 559124, E. D. & I. F. Haines, Rocky Ford, Colo..... 500
Caesar 2d 760325, W. L. Curtis, Gunnison, Colo..... 235
Cudahy's Ruler 676489, Anderson Bros., Gunnison, Colo..... 325
Cows
Rosabel 2d 705853, American Beet Sugar Co., Rocky Ford, Colo..... 350
Beau's Heiress 2d 444777, Dr. T. F. DeWitt, Parshall, Colo..... 900
J. D. Canary, Saratoga, Wyo., consignor.
Bulls
Corrected 41st 623344, J. P. Klug, Greeley, Colo..... 295
Corrected 46th 660046, J. P. Klug, Greeley, Colo..... 250
Unregistered calf, Chas. Collins, Kit Carson, Colo..... 205
Corrected 44th 679313, J. P. Klug..... 290
Beau Donald 660045, J. P. Klug..... 250
Corrected 40th 623343, Fred Munson, Benkelman, Nebr..... 350
Repeater 4th 660065, H. E. Maddox, Laramie, Wyo..... 330
Corrected 48th 660048, J. P. Klug..... 275
Corrected 39th 623342, H. E. Maddox, Laramie, Wyo..... 500
Repeater 5th 660066, American Beet Sugar Co., Rocky Ford, Colo..... 525
Corrected 43rd 623346, Fred Munson, Benkelman, Nebr..... 265
Repeater 9th 660067, C. H. Lupton, Denver, Colo..... 490
Corrected 50th 660050, J. P. Klug..... 250
Cudahy Stock Farm, Olney Springs, Colo., consignor.
Bulls
Cudahy's Cherry 76488, Wm. Auchline, Olney Springs, Colo..... 400
Cows
Daisy 574160, J. D. Craighead, La Junta, Colo..... 350
Elma Sarah 2d 693849, Dolan Tipton Cattle Co., Crestone, Colo..... 200
A. J. Campion, Denver, Colo., consignor.
Bulls
Jack Majestic 637042, J. P. Klug..... 270
Dennis Majestic 637041, W. N. W. Blayney, Denver, Colo..... 300
Don Majestic 619632, R. W. Johnson, Denver, Colo..... 475
Bernard Majestic 633003, J. P. Klug... 270
Ethel's Majestic 548293, W. N. W. Blayney 475
Cows
Miss Bluebell 525963, Stowe Witwer, Kersey, Colo..... 310
Emily Majestic 513955, Fred Munson, Benkelman, Nebr..... 380
Beulah Majestic 525960, A. J. Campbell, Greeley, Colo..... 200
Pollyana 489935, F. C. Webb, Denver.. 340
Mollyanna 489932, H. E. Witwer, Jr.... 350
Charity 489929, F. C. Webb, Denver... 340
Mabel Majestic 516188, F. C. Webb.... 340
Lady Sunbeam 619633, C. H. Lupton, Denver 220
Miss Charity 619635, C. H. Lupton.... 220
Miss Valina 2d 566909, Stowe Witwer, Kersey, Colo..... 300
Rexina's Marie 563060, A. J. Campbell. 260
Fredrica Sunbeam 566907, F. A. Plumb, Kersey, Colo..... 160
Rexina Majestic 2d 513962, C. H. Lupton 250
Annette Majestic 542008, F. A. Plumb.. 235
Miss Fantazma 542009, C. H. Lupton... 230
Clara Majestic 539229, F. C. Webb.... 225
Miss Prudence 542010, Fred Munson.... 250
Margaret Majestic 525962, W. N. W. Blayney 230
L. G. Davis, Saratoga, Wyo., consignor.
Bulls
Bonnie Weston 14th 683247, J. P. Klug. 250
Carlos 152d 683251, J. P. Klug..... 260
Carlos 153rd 683252, Fred Munson.... 425
Carlos 164th 683262, R. P. Lamont, Jr., Larkspur, Colo..... 280
Bonnie Weston 10th 833243, J. P. Klug.. 260
Carlos 163rd 683261, Chas. Collins, Kit Carson, Colo..... 200
Carlos 160th 683258, Fred Munson.... 350
Cows
Bonnie Weston 7th 683240, R. P. Lamont, Larkspur, Colo. 280
Dr. T. F. DeWitt, Parshall, Colo., consignor.
Bull
Sub. for Lot 66, D. Schilling, Aroya, Colo. 130
David Firm & Sons, La Veta, Colo., consignor.
Bulls
The Duke 648520, W. L. Curtis, Gunnison, Colo..... 260
Fairholm Prince 35th 701022, J. P. Klug 205
Fairholm Prince 34th 701021, H. A. Andrews, Horse Creek, Colo..... 400
Cows
Fairholm Princess 2d 566183, W. N. W. Blayney..... 325
Fulsoher & Kepler, Holyoke, Colo., consignor.
Bulls
Harold Aster 706072, J. M. Dille, Ft. Morgan, Colo..... 400
Elect Aster 706066, Chas. Collins, Kit Carson, Colo..... 240
Beau Aster 45th 706053, T. F. Dolan, Denver 350
Brilliant Aster 706057, Lowell Cattle Co., Denver..... 260
Ideal Aster 721370, Frank Dowell, Gypsum, Colo..... 380
Dandy Aster 670237, J. E. Norris, Hudson, Colo..... 350
Imperial Aster 706073, J. P. Klug..... 430

(Turn to Page 15)

Dynamite For Draining The Adobe Deposits

TESTING USE OF EXPLOSIVES FOR AGRICULTURAL PURPOSES

EVERYBODY on the plains of Eastern Colorado knows what a "dobe" hole is. During wet seasons these bad spots in roads and fields cause a lot of annoyance. That they can be eliminated by the use of blasting powder was demonstrated recently near Byers in Arapahoe county. This demonstration was arranged by County Agent Walter A. Groom, for the purpose of showing the farmers not only how to improve dirt roads but how to insure results from the planting of fruit trees and, possibly, point the way to the redemption of many hundreds of acres of unproductive land found here and there all over the plains. The demonstration was given by the Giant Powder company and was in charge of Mr. H. Middleton, their Denver representative.

The spot selected was located about 5 miles south of Byers, where the prairie road leads through an adobe hole about an acre in extent. This particular hole is either a bottomless pit of mud, or a rough stretch of rutted highway flanked on either side by ditches, according to the condition of the weather. At the time of the demonstration water was standing on both sides of the road. Test holes were bored to find sand which was located 1½ feet below the surface. A stick of giant powder was put down into each of the test holes and blown up. This loosened the adobe, causing fissures to open in all directions from the point at which the blast was set off. These fissures furnished drainage for the surface water to escape into the sand, opening a permanent connection which will provide drainage for this section of road.

Farmers Near Byers, Colorado, Watching Dynamite Work

Mr. Middleton delivered a lecture on the various uses which can be made of giant powder for farming operations. He found the farmers especially interested in the matter of blasting the hardpan that underlies the surface at many points, preventing deep rooting of fruit trees and causing their dying out in a few years. Further tests are to be made in the blasting of holes in farm orchards in that section. There is interest, also, in the possibility of providing permanent drainage for the adobe deposits found in many fields. These spots are either not cultivated at all, or such crops as are grown on this ground only bring half yields.

Farmers were informed that the U. S. Bureau of Mines has discontinued the requirements for securing a license for using dynamite for agricultural purposes. This regulation was in effect as a war measure, to keep explosives from falling into the hands of enemy aliens. Powder for farm uses may now be bought without restrictions of any sort.

The adobe deposits are often referred to as "buffalo wallows," on the theory that they were originally formed by the tramping of these animals. This may be the case with some small depressions, but many of these holes are acres in extent. The logical way to account for their formation is that they are natural basins, taking the drainage from neighboring slopes, and having no well defined outlet. These basins catch the wash of clayey material from the hillsides, which is deposited in an almost impervious layer, which holds the water until it dries out through evaporation, leaving the surface with a cement-like crust.

Farmer's Unions and the Marketing of Fruit

CO-OPERATION GETTING A PRACTICAL TEST ON WESTERN SLOPE

ALFRED M. WILSON

THERE was a time when the fruit growers in the Grand Valley had no Unions of any kind. In those days they were content to raise fruit; to prune and spray and pick and pack and to deliver the finished product to the platforms. Indeed, in those days, they were told that they had no business to bother themselves with the selling end, that the marketing of the fruit required a special knowledge which they did not possess, and that even if they did possess such knowledge, the raising of fruit was so exacting in its demands that they would have no time, if those demands were met as they should be, to consider and plan how and where their fruit should be sold. There was just enough truth in that statement to keep the grower for a time quiescent.

In time, however, the growers became dissatisfied. They began to feel that they were not getting a square deal; that there was too great a difference between what they received for their fruit and what the ultimate consumer paid for it, and that the marketing system in vogue was responsible for the loss and waste. Here and there growers began to call upon the associations to modernize their systems of distribution. They called upon them especially to advertise the fruit of the Valley and to put out traveling salesmen. They called in vain. During those days, moreover, the idea of co-operation began to find expression among the growers.

Under these circumstances the Fruit Growers' Union of Clifton was organized. There was nothing secret about this organization. It had no ritual, no paraphernalia, no oaths, no passwords. Membership was limited to actual growers, but the meetings of the Union were open to all, even to the buyers of fruit, if they cared to attend. The Union was a get-together organization of growers who believed in the raising of fruit and who wished in every possible way to maintain and promote the fruit industry in the Valley. The Union was not organized for the purpose of selling fruit; that might have come in time. It was, however, organized: (1) to study orchard problems; (2) to emphasize the necessity of putting up a pack that would enable Grand Valley boxed apples to compete successfully in any market with boxed apples from any other section; (3) to protect the growers against unscrupulous outside growers who in the past had more than once taken advantage of them; (4) to bring pressure to bear upon the associations to handle their fruit in a more direct and less wasteful way; and, finally, to lay the foundation for genuine cooperation among all the growers for the good, not merely of themselves, but of the entire Valley as well.

For example, the printed program of the Fruit Growers' Union of Clifton, during the last year it was in existence, bore this motto: "All for one and one for all," and included such topics as these: (1) The Rochdale System of Cooperation; (2) Cooperation in the Northwest, in England and Canada, in Denmark, Holland, and Ireland; (3) Cooperation among the Jewish Farmers, among the Citrus Growers of California, among the Cotton Growers of the South; (4) Cooperation and Rural Credits; (5) The Cooperative Trinity for a Rural Community .

The members of the executive committee: W. G. McDonald, president of the Union, T. A. Butcher, secretary, O. W. Jaynes, the Reverend Clark Bower and A. M. Wilson, in arranging the above program, felt that it would be well for the growers, before entering into any cooperative arrangement for buying and selling, to see exactly what genuine cooperation involves; to note how and why some cooperative ventures had succeeded; how and why others had ignominiously failed; and to profit by both kinds of experiences.

Farmers' Unions Started

In the meantime Farmers' Unions began to be organized. The first Farmers' Union to be formed in the Valley was organized at Appleton. Other Farmers' Unions were organized at Pomona, Fruitvale, Palisades, Pear Park, and Clifton, and one or two elsewhere in the valley. Growers who were unwilling to build from the bottom up, growers who preferred to have their industrial salvation worked out for them by those from the outside, growers who were dazzled by the prospect of a steady and profitable market for their fruit among the farmers in other parts of the country, growers who were attracted by the low fire insurance rate, flocked to these Unions.

Some of these Unions are succeeding splendidly. One, however, is in an aenemic, emaciated condition. But the Farmers' Union at Fruitvale is the banner Union in the Valley. The membership includes such men as A. E. Johnson, ex-president of the board of directors of the Grand Junction Fruit Growers' Association; Gus Johnson, one of the newly elected county commissioners, and Harry Harris, who buys and sells fruit independently. The membership of this Union, which is very large, is characterized by unbounded enthusiasm and is accustomed to get whatever it goes after. During the past year a splendid auditorium capable of holding several hundred people, has been erected on the public school grounds at Fruitvale, due to the efforts of the Fruitvale Union. This Union has, moreover, developed a live, wideawake social center.

During 1917, the various Farmers' Unions organized, under the cooperative law of 1915, the Farmers' Union Cooperative Exchange of Mesa county. The Unions supposed they were organizing an exchange that would be under their direct control. The Unions, however, can retain that control only as they can control the election of the members of the board of control of the exchange. Under the law the Unions cannot elect, only recommend. It was in this way that the original board of control was chosen. At the present time the board of control of the exchange seems to be acting upon the theory that as the various Unions cannot exercise any legal control over the election of members to the board, the Unions need not go to the trouble of making any recommendations. But will persistence in this attitude strengthen or weaken the bond between the Unions and the exchange?

In 1917 the spirit of organization was in the air. And so shortly after the Farmers' Exchange was organized, the Grand Junction Equity Cooperative Association was born. This association, in which over fifty growers took out stock, is a stock concern, run on a cooperative basis, owns its own building, and is prepared to do business in a business way.

Neither the exchange nor the Equity Cooperative Association did much business during 1917; they were organized too late in the season. During 1918, the exchange and the association have carried on a fairly good business. The business was carried on by a mutual arrangement into which the exchange and association entered. According to this arrangement, the exchange was to handle all the fruit while the profits were to be divided equally between the two. The aim was to get orders for fruit from Farmers' Unions and Equity Unions "back East." According to the arrangement entered into by the exchange and the Equity Association orders for fruit from Farmers' Unions might be filled either by members of the Farmers' Unions in the Valley or by members of the Grand Junction Equity Cooperative Association, while orders from Equity Unions could be filled only by members of the latter organization.

The system of interlocked directorates made it possible to perfect and carry out the above selling scheme. The board of directors of the Grand Junction Equity Cooperative Association is composed of T. M. Todd, manager; Frank T. Hatter, president; Otto M. Forry, secretary; A. E. Johnson, Clark Bower and Archie Rate. The board of control of the Farmers' Union Exchange is composed of A. E. Johnson, Fruitvale; Frank Hatter, Palisade; Clark Bower, Clifton; Otto M. Forry, Fairmount; Alva Douglas, Pear Park; J. R. Mead, Appleton; D. G. Rice, Pomona; C. S. Kirkendall, Fruita, and T. M. Todd, representing his own large orchard.

Sold Fifty-three Cars

During the season the Equity Cooperative Association in cooperation with the Farmers' Union Exchange, sold fifty-three cars of apples and pears. The fruit sent out by express was nearly enough to fill another car. The bulk shipments and the box shipments were in about equal proportions.

Of the above fifty-three cars three went bad. The returns on one of these cars are said to be only about one-half of what the grower who filled the car had been led to expect he would receive for his fruit. The loss on the other two cars was not nearly so great; and yet the loss was enough to cause dissatisfaction. The loss on these three cars, one member of the two boards has tried to treat as if it were a light matter; but is it a light matter? If the exchange and the association had handled 1,000 cars and if the same proportion of loss had been sustained, over fifty cars would have gone bad.

Had either the Western Slope Fruit Growers' Association or the Grand Junction Fruit Growers' Association, in the handling of 1,000 cars of fruit, fallen down on fifty cars, what a howl would have gone up from the growers; but for the exchange and the association to handle fifty-three cars and yet fall down in the same proportion is a small thing, a matter of no great consequence! Verily, it makes a tremendous difference, not whose ox is gored, but who does the goring. The significance of all this is this: we are at the parting of the ways. Shall we continue to sell as we have in the past, or shall we try to sell cooperatively? The matter will be settled, not by class appeals, but by the extent and stability of the returns to the grower from the sale of his fruit.

During the past season the Equity Cooperative Association rendered the growers a great service at two points. In the first place the Equity Association helped to stabilize the apple market at a time when it most needed to be stabilized. There were buyers in the Valley from Kansas, who were trying to buy apples far below what they were worth. Growers were selling at the price offered by those buyers. It was at that time the Equity Association stepped in and set prices on both bulk and boxed apples as near the market price as it dared to do. The result was that the price went up all over the Valley and that all the growers, whether members of the Farmers' Unions or of the Equity Association or not, received far more for their fruit than they otherwise would have received. In the second place the Equity Associations brought down the price of supplies to the growers, thereby saving them a snug sum.

The number of cars sent out by the Equity Association during the past season was not large. The number should, during the present season, be much larger, and undoubtedly will be if they can develop the markets in the territory in which they wish to sell their fruit. In that territory there are 490 Equity Unions and probably not far from the same number of Farmers' Unions. If the exchange and the Equity Cooperative Association can prevail upon the members of the different Unions in that territory to place with them their orders, the problem of an adequate outlet for Union-raised fruit in the Grand Valley would be solved; but of what avail is a market if the Farmers' and Equity Union members in the Valley will not turn over to the Equity Union Association their apples and peaches and pears? Will they do so? Did they do so the past season?

The following are significant facts. During the past season some Union growers turned over no fruit to the Equity Association. Some turned over a part of their fruit, but none, so far as I have been able to ascertain, turned over all their fruit. Even the stockholders in the Equity Cooperative Association did not turn over all their fruit; far from it. One grower, a member of the two boards, turned over only about a third of his twenty-five cars of fruit. The rest he sold, some to independents, some through one of the old-time associations, the rest on his own hook. These facts clearly show that the fruit growers in the Grand Valley are going to go slow before committing themselves absolutely to any selling scheme, however attractive and alluring it may be on its face.

Growers Broke Faith

The manager, T. M. Todd, had some unnecessary burdens to carry, due, if we are making only a charitable interpretation of the facts, to the thoughtlessness of some growers. One grower listed with the manager all his fruit. There were no orders in at the time; but as soon as an order did come in, the manager called up the grower in question and told him that he had an order for some apples at $2.10. The grower phoned that he had only the day before sold his apples to an independent for $1.75! In other words, the grower, although he had listed his fruit with the Equity Association, sold his fruit without calling up the manager to ask him what he could do.

Another grower consented to fill a certain order, but could not at the time. The manager extended the time ten days. On the ninth day not having heard from the grower, the manager called him up and reminded him that the time of extension was about up. The grower replied that he could not fill the order, as he had already sold the fruit to another buyer who had offered him about the same price that the Equity Association had offered. It is to be hoped that instances of this kind will cease to occur when the Grand Junction Equity Cooperative Association becomes better known.

Preparing Dry Farming Land

Answer to R. B., Montezuma county:

Dry farm land should be plowed not less than 10 inches deep and breaking not less than 8. It should be harrowed right behind the plow, or as quickly as possible, to save moisture and create a good tilth. Fall plowed land for spring planting is left rough to catch the snow, and harrowed down in the spring as soon as the frost is out of the ground. For plowing, any ordinary mold board walking plow can be used with three horses. If the horses run from 1,200 to 1,400 pounds apiece, a 12-inch plow can be used; but if lighter than this a 10-inch would be better. After land is plowed it should be harrowed, or harrowed and disked alternately, until the surface is fine enough for seeding. Land which lies fallow and becomes hard and smooth on the surface should be disked and harrowed again before planting. If the farmer has plenty of horses and wants a riding plow, he can do fine work with the Spalding and four horses. For ordinary work the tooth harrow is indispensable, also the disk harrow. Harrowing and disking alternately makes a fine seedbed and the disk, when set almost straight will to some extent pack the ground.

Packing with a roller is necessary only to settle newly plowed land for immediate planting. The best method is to plow ahead of time and let nature do the packing. Plow in the fall for spring crops and in the spring for fall crops. If it is impossible to plow enough land in the fall, then the next best thing is to plow in March for planting in June such crops as corn, the sorghums and other late crops. Such land can be packed sufficiently by alternate disking and harrowing.

When plowing land for immediate planting a corrugated roller should be used, which leaves a broken surface rather than a smooth one. If it is plowed, then harrowed, and then rolled, it leaves a better surface than if the roller is used on the rough plowing. The seeding should be done preferably with a press drill, but if it is broadcasted, the rolling can be put off until after the seed is covered by harrowing, so as to assist germination by compression. The disk is useful for disintegrating sod, breaking clods, and fixing the summer fallow to prevent run off. This is done by disking and cross disking the fallow without lapping, after it has been previously plowed. Such work leaves the surface of the field in a series of checks which catch and hold the cloudburst water until it soaks in.—E. R. PARSONS.

Need Storage for Wheat

With the certainty of the largest crop of wheat ever grown in the United States this country is faced by a shortage of elevator capacity and cars for handling the crop that promises to cause congestion and possible heavy losses if the matter is allowed to drift into the harvest season. Just what steps should be taken to obviate a serious blocking of the channels of transportation and storage is hard to say, but for the wheat growing farmer it is well to be prepared to store grain on the farm. The following analysis of the national and international wheat situation comes from Julius H. Barnes, Federal Director of Grain Purchases, and is worth careful study by all wheat producers:

The total licensed elevator capacity of the country is as follows:

Country elevators	521,000,000 bushels
Mill elevators	150,000,000 bushels
Terminal elevators	262,000,000 bushels
Total theoretical capacity	933,000,000 bushels

Our own detailed records show that, on October 31, 1918, there was in store in all these agencies:

Wheat	290,000,000 bushels
Other grains	184,000,000 bushels
Total	474,000,000 bushels

While the aggregate high points reached at any time during the crop season, in each grain, footed together as an aggregate, would have totaled, had they occurred at the same time, 519,000,000 bushels.

It is impossible to use the full theoretical capacity of any elevator; certain working space must be kept not only for wheat but for the other grains, or the commercial life of the community is choked. A careful survey of this has convinced us that the following is probably the maximum capacity of the present storage facilities of the United States:

	Theoretical bu.	Actual bu.
Country elevator	521,000,000	260,000,000
Mill elevator	150,000,000	112,000,000
Terminal elev.	262,000,000	196,000,000
	933,000,000	568,000,000

Actually, approximately 570,000,000 bushels of grain can be stored in the present facilities of the country, without interfering with the normal current flow. Since it is evident that at least 170,000,000 to 180,000,000 bushels represents the normal flow of other grains, it is probably true that not exceeding 400,000,000 bushels of wheat can be stored at any one time in all the storage facilities of the United States. The importance of so utilizing storage that the current handling of other grains is not checked is shown by the figures of the first six months of this crop-year. There passed through the elevator facilities of this country a total of all grains, of 2,531,000,000 bushels, while the storage at the high point was only about 480,000,000 at any one time. The disaster that would follow choking those current grain-handling facilities is well shown in any consideration of these figures.

Our average exports of other grains than wheat have usually run from 50,000,000 to 60,000,000 bushels annually; so that it seems fair to estimate that, with unusually favorable conditions, and with consuming markets to take the movement and carriers to transport it from the seaboard, it might be possible to market through the United States ports 500,000 bushels of wheat (besides the necessary flow in other grains), and also the equivalent in form of flour of 150,000,000 bushels further.

As to the probable demand to fall on the United States in the season of 1919-20, estimates at present would be the veriest guesses, because ungrown crops of Australia, Argentina, India, Canada and the United States would themselves decide, with the other influences of tonnage and of finance, what call should fall upon the United States alone.

As far as such estimates can be made, and subject to all reservation as to changes which crop development may force, (and those changes may be very radical indeed), it seems probable to expect a world demand between a minimum of 15,000,000 tons and a maximum of 20,000,000 of bread grains, mostly wheat; and as far as one can estimate the possible yield of crops whose acreage is still unknown, it seems reasonable to expect that other countries than the United States, such as Canada, Argentina, Australia and India may contribute from 7,000,000 to 9,000,000 tons. Keeping in mind again that these estimates are the veriest guesses as yet, it seems reasonable to expect that there may fall upon the United States in the crop year 1919-20 a demand which may he as low as 5,000,000 tons, or 200,000,000 bushels, to as high as 10,000,000 tons, or 400,000,000 bushels. With approximately 600,000,000 bushels of wheat required at home for bread and seed, a foreign demand that reached the extent of 400,000,000 bushels would solve the problem of a considerable wheat crop; while a crop yield in the United States exceeding 1,000,000,000 bushels of wheat (and that is quite probahle) coupled at the same time with a foreign demand which has shrunk to 200,000,000 bushels (and that is quite possible), would create a problem, first, in governing the storage and the flow, so that farmers' marketing may be fairly secured at all; and, second, in disposing of a surplus remaining at the end of that harvest-year in such manner that even if the National Treasury was prepared to absorb the loss, its disposal should be made without destroying entirely the marketing machinery of the country.

Cleveland Tractor

More work, more days in the year

H. G. Saddoris of Fort Dodge, Iowa, reports that the use of his Cleveland Tractor made it possible for him to harvest his grain last Summer in half the time required when he used horses, and with less help. In fact, his 14-year-old boy operated the tractor, pulling one binder, and accomplished as much in the same time as could have been done by two horse-pulled binders, each pulled by a four-horse team.

This man, like thousands of other farmers, requires a tractor that will do a variety of farm work. A tractor—that is economical in operation

—that is built rugged enough to stand up under the strain of hard, gruelling work

—that is capable of doing the whole job from plowing to harvesting.

The Cleveland is built to supply practically all the power needed on the average farm. It is designed and built by practical men who know what a farm tractor must stand.

It is economical in its use of kerosene and oil—and is small enough to be used profitably on both *light* and *heavy* jobs.

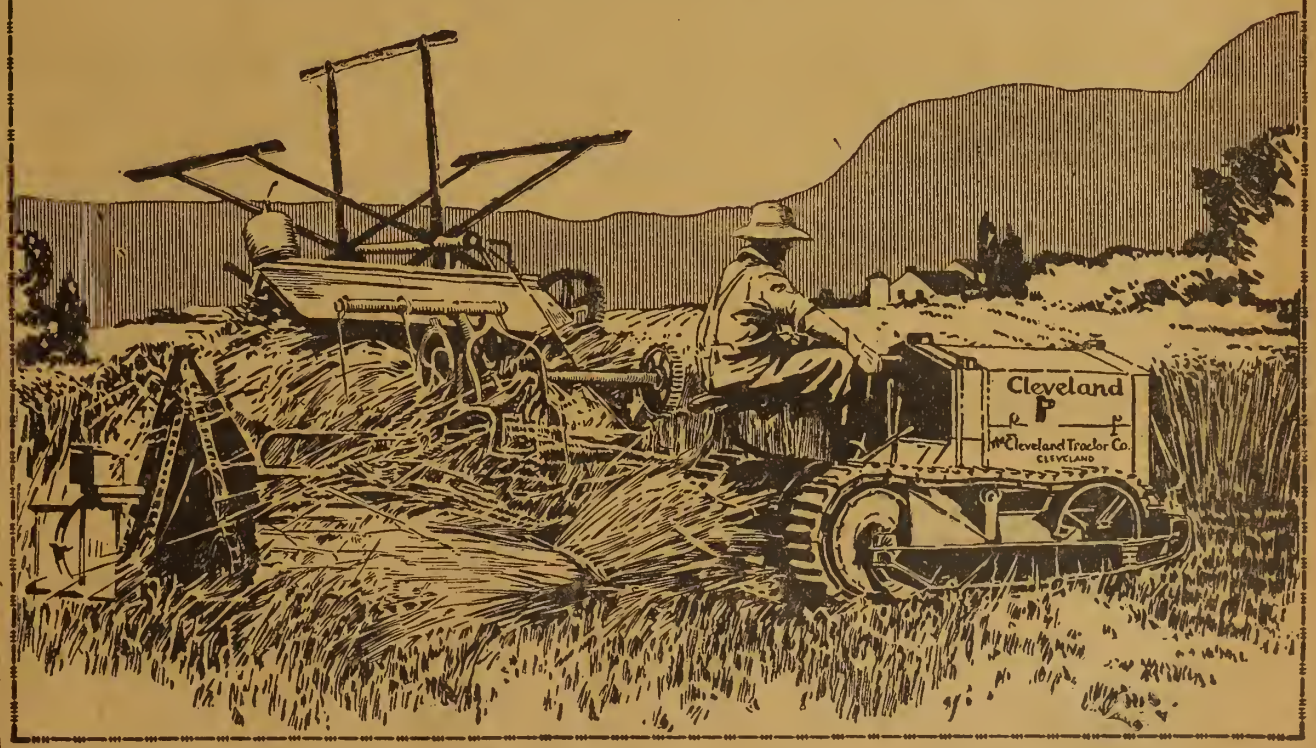
And when it comes to the preparation of the seed bed—*plowing, harrowing, seeding* and *planting*, the Cleveland Tractor's track-laying construction enables it to go over soft, plowed ground that causes the ordinary machine to "wallow" and "labor". And, it does the work more efficiently than can be done with mules or horses. The power of the Cleveland is used to *pull the implement* not to "dig out" the tractor itself. Its broad traction surface and light weight per square inch enables the Cleveland to "step lightly," and so it *does not pack down the soil behind it.*

The Cleveland also will reap, bind, thresh, haul, drag dead weights, cut ensilage, fill silos, saw wood and do the scores of other jobs about the farm that require tractive and stationary power.

There's a great, expanding market for the Cleveland. Every day more and more farmers are discovering its real worth. Write for catalog.

The Cleveland Tractor Co.
19073 Euclid Ave. Cleveland, Ohio

Largest producer of tank-type tractors in the world



"The big tractor demonstration at Denver, June 9th-14th furnishes an excellent opportunity to see the Cletrac Tank Type Tractor in action and to compare it with other tractors—keep your eye on the Cletrac."

A Boy's Dream That Came True

THE STORY OF DELPH CARPENTER'S SHORTHORNS

ALVIN T. STEINEL

THIS story begins with the day dreams of a nine year old boy on a ranch at Carr, Colorado; a boy who had an inherited love for fine cattle, and the story will not end until the life work of a man now in his prime who has attained the vision of his childhood, is finished. And then he hopes posterity will continue it, because the breeding of fine cattle is the work of more than one life time. Alfred Baxter, one of the pioneer ranchers of Northern Weld county, and a scholarly gentleman who came to America's West from a professorship in an English University, inspired the boy who was doing chores and learning to milk on the Baxter ranch. Baxter had cows that were different from the cows of the neighboring ranches; they gave milk, which was a quality sadly lacking in the average range herd. They gave so much milk that its sale paid the living expenses of the ranch people and the increase from the herd was just so much velvet. These were Shorthorn cows, from the stock brought into the Greeley district by early Union colonists. Baxter knew something about the breed from his early years in England and the boy heard from his lips for the first time about dual purpose cattle. He learned that there were cattle in the world not intended solely for beef, nor purely for milk. He learned it almost as soon as he had acquired the knack of milking —and he found milking them no hard task. They gave down milk so naturally and easily that the boy often wondered why other ranch boys complained about milking.

The boy grew to manhood. With his youthful ranch experience as a background and a developing vision of what could be made of the plains country with good cows as the foundation, he passed through varied experiences such as come to many young men who, by chance or otherwise, are sometimes switched from the path of early desire and enter a business or profession. Today the boy is known as Delph E. Carpenter, irrigation lawyer by profession; cattle breeder through love of the game, a love with which he was born and to which Alfred Baxter gave direction and inspiration that has lasted through years of a lawyer's busy professional life. What is more, the early vision of the boy has become the accomplishment of the man who today is the proud owner of one of the very few—there are not over two or three—herds of pure Bates cattle on the American continent.

At one time or another we have all heard it said and said it ourselves, perhaps, "There are no dual purpose cattle."

That saying is almost the truth. Dual purpose cattle are rare; "as rare as buffalo" is the way Delph Carpenter puts it. He ought to know because he spent years looking for the right kind, Shorthorns of pure Bates strain. He never lost sight of his early ambition to get the kind of cattle Alfred Baxter owned, and to get them from the purest sources; then to start with these as a foundation and resume the work of perpetuating a strain that has almost disappeared, but for which there is an unlimited field of usefulness. It is too long a story to tell of his search, but he found the seed, a little of it coming from the herd which Eugene Grubb brought into the Carbondale country of Western Colorado some fifteen years ago, and the rest of it—the best—from the H. T. Groom & Son herd of Groom, Texas. The Groom herd came west from the Kentucky home of the Bates cattle that had been imported by noted breeders of the bluegrass region.

It is now some eight or ten years since the work of propagating Bates Shorthorns was undertaken in earnest by Mr. Carpenter on his farm at Barnesville, about 14 miles northeast of Greeley, in the Crow Creek country. For the first time a few choice individuals from the herd are to be offered at public sale, the date being May 24th, and the place Greeley.

Col. P. M. Gross of Kansas City, who has cried more sales of purebred cattle than almost any auctioneer in the country, will be in charge. The offering will be limited to thirty head —a mighty slender list—but that is all the owner can afford to let go now. There will be fifteen bulls, some of them pure Bates and some Bates topped, and 12 to 15 heifers of the same description. The heifers are put in to make an auction. Those who may be interested in the business side of the game can refer to the advertisement in this issue for further details.

There are two bulls at the head of the herd, the active sire being Baron Groom, a pure Bates, possessing beef characters and born of a great milking mother. He has been producing a remarkable line of calves, short legged fellows possessing the desirable qualities of the beef and milk combination. Somebody asked Mr. Carpenter what he would take for that bull and he said: "He cannot be bought; there is no price on him and none can be fixed."

He informed his questioner further that there was but one other herd of pure Bates Shorthorns in the United States—the O. N. Healy herd of Muscatine, Iowa, which he visited in January. The herd sire there is King Roughish Eyes, a bull of much the same type as Baron Groom, though not so low on the ground. Baron Groom is part of the original Groom herd and is an easy keeping, beefy Bates, out of the Wild Eyes family on the sire side and whose dam was from the Duchess line. He has the breeding and is of the type which, mated with mothers of his kind, produce the true dual purpose. No other kind is retained on the farm. If a heifer fails to show milking qualities she is sold to the block—and to prevent her getting out upon some farm through an unscrupulous buyer, a stipulation is put in the bill of sale that she must be butchered.

The other Carpenter bull is used as the reserve sire. He is Cole's Coming Star, purchased from the Cole herd of Milking Shorthorns at Wheaton, Ill. That is the best part of the last milking importation of the late James J. Hill, the empire builder who stocked the country along the Northern Pacific with both beef and dual type of Shorthorns.

Elimination and selection are now in progress. The cattle have the blood and the type and they are being reared on shortgrass in the shortgrass way, not pampered nor stall fed. They are

BRAVE THE WIND AND STORM

TOWER'S FISH BRAND TRADE MARK

in the best wet weather togs ever invented

the FISH BRAND REFLEX SLICKER

(PATENTED)

and

PROTECTOR HAT

Dealers everywhere

A. J. TOWER CO. BOSTON

Kill All Flies! THEY SPREAD DISEASE

Placed anywhere, DAISY FLY KILLER attracts and kills all flies. Neat, clean, ornamental, convenient and cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed.

DAISY FLY KILLER at your dealer or 5 by EXPRESS, prepaid, $1.25.

HAROLD SOMERS, 150 De Kalb Ave., Brooklyn, N. Y.

American Fence

Full gauge wires; full weight; full length rolls. Superior quality galvanizing, proof against hardest weather conditions.

Special Book Sent Free. Dealers Everywhere.

AMERICAN STEEL AND WIRE CO.

CHICAGO NEW YORK

SATISFIED USERS wrote this Ad for Us—

Their Experience is worth real Money to YOU!

I have owned three spreaders in my time. The first two I didn't think much of. Then I got one of yours and now I am more than pleased with the spreader proposition. I find by hauling manure in the winter time on clover sod and letting the rains leach it down before plowing it under will oftimes double the corn yield or even wheat. Where I used commercial fertilizer and barnyard manure together on 12 acres of wheat last year I got 600 bushels of wheat, an average of 50 bushels per acre. A farmer that owns ten acres can't afford to be without a spreader.

WILL HENSIL, Ohio.

I have had several spreaders on my farm, but there are none like yours. I could not farm without it. Last fall I put six acres to wheat, first putting on 30 loads of manure. This spring I put on 20 loads more. You just ought to see that wheat. The manure made it stool out very good, and it will give 35 bushels per acre. If I had not used the Spreader this spring I am sure I would not have gotten over 15 bushels. Your spreader is one of the best investments you can put on the farm.

C. E. HUPRICH, Ohio.

I would not be without your Spreader, because it saves so much labor, puts the manure on the ground evenly, and I can spread any kind of straw or cornstalks. I believe my spreader will pay for itself in two seasons. With the proper use of manure on my place and using lime, I have increased the yield of my farm 25% in six years.

E. M. PHILLIPPE, Virginia.

Have been using your spreader on two different farms for a year and find them lightest in draft of any I have ever used. Two horses will pull them anywhere when the ground is not too soft. The straw attachment is ideal for top dressing wheat ground or any kind of small grain. It gets rid of a great deal of straw which goes to waste and this alone will pay for the spreader in a year's time.

J. D. BLACKWELL, Sec'y.
Missouri Angus Assoc.

THESE letters answer every question you may have about the Nisco Spreader. We will gladly send you the writers' addresses and copies of similar letters from many others, if you want further proof. These letters, like the Nisco itself, stand every test. They prove that you yourself should have a

NISCO

Reg. U. S. Pat. Off.

The New Idea

THE ORIGINAL wide spreading spreader that revolutionized old-fashioned methods—that has always been the leader. Has solid bottom with chain conveyors. Pulverizes thoroughly and spreads evenly. Drives with heavy sprockets and chain—no gears. Low down, light draft. Loads and pulls without undue strain on man or team.

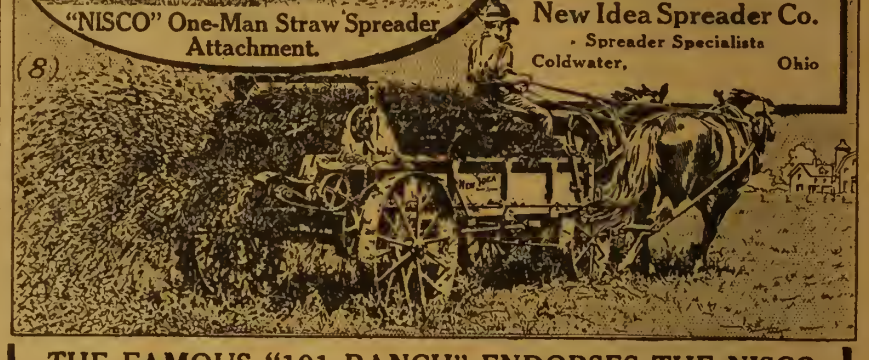
When you buy insist on the "Nisco"—the machine you are sure of. If you don't know our dealer, we'll send you his name and a copy of a splendid book on soil fertility. Send your name today.

New Idea Spreader Co.

Spreader Specialists

Coldwater, Ohio

"NISCO" One-Man Straw Spreader Attachment.



THE FAMOUS "101 RANCH" ENDORSES THE NISCO

Gentlemen: Bliss, Okla., December 15th, 1918.

We are very much pleased with the three NISCO Spreaders We have used several other makes, but seeing your advertisement, decided to investigate your spreader. After looking them over, we ordered three of them and have them working every day along with three others.

Yours pulls much easier and does much better work than the others. We are pleased to recommend your NISCO Spreaders, as we are convinced that they are the best we have ever used. Yours truly

MILLER BROS., "101 RANCH."

The largest diversified Farm and Ranch in the United States.

MOUNTAIN STATES NATIONAL TRACTOR DEMONSTRATION

Denver, June 9th to 14th

Demonstration authorized by the National Tractor Manufacturers' Association, and to be given by the Denver Civic and Commercial Association, "The Denver Tractor Club," under the supervision of the National Tractor Manufacturers' Association.

The demonstration grounds will occupy a tract of land containing approximately 2560 acres, located three miles southeast of Aurora, Colorado. This land is good plowing land with general purpose or turf and stubble bottoms. 1760 acres of this land will be used for the purpose of conducting the plowing contests, 640 acres will be set aside as a private demonstration ground for the tractor and implement manufacturers, where the manufacturers will demonstrate privately to farmers their tractor and farm tools. 160 acres situated in the north and central part of the demonstration tract, will be occupied by the main demonstration headquarters' tent, exhibitors' tents and concession tents.

Every kind and style of a tractor will be shown. Every tractor and implement exhibitor will be provided with a large tent as booth and office quarters with ample room in the background for the manufacturer to exhibit their tractors and machinery. These 150 exhibitors' tents will be positioned along one side of the main street, which will be over a half mile in length.

Farmers and stockmen are urged to attend the demonstration. It will be educational and instructive.

Special Low Rates on All Railroads

roughed through in winter and grazed in summer. Their environment is that which they are bred for: the conditions that surround the settler on the plains or in the hills. Their owner has seen homesteaders come in and go out for lack of livestock of the sort that stands up in this semi-arid country.

If it was the ambition of youth to own a herd of pure Bates cattle, sentiment is now mingled with a settled purpose of service to the agriculture of the plains country.

"I do not know of a better way to serve the public than by perpetuating what I consider the type of cattle that exactly meets the needs of our farmers," says Mr. Carpenter. "I have never sold a bull out of Colorado; what few I have sold people have come to the ranch and driven home to neighboring farms. What I want to do is to perpetuate this race of cattle and do it with the help of my neighbors and at a rate of return that the farmer can pay and that will leave me only a fair profit. These bulls are as virile as a broncho stallion; they are clean and free from disease, full of fire and life, and anyone can see by looking over the cattle, that they are being reared in their proper environment. I have never advertised them, or my work with the herd, because, while I do not pretend to be doing this for fun. I have other things in mind besides profit. The permanent reward I wish is the satisfaction of doing something worth while for this God's garden of plain and mountain that gave me the boyhood inspiration to find again the cattle that were slowly but surely disappearing and to found a herd of them."

The Keota Fallow Plan

A summer fallowing experiment which involves 1,500 acres of land on 30 Keota farms and an investment of $15,000 is attracting much attention not only in Weld county but throughout Colorado.

The plan which was worked out by progressive Keota people with the cooperation of the County Agent is briefly as follows. Thirty farmers divided into units of 10, each agree to summer fallow and summer till 50 acres of land. The Keota bank and the five banks in Greeley will lend $10 per acre or $5,000 per unit to the farmers devoting the land to summer tillage. The farmers of each group are pledged collectively for the money advanced to the members of their unit. Payments will be made as the money is needed for each process of the summer fallowing work.

A committee of farmers and the county agent share the responsibility of seeing that summer fallowing work is done right. Farmers of each unit have the right to take over the 50 acres of any farmer who neglects the work and put it through to completion themselves. The fallowing process starts this spring and the first payments to the farmers will be obtainable at the Keota bank on and after May 1. Crops will not be matured until 1920 and the notes of the farmers will not be payable to the banks until the end of the harvest season in 1920.

It has been demonstrated repeatedly that summer fallowing is the only safe method of continued grain farming on unirrigated lands of eastern Colorado. Many farmers believe in summer fallowing but are unable to finance a plan which requires 18 months for its fruition. Hence the plan for co-operative credit to be extended to the farmers who enter the summer fallowing project.—Weld County Farm Bureau Bulletin.

Bulletin on Feeding Horses

There is much more to feeding "old Dobbin" than simply giving him a little corn or oats and then allowing him to fill up on whatever kind of hay is available. Close observation is needed more in feeding horses than any other class of live-stock, specialists of the United States Department of Agriculture say in a recently published Farmers' Bulletin No. 1030, "Feeding Horses." Horses of the same weight may have different feed requirements which make it necessary to study the individuality of the animals, says the bulletin. If the horse is not doing well on a ration a slight change should be made, but any abrupt change may cause digestive disturbances. The bulletin tells how to compute balanced rations for horses, lists a number of feeds and the value of each, and suggests maintenance rations for idle horses and for horses doing ltgi or heavy work.

The quantity of feed for the work horse depends on the amount of work and on the speed at which it is performed; a horse requires considerably more speed when working at the trot than at the walk. It is a good rule to allow 11 pounds of grain and 1⅛ pounds of hay to every 100 pounds live weight for horses at moderate work. At this rate a 1,200-pound horse would require 13 pounds of grain and about 14½ pounds of hay a day. If the work is severe, the quantity of grain should be increased. The horse at hard work requires 1¼ to 1⅓ pounds of grain for 100 pounds live weight. The hay, however, should not be more than 1¼ pounds for an equal amount of live weight.

Another Veterinary Association

A meeting of farmers and business men was held at Salida, April 12th, for the purpose of organizing a stockmen's association. The real object in organizing at this time was to devise ways and means for employing either a county agricultural agent or a veterinarian. It was finally decided to employ a veterinarian who will be expected to take on some of the work ordinarily expected of a county agent. Chaffee county is apparently awake to her opportunities in dairying and other agricultural enterprises.

Organizations of this kind are becoming popular. Monte Vista set the pace by organizing several years ago, to fight hog cholera, but finding, (after hog cholera was eradicated,) that paid veterinary supervision was decidedly worth while, made the organization permanent. They now have two veterinarians employed by the year. Montrose, not to be outdone by Monte Vista, followed suit and has one veterinarian, employed by the year. Now comes Salida and will employ one veterinarian. Similar organizations are talked of in La Plata and Montezuma counties. Since the County Veterinary bill was defeated in the last legislature, there is no way whereby counties are empowered to employ county veterinarians. It therefore becomes necessary for sparsely settled communities or counties to organize and employ a veterinarian, or do without veterinary supervision of their herds. Such organizations are commendable and will receive the support of the Agricultural College.

Beet Web Worm Warning

Last summer an army of webworms appeared in the beet-growing sections of Colorado, Montana, Nebraska and Wyoming. Lack of preparation and shortage in equipment and poison resulted in a wide spread and heavy damage to the beet crop over several thousand acres. The first wave (brood) of this army came over the top in June, 1918, and the second in July and early August. Many of the last wave were destroyed. However, a large remnant of the enemy has spent the winter entrenched within their cocoons. The worms which spent the winter in our fields will be destroyed when the plowing is done. However, thousands entrenched themselves among the weeds on waste land, roadsides and ditchbanks. All such land should be plowed, disked or harrowed. This will either expose, bury or destroy the cocoons. If this is done the number of moths appearing during May and June will be greatly reduced. This will mean reduced chances that our fields will be damaged again this season. Keep all weeds down about fields and keep the beet crop clean. This will not only help prevent webworm injury, but reduce the number of other injurious insects about your fields.—A. C. MAXSON, in Through the Leaves.

A certain farm-equipment dealer has one record customer who buys a new binder every three years, and who at one time was in debt for three binders which he purchased in a period of seven years. This farmer uses a ready-made apple tree as a shelter for his grain harvester. When one tree rots he plants another. And, although he and his family work hard, he is always paying last season's debts with next year's income.

The Best of 80 Years Experience in this New Small Ideal

The 22 x 36 Ideal

THE accumulated manufacturing experience of over three-quarters of a century—and the judgment of over 20,000 Ideal owners — is back of the new, small 22 x 36 Ideal Thresher.

You know the record and reputation of the larger sizes of the Ideal—there's no farming community that hasn't its Ideal outfits with their satisfied customers. When we were called upon to build a smaller size separator, we didn't just "turn one out"—we built along the same lines as the Ideal, determined that our small threshers would be leaders in their class just as are the larger.

So in the small as well as the larger Ideals you will find those features that mean the difference between a "sure" and a "guesswork" job. Ideal thresher owners will tell you that.

Bunching, or cylinder winding is unknown in the Ideal—because the Ideal is designed on the principle of *a steady, even flow of straw through the machine* from the time it enters the cylinder until, free from all grain, it leaves through the stacker.

First of all, we placed the Ideal grates exactly right in relation to the cylinder. Then we designed the Ideal travelling slatted rake to take the straw from the cylinder and carry it to the straw rack. Result—more grate surface and a steady even flow of straw, making choking impossible.

Shaking alone wasn't a guarantee of complete separation, so we put sets of lifting fingers on the straw rack, that tear the straw open—rake it—beat it from beneath. Result—complete separation and no waste.

Then, to take care of the increased capacity due to these inventions and to make the Ideal do a perfect job of cleaning, we put in extra chaffer area. The chaffer in the cleaning shoe, with the adjustable sieve and our special system of wind control, guarantee a perfect job of cleaning without waste. Result—the kind of cleaning that gets "no dockage" at the elevator.

Such construction shows why the small 22 x 36 will handle up to 900 bushels of wheat in a day's run—the 28 x 44 up to 1,500 bushels.

The Ideal is built in four sizes—22 x 36, 28 x 44, 32 x 52 and 36 x 60—standard in design and construction, and meeting all needs, from the man who owns his own power and wants to do his own threshing, to the custom thresher.

Write for a special Ideal catalog.

The guaranteed oil-burning, oil-cooled OilPull Tractor is built in sizes to fit every size Ideal.

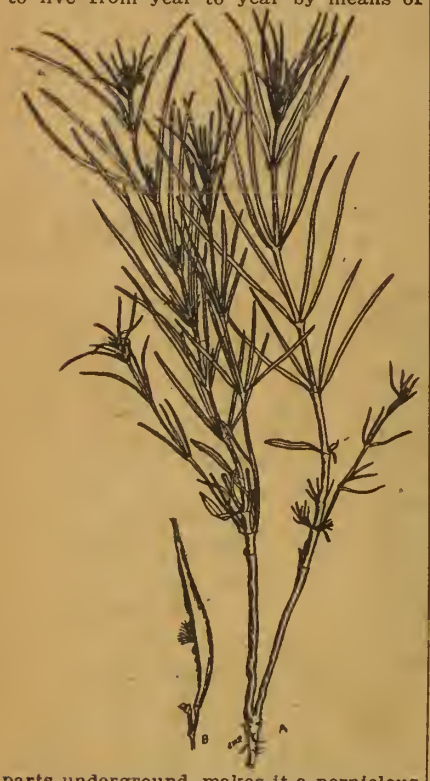
ADVANCE-RUMELY THRESHER CO., Inc.
La Porte, Indiana
Kansas City, Mo. Portland, Ore.

ADVANCE-RUMELY

Deadly Whorled Milkweed

Great losses of sheep and some cattle losses are ascribed to whorled milkweed, a poisonous plant which is pretty generally distributed throughout Colorado and neighboring states. Some months ago the Colorado State Experiment Station issued bulletin No. 246 on "The Whorled Milkweed." This was the first publication giving description of the plant and particulars about losses especially on the sheep ranges of western Colorado. Recently subscribers have again asked for information and particularly for a description of the plant, so that it may be recognized when found, and eradicated. The information contained in the following is from bulletin 246:

The whorled milkweed is a perennial plant from a rootstock. This rootstock creeps horizontally underground, and also extends to considerable depths in the soil. Its perennial habit, its ability to live from year to year by means of



parts underground, makes it a pernicious weed, and one difficult to eradicate. Experiments are now in progress, however, which have for their object the finding of practical methods of eradication. Needless to say, a plant which is the cause of such great loss of livestock, should be promptly exterminated, if extermination is at all possible.

In addition to its spread by means of underground stems, the whorled milkweed produces numerous seeds each of which is provided with a tuft of silky hairs which aid its distribution by wind.

The plant grows to a height of 1 to 3 feet. The stems are slender and smooth. At each joint of the stem there are from two to six narrow leaves with margins that roll. The occurrence of several leaves at a joint to form a whorl of leaves is so characteristic of this plant as to suggest the common name, "whorled milkweed." The flowers occur in small groups, and the grouping resembles that of onion flowers; they are greenish white in color and peculiar in their form. The pod is of the milkweed type—dry when ripe, splitting open along one side and allowing the numerous flattened, reddish-brown seeds to fly out. The seed is aided in its distribution by the bunch of hairs which is attached to its smaller end. The pods are 2½ to 3 inches long.

The plant has a white, milky juice, which exudes freely when the plant is injured.

The plant is a native of Arizona, New Mexico, Colorado, Utah, Nebraska, and the states eastward. In Colorado it is found at low altitudes, seldom occurring above 6,000 feet, except in certain parts of the Southwest. Although found on the plains east of the mountains, it has spread most rapidly in recent years west of the mountains, and there caused the great losses to stock.

The plant grows naturally in dry soil, but is much at home and flourishes along ditches and in cultivated soils. On the Western Slope it is very commonly found in orchards, and in abandoned fields, and even in alfalfa and grain fields, and in pastures. In fact, it is a troublesome weed to the farmer as well as a poisonous plant. Its frequency along ditches is not only due to the moisture present, but to the spread of seed by irrigation waters. It also prevails along roadsides in soil that has been disturbed in road or ditch building. Occasionally it may be found in corrals.

In recent years the whorled milkweed has spread rapidly, and losses from it are becoming greater every season. In general, however, it is found in large, more or less isolated patches, and it is undoubtedly altogether within the power of communities to practically eliminate it.

The plant makes its appearance the latter part of May or the first of June, depending upon the season and locality. The foliage is fine and of a fresh green color and attractive in appearance. From July 1 to July 15 the plant is in blossom, and later the pods appear. The bare stems, with empty pods attached, may be seen standing along ditch banks and in fields late into the fall.

Most cases of poisoning have occurred in the fall and winter on the dried plants. Several cases have been reported from feeding hay which contained the plant in relatively small quantities. Grazing on the young plants as early as June, and throughout the summer months, has proven disastrous in several instances. It appears from field observations and laboratory experiments that the whorled milkweed is poisonous at all stages of growth and does not lose its toxicity by drying.

All plants with a milky juice are not milkweeds, that is, of the group known botanically as 'Asclepias." For examnle, prickly lettuce, sow thistle, and prickly poppy all have a milky juice, yet are not true milkweeds. The three above-mentioned have leaves arranged alternately on the stem, with just one leaf at a joint, whereas the true milkweeds nearly always have opposite, or whorled leaves. Prickly lettuce, sow thistle, and prickly poppy are non-poisonous.

A well-known milkweed in our section is the broad-leaved showy milkweed which is so conspicuous along ditches and roadsides in early June. It is a perennial, 2 to 5 feet high, with large, purplish flowers in spherical, terminal clusters. It often grows alongside the whorled milkweed. There are a number of other tall and low milkweeds throughout the state, and all of them are regarded with suspicion by stockmen, but the losses from milkweed within our borders can be ascribed to the whorled species only.

Kaoliang, a Grain Sorghum

Answer to G. O. C., Kit Carson county, Colorado:

The Kaoliangs are a distinct group of grain-producing sorghums only recently introduced from eastern Asia. They are found throughout the eastern half of the Chinese Empire, except in the low southeastern provinces, and extend northward and eastward through Manchuria and Chosen (Korea) to Japan. They are most abundantly grown in the northern part of this area, especially in Chihli and Manchuria. No other sorghums are found in the region named except a variety of sorgo cultivated locally on and about Tsungming Island in the mouth of the Yangtze river. They are probably the descendants of varieties imported into China from India many centuries ago.

In the Orient the seed is used both for human and animal food and in the manufacture of liquor. The stalks are used for both fodder and fuel. In addition, the stems and leaves are used as material for thatching, fences, hedges, light bridges, and other building. They are also used in certain native manufactures, such as baskets, mattings, window shades, etc. The brush of some varieties is used for native brooms. The kaoliangs are good grain producers, though of little value for forage on account of their scanty foliage. They are not likely to displace any of the present groups of grain sorghums, such as the milos, durras, and kafirs, but on account of their earliness apparently have a distinct place of their own to fill in the more northern and more elevated parts of the dryfarmed areas.

The earliest variety, Manchu Brown, matures in 85 to 95 days in the southern plains area, and in 100 to 110 days as far north as South Dakota. A number of high-yielding varieties mature in 110 days or less.

Of nine strains thoroughly tested at the Amarillo experiment farm from 1908 to 1911, inclusive, four produced average yields of more than 20 bushels per acre and the other five produced from 13.8 to 18.8 bushels per acre. The average yield for the nine strains was 18.7 bushels for the four-year period. The annual rainfall of the first three years was below normal and the seasonal rainfall was deficient in the middle two. Average yields of corn varieties under the same conditions were less than 5 bushels.

The strains of the extra-early Manchu Brown have been under test at various points in the Northwest during 1919, 1910, and 1911. At the sub-station at Highmore, S. Dak., they have produced an average yield of 13.7 bushels in the three year period. At the Bellefourche experiment farm, Newell, S. Dak., four strains gave a two-year average of 11.2 bushels per acre.

Promising results are being obtained at other points at high elevations or in high latitudes—From bulletin No. 253.

Fake Alfalfa Products

Alfalfa has been advertised so extensively that "make-money-easy" concerns are trying to capitalize on this crop by selling false and fake products as well as worthless stock in the companies reported to produce them. As a rule, the best which can be said about many of these alfalfa products, such as alfalfa flour, alfalfa sirup, alfalfa candy, alfalfa breakfast food, and, as one circular states it, "everything except shoe blacking and toothpicks," is that they are harmless. But they are involved in stock-jobbing propositions which without question will result in loss of money to individuals who succumb to the lure of these get-rich-quick schemes. The United States Department of Agriculture has a high regard for alfalfa as a forage, but the department specialists brand as fads and fakes the medicines and so-called human food articles which are supposed to be made from it.

Harvest and Thresh at One Operation

MANY Western farmers are now using **Deering** or **McCormick Harvester-Threshers,** and many more will buy these machines for the coming grain crop.

Modern grain handling means harvesting and threshing in one operation wherever weather conditions permit, turning the threshing expense into clear profit, doing away with the big threshing bill and burden, saving time and long-drawn-out labor.

Deering and **McCormick Harvester-Threshers** are Western necessities. They cut a 9-foot swath, harvest 15 to 18 acres per day, and thresh as clean as any thresher. Require 8, 10, or 12 horses, and one or two men, depending on attachment used. In most cases, an International ker sene tractor can be used to best advantage.

The harvester-thresher has proved that it is designed and built right in every particular—strong and lasting, simple, of light draft. It can be used as a stationary thresher, too, by adding cylinder and beater pulleys, which are supplied at extra cost. A 10-h. p. engine does the work. Capacity 30 to 50 bushels of wheat per hour. Write us for interesting folders on **Deering** or **McCormick Harvester-Threshers** and on any other machines in the list below.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders Push Binders
Headers Rice Binders
Harvester-Threshers
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Threshers

Tillage Implements
Disk Harrows
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Orchard Harrows
Soil Pulverizers
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Gasoline Engines
Kerosene Tractors
Motor Trucks
Motor Cultivators

Haying Machines
Mowers Tedders
Side Delivery Rakes
Loaders (All Types)
Rakes Bunchers
Combination Side Rakes and Tedders
Sweep Rakes Stackers
Combination Sweep Rakes and Stackers
Baling Presses

Planting & Seeding Machines
Corn Planters
Corn Drills
Grain Drills
Broadcast Seeders
Alfalfa & Grass Seed Drills
Fertilizer & Lime Sowers

Corn Machines
Planters Drills
Cultivators
Motor Cultivators
Binders Pickers
Ensilage Cutters
Shellers
Huskers & Shredders

Other Farm Equipment
Cream Separators
Feed Grinders
Manure Spreaders
Straw Spreader Attachments
Farm Wagons
Farm Trucks
Stalk Cutters
Knife Grinders
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International Harvester Company of America
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PUMPS
FOR EVERY PURPOSE

There's one for every home or farm need. Myers Self-Oiling Electric House Pump shown here, and other Myers Hand and Power Pumps for home water systems, give running water in kitchen, bath room, laundry, and in barn or troughs. Myers dealers are everywhere. They handle Myers Hay Tools, Door Hangers and Hand and Power Spray Outfits too. Ask yours today or write (2) for catalog, it's *FREE*.

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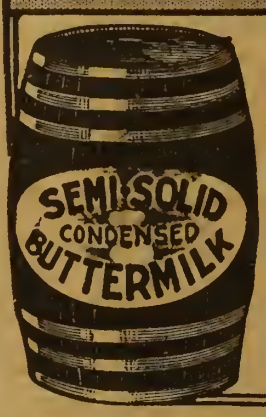

FEED YOUR HOGS AND POULTRY
SEMI-SOLID BUTTERMILK

Semi-solid is pure creamery buttermilk with nothing added—only the water is taken away. It is NOT MODIFIED by the addition of sulphuric acid or any other preservatives. Its own NATURAL LACTIC ACID keeps it fresh.

ABSOLUTELY GUARANTEED

We guarantee that SEMI-SOLID Buttermilk is pure and unadulterated—sterilized and pasteurized. It's a safe feed and you will be satisfied with the results from feeding it.

SAVES GRAIN—SAVES TIME—SAVES MONEY

Semi-Solid is put up in 500 lb. barrels at 4c per pound. One barrel of Semi-Solid makes 1,000 gallons of buttermilk. Quick shipment from our Denver Factory saves you freight charges. You pay on receipt of the goods. SEND YOUR ORDER TO
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Mailed free to any address by the Author
H. CLAY GLOVER CO., Inc.,
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For new 1919 Book. Save $25.00 to $200 on Gasoline Engines, Manure Spreaders, Cream Separators and other Implements. Sold direct from factory. Our 300,000 satisfied customers prove profit of goods and direct selling system. Close shipping points. Mention implement interested in. Write today.
Wm. Galloway Co., Box 1827 Waterloo, Iowa

Farm Loan Information

Our appraisers in almost every community are being asked practically the same questions every day by members of loan committees and farmers. Some which have been the most frequent are given herewith. They have come from all parts of the country, and are being encountered in every Federal land bank district. Because of their general interest and importance, replies are also given herewith. These replies are not all in the exact language of the appraisers, but are in substance their rules of action:

Question: Do you consider the character and ability of the applicant in arriving at the value of the farm and in recommending a loan?

Answer: You have asked two questions which must be answered separately. First, I do not consider the character and ability of the applicant in arriving at the value of the farm; and, second, I do consider the character and ability of the applicant in recommending a loan. In arriving at the value of the farm I study the farm and not the applicant. If the man is shiftless, his farm will show it. I place its value below the average about as much as it would cost to bring it up to the average. If the man is an extra good farmer, his farm will show it. I place its value above the average about as much as it would cost under ordinary circumstances to bring it up from the average to such good state of cultivation. Suppose the shiftless farmer sold his farm to a good farmer. The farm is the same, except that the good farmer has added something to it in money, labor and brains. I calculate the value of what he has added increasing the farm value, under ordinary conditions, by that amount. In recommending a loan I consider the character and ability of the applicant. If he is low in character and ability, I may reject the loan entirely. The association may be better off without him. If it does not seem necessary to reject it, I will recommend a loan which is conservative proportionately to his lack of character and ability. If he is high in character and ability, I will recommend a liberal loan or the maximum under the law. The character and ability of the man, therefore, determines my recommendations as to whether it shall be conservative or liberal.

Question: What shall I do? I know my neighbor needs the money. If I appraise his farm at its true value he will not be able to accept the loan. If I appraise it so that he could accept, the loan will be much too large.

Answer: As a member of your loan committee, you are required by law to appraise the farm at its true value, according to your best judgment. The law does not permit you to use any friendship considerations in finding the value of the farm. You are a poor public servant if you can not divorce friendship considerations from your appraisal of farms. The law provides a penalty of $5,000 for a member of a loan committee who willfully overvalues any land offered for security under the Federal farm loan act.

Question: Why should we, as a loan committee, appraise these farms, when you as a government appraiser pay so little attention to our appraisals.

Answer: I am supposed to make my appraisals independently by calculating all the factors that make farms have value. I cannot take the conclusions of the loan committee. I can consider only the facts of earning power, sales etc., which may or may not have led you to your conclusions. I cannot base my appraisals on your opinions. I must base them on the facts that make farms have value. Your loan committee can safeguard your association, for the Federal land bank will not grant more than you recommend. Your appraisal of the land should be as independent as mine, and based on facts. Both of our reports are then submitted to the Federal land bank for final action.

Question: My Scotch neighbor bought a farm recently from his local banker, an old friend and kinsman, for $40 per acre. He said the farm was purchased below value and that the loan committee could appraise it at $50 per acre. As a member of the loan committee I said that if the farm was sold at $40 per acre that was its value.

Answer: You are right in considering carefully the amount for which the farm was actually sold. In addition to that, however, you should have considered the other sales in the neighborhood. You should also have considered the earning power of that and the neighboring farms. The true value is represented by a sale only when an intelligent purchaser who does not need to buy agrees on a price with an intelligent seller who does not need to sell. Suppose the banker had sold it to a stranger at $60 per acre; would that be its value? After considering the other sales and the average earning power of farms in the neighborhood you might find such a farm worth only $30 per acre, though in this instance I find the Scotchman's farm worth $50 per acre. His banker friend and kinsman gave him an exceptional opportunity.

Question: When the cost of the buildings is much more than the value of the land, shall we appraise them at their cost, making the cost of the buildings, plus the value of the land, the value of the farm?

Answer: No. Such a farm is, for general agricultural purposes, top-heavy with buildings. You better first determine the value of the land without buildings, and then determine how much the buildings add to the worth of the farm. If the buildings are more than adequate to the needs of the farm for general agricultural purposes, then the actual cost above the cost of adequate buildings must be calculated and deducted from the value of the farm, plus the actual cost of the buildings. Indeed, the upkeep of such overadequate buildings sometimes makes them a liability rather than an asset and makes them more valuable to the farm as lumber than as buildings.—The Borrower's Bulletin.

Returning soldiers will go back to attractive farms that are real homes, but not to any other kind.

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When the price of any commodity comes down, we immediately reduce the cost to our customers. It has always been the rule of this house to give the customer the benefit of every price reduction regardless of the price quoted in the catalog from which the order is selected. This advertisement shows just a few of the hundreds of money-saving opportunities offered in our latest Price Cutting Bargain Catalog. You can order from this advertisement or from your regular catalog. You always get our lowest price.

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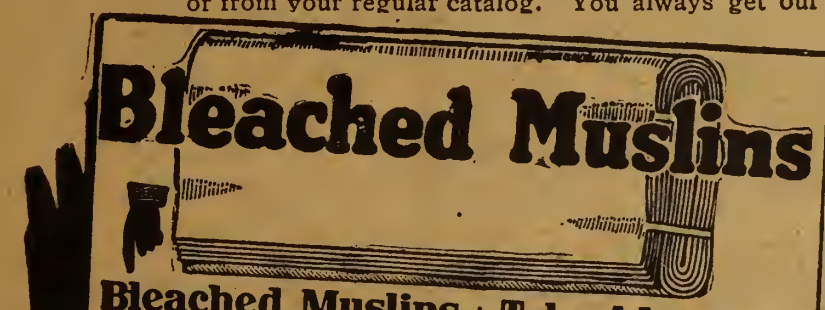

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Bleached Muslins

All 36 inches wide.

We are offering here the choicest qualities of bleached muslins at attractive prices, which are made possible by large and early purchases.

16G5000—An inexpensive but serviceable muslin. Shipping weight, 10 yards, about 1¾ pounds. Sale Price, 10 yards.....$1.45 — Reduced to 15c, Catalog 90 Price 22c

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Take Advantage Of This Big Sale

Pillow Tubing

No side seams necessary in making your slips from this durable and strong tubing.

16G5026—Pillow tubing, about 42 in. wide. Weight, per yard, about 5½ ounces. Price, 6-yard piece..$2.28 — Reduced to 39c, Catalog 90 Price 44c

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Prices Reduced

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The numbers quoted below are carefully selected, standard unbleached sheetings of good quality.

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16G5025—Unbleached Muslin. Width, about 40 inches. Ship. wt., 10 yards, about 3½ lbs. Price, 10 yards.....$1.95 — Reduced to 20c, Catalog 90 Price 29c

Unbleached Muslins

Compare Prices with 90 Catalog Prices

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16G5010—Width about 72 in. Ship. wt., 10 yards, about 5¼ lbs. Sale Price, 10 yards.....$5.05 — Reduced to 51c, Catalog 90 Price 59c

16G5011—Width, about 81 in. Ship. wt., 10 yards, about 5¾ lbs. Sale Price, 10 yards.....$5.45 — Reduced to 55c, Catalog 90 Price 62c

16G5012—Width, about 90 in. Ship. wt., 10 yards, about 6¼ lbs. Sale Price, 10 yards.....$5.65 — Reduced to 57c, Catalog 90 Price 65c

Unbleached Wide Sheetings

Under these numbers we quote a standard quality of unbleached wide sheetings in all the widths that are most in demand.

16G5013—Unbleached Sheeting. Width, about 45 inches. Weight, 10 yards, about 3½ pounds. Sale Price, 10 yards.....$3.05 — Reduced to 31c, Catalog 90 Price 45c

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16G5015—Width, about 72 in. Weight, 10 yards, 5½ lbs. Sale Price, 10 yards.....$4.65 — Reduced to 47c, Catalog 90 Price 55c

16G5016—Width, about 81 inches. Weight, 10 yards, about 6 pounds. Sale Price, 10 yards.....$5.05 — Reduced to 51c, Catalog 90 Price 59c

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Bleached White Longcloth

Width, about 36 in.

16G5005—Soft English long cloth. Bleached white. Weight per yard, about 3 ounces. Price, 10 yards.....$1.85 — Reduced to 19c, Catalog 90 Price 24c

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Width, about 36 in.

16G5006—A good quality cotton long cloth. Bleached pure white. Weight, per yard, about 3 oz. Sale Price, 10 yards.....$1.95 — Reduced to 20c, Catalog 90 Price 26c

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Width, about 36 in.

16G5007—A good standard quality. Soft, English finish. Bleached white. Weight, per yard, about 3 oz. Price, 10 yards.....$2.15 — Reduced to 22c, Catalog 90 Price 28c

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Where the Legislature Failed

The Colorado legislature failed to pass a blue sky law. Oklahoma and Wyoming joined the procession of progressive states this year and passed stringent laws to curb the sale of speculative and wildcat stocks. Texas has formed an association for mutual protection of those who have suffered from stock sale swindlers. Kansas has had a blue sky law for some years. Colorado is still the homing ground, or rather the robber's roost, for the highbinders who have been reaping a rich harvest of dishonest dollars from farmers, laborers, small tradesmen, widows and orphans. Western Farm Life called attention to this condition early in January and members of the recent legislature were reminded of their duty. They failed, for reasons which each individual representative and senator should furnish his constituents. The people of Colorado are in no mood to wait two years for action that will protect investors and honest investments. In the early days when protective legislation was denied the people, or when they could not wait for regular sessions, vigilance committees were formed and there were prompt results. Texas is working along those lines now and perhaps the Texas organization can be extended to neighboring states whose legislatures have not taken the demands of the farmers seriously. Texas has a way of dealing with such problems drastically and effectively., Hores stealing has become a thing of the past without putting a death penalty clause into the grand larceny statute. Twenty-five years ago one often came across a horse thief in suspension from a cottonwood tree or a telegraph pole. Inquests usually disclosed that, "said party came to his death through choking at the hands of party or parties unknown." The practice of horse stealing ended suddenly and it has never been successfully revived.

A sound horse in those days was not worth over forty or fifty dollars, but it wasn't so much the value of the animals as the annoyance of having a total stranger ride into your corral at night and cut out the best string from the bunch and drive them off to the hills. Of course there is a difference between horse stealing and the sale of fake stocks. A horsethief always took a chance at being caught in the act and shot to death. The fake stock salesman often gets a good dinner and other entertainment at the home of the farmer to whom he does the favor of letting him in on "a good thing." He works in an underhanded way and really isn't in the same class with a nervy horsethief. Then, too, he usually drives a fast automobile and can make his getaway in much better fashion after he has "copped" the farmer's wad. So we say the two cases are not wholly analogous. We rather prefer the horsethief to the fake stock salesman. We are not advocating the same methods in both cases. We believe in law and order. We do think, however, that the revival of some organization such as the Anti-Horsethief Association of other days might serve to hold the stock selling game within reasonable bounds until the legislature wakes up. The best protection, of course, is good business sense on the part of the prospective investor. A safe rule is to let all speculative stocks alone; another rule is to consult your banker before you invest.

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Seed Law Violations

Violations of the Colorado pure seed law have been called to our attention lately. One case mentioned is that of a shipment of what was ordered as Minnesota No. 13 seed corn which turned out to be 90 per cent Swadley corn. This is a case of mislabeling which deserves to be punished. It is also reported that the railroads are ignoring a provision of the law which requires that the state experiment station be notified in case seed is brought in from other states that it not labeled, such seed to be held for inspection. The following regarding these matters comes to us from the pure seed laboratory at Fort Collins:

The Colorado pure seed law says that the label shall contain the commonly accepted name of the field seeds. Regarding this statement the following question has arisen: Must the label give both the name of the kind of seed and the variety of seed? For example, can corn be sold under the label "corn" without giving the variety name such as "Minn. No. 13," "Swadley," etc? In answer to that question I would make the following reply: Seeds may be labeled as to kind only, that is, corn may be sold under the name "corn" without designating the particular variety, if the purchaser is willing to buy corn under such label. However, it will usually be the case that a purchaser will want to know the variety as well as the kind. If seed is labeled as to variety, that variety name MUST BE THE CORRECT NAME. If variety is requested and is unknown the label should have the statement "unknown."

As I see it, if the quantity of seed labeled "Minn. No. 13" was 90 per cent Swadley is was a pure case of mislabeling and the seed company would be liable to prosecution under the Colorado pure seed law. I am quite positive that any jury would uphold our interpretation in this particular.

I want to add in this connection that just now we are finding that the transportation companies are violating Section 5 of the pure seed law. In other words they are bringing seed into the state that is not labeled, without notifying the agricultural experiment station, and holding the seed subject to inspection. The railroad companies were advised when the seed law went into effect, concerning section 5 of the seed act, and all of the offices issued special orders to the agents on their lines but it seems that the order is being overlooked at many points.

The pure seed law was enacted for the protection of farmers. Last season, the first year of its operation, very little complaint was made of violations. If seed dealers are getting careless the application of the penalty clause should have the desired effect. Farmers who can furnish proof of substitutions, or mislabeling of any kind are urged to get in touch with W. W. Robbins, Colorado Seed Laboratory at Fort Collins, who is in direct charge of the operation of the law. This law will not be allowed to become a dead letter. Western Farm Life fought for its enactment and we expect to co-operate with the authorities in seeing that its provisions are scrupulously observed. Reputable seed dealers are carefully observing the law and others who violate its provisions should be punished, for the protection of farmers as well as the encouragement and protection of law-abiding dealers.

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The Pinto Bean

According to a Bureau of Markets, bulletin, the quantity of pinto beans still in the hands of Colorado growers about March 15 was 20,000,000 pounds. Considerable of this surplus will undoubtedly be absorbed by the usual market channels through the spring and summer. The unexpected ending of the war last November cut short government purchases and left the bean growers of the United States with an unprecedented surplus out of the largest crop ever produced. In spite of a condition of practical stagnation it is advisable for Colorado farmers on the dry lands, who have good bean ground, to continue growing this crop. At the time this is being written there was a possibility of further exports of pinto beans to sections in Europe where starvation conditions demand food of all kinds. Congress has made an appropriation of $100,000,000 to feed the starving and efforts are on foot to use at least a small part of this sum for the purchase of beans for export. The situation regarding pinto beans is by no means hopeless. It certainly would be unwise to put in an abnormal acreage again this year, but there is no valid reason for dry land farmers to shut off altogether on the production of a cash crop that will always pay for itself and, in addition provide a good by-product to feed with silage and improve the soil on which it was grown.

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A Compliment to Our Herefords

John S. Moser, treasurer of the American Hereford Breeders' association, has shown the Hereford peoples' appreciation of boys' club work by purchasing thirty head of John E. Painter's choicest registered heifers for a boys' calf club at Olathe, Missouri. Thirty boys are each to take one of these heifers and feed and fit it for one of the big shows next year, when the animals will be shown in competition and sold. It is a compliment to Colorado that the animals for the contest were selected here. These fine animals will attract much attention to Colorado, and Mr. Painter's public spirit in permitting the selection of so many good individuals from his herd should be appreciated. It will cost Mr. Moser approximately $10,000 to finance the boys' club, and it is expected the boys will make some excellent records in the work.

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Reply to "Four Other Farmers"

To the Editor:

May I say a few words in reply to "Four Other Farmers" in April 1st issue? Let us recall the old caying: "It all depends on whose ox is gored? The writer uses the expressions: "We are all agreed, "We all believe," "We don't want any mixing with organized labor," "My neighbors fee lthe same way," "We don't believe." There does not seem to be a statement that could be classed as knowledge or reasoning in his article. It is full of expressions of belief and sentiment, but contains no statements of fact or reasoning. I wonder if the writer is a fair example of the thinking ability of the farmers of his community?, I wonder if it has ever dawned upon him that the desirable things of this world are not obtained by believing and feeling, but rather by knowing and proving. He seems favorable to organization, but might wish to limit his organization to "us four and no more." He opposes union with organized labor, including I. W. W.'s and anarchists. Is it possible, with the mails bulging with educational publications for the rural districts, with the thousands of Western Farm Life being mailed to Colorado farmers, with the world forging ahead at its present pace, that there are still four farmers in the state as dense as that? Western Farm Life, can you take pride in the results of your work? I am a member of organized labor and am acquiring a piece of land on which I hope to become a farmer. I hope to own some cattle, but I hope I need not become one with them in my thinking capacity. My strongest friendship inclines toward the farmer for many reasons. It seems to me that his position in life should be most favorable to independent thinking, and to enlightenment.—WILL B. FARMER.

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Cattle Losses on Wheat Pasture

Many reports of losses of cattle on wheat pasture have been received by the veterinary department of the Kansas Agricultural College. The exact nature of the disease is not understood, and the college is making extensive investigations to determine its character and cure. It is not believed that the wheat pasture causes the disease. It is possible that the disease is hemorrhagic septicemia, the germs of which have had favorable opportunity for growth this spring. When deaths occur among cattle on wheat pasture, it is advisable to remove the herd to upland pasture and separate sick animals from the rest. Quicklime may wisely be used to disinfect small yards and lots in which diseased cattle have been.

The Branding Iron

Applied by Elias M. Ammons

There are still a few places in Colorado where cattle are wintered on the open range. While there may be a few animals lost in an ordinary winter, there is no effective way of protecting herds during unusual weather conditions, and the calf crop is nearly always light. Growing cattle are stunted in growth and rarely ever attain normal size and always lose quality which can never be regained. Years ago losses were counted by the number of animals that died. It is now a well recognized fact that cattle which survive are often damaged 50 per cent because of adverse weather and feed conditions, leaving herds with diminished calf crop and of unthrifty condition in the spring.

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People are beginning to realize that livestock growers and feeders, like other technical workers, are more successful when they begin young. Recognizing this principle, the federal government has undertaken a long program of vocational education. All the states of the union have taken it up, and colleges and secondary schools are joining in the work as fast as courses of study and funds can be arranged. Great musicians and artists acquired skill at an early age. A similar principle seems to apply to all industry requiring skill. Experience has proven that men have made greater success in livestock growing who began the work in boyhood days.

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An effort is under way to effect certified seed potato organizations in the Rocky Mountain section. Such work has proven of great advantage in Wisconsin and other eastern states. The purpose is to make selections of varieties which do best and produce registered seed in large quantities in order to standardize western potatoes in the market, produce greater crops and less ulls, and consequently increase profits. It can greatly increase its output by improving its product. Nothing will trend stronger toward this result than good seed.

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Some of the sportsmen of the state want coyotes classed as game animals aand killed only under license! If and killed only under license- If had to divide their chickens and turkeys with such varmints as coyotes and skunks, they would change their minds. If this state could get rid of coyotes and skunks for a million dollars it could double its money in poultry in a single year.

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The calf crop has been greatly reduced in portions of Colorado and New Mexico by severe winter conditions. Bad weather began early and continued until late. Even in sections where there was a normal amount of hay the supply ran out early in the spring, and roads were so bad that feed could not be hauled to the cattle. In some neighborhoods hay could not be had at $40 a ton.

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South Dakota claims a production of more grain per capita than any other state in the Union. The figures given show a total production of 428.8 bushels of grain for every man, woman and child in the state. This beats Kansas, which is the greatest wheat producing state in the Union.

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Under federal and state legislation there will be available for use in highway construction in the United States this year, a total of $343,00,000; a great deal more than was ever expended in any similar period in the history of the country.

Charley Made a Hit

"Charley is simply wonderful," exclaimed young Mrs. Torkins. "I never dreamed that any one could run a motor-car the way he can!"

"What has happened?"

"We took a ride yesterday and went along beautifully in spite of the fact that he had forgotten some of the machinery!"

"Running without machinery?"

"Yes. We had gone at least eleven miles before Charley discovered that his engine was missing."—Washington

Plan to build a silo this summer.

Comment by Farmer Putnam

PAYS A VISIT TO THE AGRICULTURAL DEPARTMENT OF THE UNIVERSITY OF WYOMING

HAS any of you folks ever been up to Wyoming to look over the Laramie plains? Well, it's a great country, with fresh northerly winds —what sailors would call a stiff breeze—blowin' most of the time in spring. They is mountains all around. You cain't look nowhere but what you see them hills, all a-slopin' down to the Laramie river that comes outen Colorado, which is tryin' to hog all the water out of the river and use it over on the Poudre watershed to irrigate Weld county land with. The top of the Laramie plains is covered with good grass that's supportin' lots of cattle and sheep and down below the surface they has got oil—real coaloil—a-spoutin' outen the wells around Rock River. I didn't go up thar to see no oil; Josephine took all the oil fever outen my blood and I'm stickin' clost to farmin'. I got a old friend up to Laramie—Sven Axelson, who lives "tan miles behint Lar'mie." Sven ain't no Swede in real life; he's a professor in the State University by name T. S. Parsons, and he ain't no relation to our E. R. P., the dry farmer, except both is Englishmen. T. S. is Extension Ignoranomist fur the Agriculture department of the Univeristy—that is, he has to go out over the state, ive at ranches or little hotels, travel by jitney, a-horseback or by sled in winter over them mountain or plains roads and visit around, spreadin' the gospel of better farmin' and good cheer wherever he goes. A man with his ob has got to be cheerful or he'd quit. Onct in a while he comes home to isit his family and the dog barks at him like he was a stranger when he drives p. It's a gay life, still it beats settin' at one of them rolltop desks in a college nd figgerin' out problems in triggernomety, enormity, bacterology, or enterolity, or them other sciences which they teaches and furgits in agricultural olleges.

T. S. was in town, havin' expected me o arrive thar safe and sober via the Borie cutoff, which don't go through Cheyenne. Well, I arrived, and folks I on't like to tell it, but the town didn't uit my notion of a University town. It s to damp, but July 1st is a-comin', so here'll be a change.

I seen lots of sights up to the University; it's a fine place fur fossils. Don't get no wrong impression; I don't mean what you think. I mean real ossils—the kind that is dug outen the ills in Wyoming. Prof. Knight showed s through the mew-see-um. They was time in my life when I wouldn't -dared trust myself among a collection of them ancient reptiles, because couldn't a-believed what I seen. Folks, it's wonderful when we think ow old Wyoming is and still so unettled and wild in its ways. I seen nimals that has been dead a hundred imes longer than Adam would be old f he was still alive.

One of 'em of which they found part f the legs and backbone, which is uilt up like a whole monster with netal strips, would make a fine welcome arch. Another one with tail and ll, a sort of a cross between a sea sarpint and a mountain line, was 120 feet ong when it unraveled itself to slosh round in the mud on the Laramie plain efore the plain was dried off. I took ff my hat when I seen them relicks of ntiquity and I couldn't help but feel mall and insignificent standin' thar ookin' at things that was nearly as old s Mother Earth herself. Pikes Peak was probably a little point of rock tickin' outen the sea when them nonsters was alive. I was thinkin' ow lucky Noah was that he lived long fter this here kerosene period, because he'd a-never got them thar tchyousawhosses and Pete O'Docktails n a ark that was only 120 cubicks long.

Folks, I'm tellin' it to you honest, when I went up to Laramie I expected o find a kind of a young and half-baked University with the professors rippin' around over the campuss on cow ponies, but believe me that ain't like 'em a-tall. They is some sure enough scientific fellers among 'em. That feller Knight is familiar with all them fossils and kin call 'em all by their fust names, tell their ages within ten or fifty thousand years by lookin' at their teeth and spell 'em all out off hand without lookin' in the dictionary!

Then over in the Vetrunary department I seen a Dock who had on a white gown and rubber gloves, with which he was carelessly playin' with fourteen different kinds of deadly pizen like it was so much sugar. He was as reckless with them bottles of death as a waiter with a tray of dirty dishes. He looked like he'd just as soon lick a little Prussick acid offen his finger tips as taste sorghum.

Well, I could write a lot more about what I seen at the University, but I got to hurry through this, because we had a fine rain and I want to watch the boys finish the plowin'. We took a nice trip down to Rock River, the party includin' me and Prof. Parsons, Mr. Reeve, the County Agent, and Mr. Jackson Pd.P. of the U. S. Biological Survey. That thar college degree is one I give Mr. Jackson—a kind of a onery degree, them letters standin' fur Prairie Dog Pizener. We was headed fur a prairie dog meetin' to talk over pizenin' plans with them ranchers. Rattlesnake pizen is gettin' awful scarce in Wyoming, but they is plenty of strychnine left fur the dogs and fur any old soaks that don't like the dry law. The ranchers used to think the dogs was entitled to eat offen the grass and alfalfy, but now sence the government got after 'em, it's "boodbye doggies."

We had a fine trip; everything went off without a hitch; nice smooth, dry roads, no wind or snow, no mud; plenty of gas; engine workin' fine; weather delightful; meder larks singin'.

(Note: Farmer Putnam sometimes lies like the Old Nick when he wants to protect a friend.—Editor.)

They was some fine scenery on the way, so we had to git out of the car to enjoy it better and when we got near Rock River why the ground is so valuable town lots sellin' for a $1,000, that we got out to pick up what real estate we could on our boots and carry it back with us. The last half mile we just waded to town because we didn't want to git the streets dirty with our tire chains and Mr. Reeve carried out the gas and fed the car at the edge of town.

THOMAS JEFFERSON PUTNAM.

They Liked Our Cover Page

The last issue of Western Farm Life, April 1, we think has a very attractive cover page; of course it's attractive as it is made up of photographs of San Luis Valley live stock; the kind that look good in any company. These photographs were taken at the last H. O. G. Stock Show, Monte Vista. In this design we find W. J. Sanderson's mule hitch, claimed by horsemen to be the best of its kind in the state, a pair of Ed. Getz's registered Herefords, a trio of J. C. Gilbreath's Rambouillet lambs; J. H. Neal's Scotch Shorthorn bull; and Mr. Hunter's Duroc gilt; with County Agent Sauder, Saguache county, supplying the background.

The Western Farm Life is right with the farmers of the San Luis valley and other portions of this and adjoining states, in the move for better live stock. —Monte Vista Tribune.

Plenty of forage means a storehouse full of feed for the cattle next winter. And forage crops will stand dry weather if it comes.

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16 Reed Block Grand Junction, Colorado

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They are made of dark blue Percales with white figures, Slip-over, cover—all styles. Trimmed with ric-rac braid—they're different from the ordinary apron; for these have wide belts that go all around. The pockets are large. The aprons are well made. To make a long story short they're Nice, Neat Bungalow Aprons and the Price is very moderate for GOOD QUALITY. All Sizes 36 to 44 at

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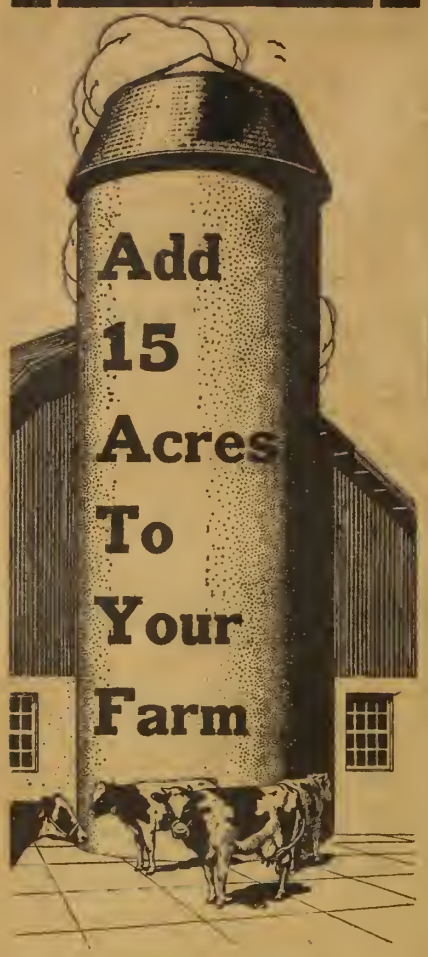

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Concrete for Permanence

Implements for Dry Farming and Their Uses

(Continued from Page 8)

ments. For cultivating grain crops that have jointed the spring tooth weeder is a very handy implement and is made on the plan of the hayrake with the teeth turned down into the soil instead of slanting upward at the ends. The ordinary harrow will often do all the work of cultivating these crops, but it sometimes happens that the spring rains do not cease early enough in the season for this implement to be used on account of the grain being too high; but the weeder can be used even when the grain is heading out. When the teeth strike the stools from which the stalks grow they simply bounce off without doing any harm, but they have sufficient penetration to break the crust, and form a mulch which is most important to have on the grain fields on the approach of dry weather which often occurs between the spring precipitations and the summer rains.

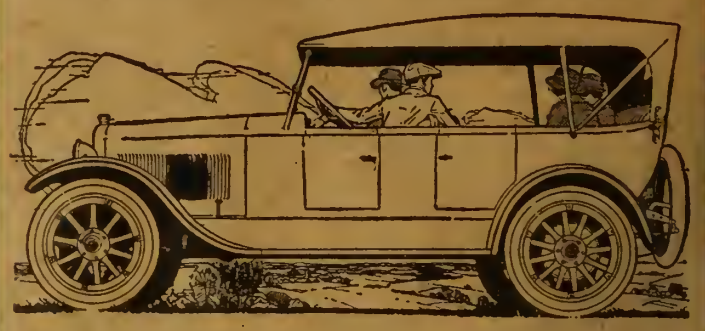
The Roller For Packing

A very useful implement on any farm is a good type of roller. If the dry farmer always plows ahead of time, as is advised, he will not need it very often, but if he plows and plants immediately plenty of packing is necessary and a roller is indispensible. The best of these implements is a packer, roller, clod crusher and cultivator all in one. The old fashioned roller was simply a heavy cylinder which compacted the soil and hardened the surface. The kind now used is a lot of separate disks or wheels on a single axle which revolve independently of one another. The edges are not smooth, but corrugated, and any clod that comes between them is ground to powder as completely as if it were between two millstones. Another advantage of the corrugated edges is that they leave some loose dirt on the surface for a mulch. They are handy for flattening out sod after breaking, making the work easier for the disk and harrow. They do nice finishing work for fine seeds such as alfalfa, sweet clover, millet, etc. For those who broadcast by hand and harrow in their grain the roller may be run over the surface to afford the right compaction for germination purposes; but the whole operation is performed best by the press drill which packs in the seed rows, thus giving them the advantage of superior capillarity after a rain, or as long as the free water lasts.

Dry plowing in the fall is not much liked by farmers, but when soaked up and the clods disintegrated by the wet snows and frosts, it generally raises good crops when planted the following spring; but in heavy land where the clods usually persist in spite of everything, a rolling immediately after plowing will crush them and the weather will do the rest.

For seeding purposes there are all kinds of devices on the market; for grain and fine seeds the press drills are the best; but care must be taken not to plant small seeds in clay soil when wet enough to run together or a crust may result later which may prevent the sprouts from breaking through; but by seeding when the top inch is medium dry this trouble can be easily avoided. For corn, sorghum and other row crops we now have the split wheel planter which leaves an unpacked streak right above the seed but presses down the dirt on either side of it. The combined lister and seeder is also much used for corn. Listed corn is usually the best; but it is not safe to plant it this way on slopes or where water might collect for if mud washes into the furrows the sprouts may be smothered. The advantages of using this implement are that it sets the root structure of the plant down deep out of the way of drouth, that it produces stalks not likely to lodge or wash out in a storm, and that it allows the destruction of all weeds in the row by filling up the furrow with the cultivator when the corn is a foot or so above it. In windy countries the lister without the seeding attachment is now used as a plow to prepare the winter fallow to catch snow. Only alternate furrows are plowed leaving the middles solid, with the dirt from either side heaped up on them forming a ridge. In the worst blizzard the snow cannot blow off, but is all caught between the ridges and conserved in the soil when the thaw comes. In the spring the middles are plowed out, the field leveled with a

CHANDLER SIX $1795



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land similar to that which through many years has averaged from 20 to 45 bushels of wheat to the acre. Hundreds of cases are on record where in Western Canada a single crop has paid the cost of land and production. The Governments of the Dominion and Provinces of Manitoba, Saskatchewan and Alberta want the farmer to prosper, and extend every possible encouragement and help to

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drag and is then ready for planting. Some claim that for small grain it is not necessary to plow out the middles; but that in preparing the land for the subsequent crops they should be plowed out leaving the furrows of the first crop for the middles of the second. In planting corn, however, which needs looser soil than small grain, it always pays to plow out the middles. When fall plowing for corn is done with the ordinary plow it is best to list in the seed at planting time across the plowing for this gives the roots a better chance to spread in every direction.

First Shorthorn Hereford Joint Auction Sale

(Continued from Page 5)

Colonel Aster 707515, J. P. Klug..... 350
Leon Aster 706078, W. J. Rowe, Greeley 230
Don Domino 706063, J. M. Dille, Ft. Morgan, Colo..... 310

Cows
Sylvia Domino 677069, M. A. Gaudreault, Palmer Lake, Colo..... 310
Edda Domino 677043, S. L. W. Ranch, Kersey, Colo..... 405
Hsrsford Corp. of Wyoming, Cheyenne, Wyo., consignor.

Bulls
Cornot 5th 636611, Wm. Cowdery, Denver 275
Wyoming Prince 2d 636666, J. P. Klug.. 260
Wyoming Donald 1st 636649, J. P. Klug. 260
Beau Patrick 6th 726304, Jensen Bros., Manassa, Colo..... 190
Model A 2d 704260, W. L. Curtis, Gunnison, Colo..... 200
Sturgis Boy 8th 735177, Chas. E. Collins 215
Sub. for Lot 90, R. Harkis, Hudson, Colo. 200
Wyhampton 11th 713899, Anderson Bros., Greeley, Colo..... 195
Odessa Boy 5th 710342, D. Schilling.... 175
Wyoming Majestic 25th 726338, Anderson Bros. 195
Gold Dust 2d 713887, Chas. E. Collins..255
Bonnie Laddie 3d 713885, Jensen Bros., Manasa, Colo..... 190
Wyperfect 11th 735194, Wm. Cowdery, Denver 220
Beau Sturgis 18th 726308, Charles E. Collins 215
Model A 4th 762941, C. T. Roberts, Hayden, Colo..... 375
C. H. Lupton, Denver, Colo., consignor.

Bulls
Beau President 684714, G. W. Hixson & Sons, Simla, Colo..... 650
Gen. Petain 699384, J. P. Klug..... 300
Beau Paladin 699375, G. Palmer, Brighton, Colo..... 525

Cows
Juniper 312648, J. D. Canary, Saratoga, Wyo. 400
Duchess D. 13th 491730, J. D. Canary.. 410
Rose Bud 8th 526489, J. D. Canary.... 485
Blue Belle 417221, S. L. W. Ranch.... 500
John E. Painter, Roggen, Colo.,consignor.

Bulls
Beau Perfection 138th 744297, J. P. Klug 225
Donald Rex 26th 710157, R. L. Culver, Berthoud, Colo..... 205
Beau Perfection 131st 744290, J. P. Klug 225
Mansell Boy 85th 737455, R. L. Culver.. 205
Beau Perfection 123rd 737437, J. P. Klug 225
Bull, not catalogued, J. P. Klug..... 310
Bull, not catalogued, J. P. Klug..... 260

Cows
Miss Mansell 100th 737470, R. B. Kinzer, Kansas City..... 225
Miss Mansell 73rd 677314, C. B. Scott, Idalia, Colo..... 480
Miss Perfection 59th 775518, G. W. Hixson & Sons, Simla, Colo..... 250
Miss Perfection 66th 775524, G. W. Hixson 250
Miss Perfection 73rd 775531, G. W. Hixson 250
Noontide's Model 775543, G. W. Hixson.. 250
C. B. Scott, Idalia, Colo., oonsignor.

Bulls
Beau Perfection 17th 603674, J. P. Klug. 310
Foster Fairfax 608223, J. P. Klug..... 305
Prince Protector 560407, Anderson Bros.. 265

Plans for Poultry House

I have 320 acres of sandy loam land in the southeastern corner of El Paso county. My nearest market is Pueblo, 50 miles, and Colorado Springs, 58 miles. I have 50 white Leghorn laying hens. I have had some experience in poultry but can't get the right kind of a hen house for my hens to do well. I want to raise chickens for eggs and keep about 200 hens the year around. I prefer the White Leghorn or Black Minorcas. I can handle 200 hens easily if I have the right kind of buildings. Will you send me a plan of a good hen house and other housing necessary?—A. T., Pueblo county, Colo.

We are sending you some poultry house bulletins. On the cover of No. 126 you will find an underground poultry house which we think ideal for dry land conditions. This house is described on page 5 and can be made any suitable size. A good many underground houses are being used in the plains sections of Colorado and when properly constructed and cared for are very satisfactory. On page 6 of the same bulletin will be found a house suitable for about 150 hens. Dropping boards are not shown in this house, but if this platform were built under the roosts and the nests and other appliances were built up from the floor as shown in the illustration, this house would furnish 400 square feet of floor space for a scratching place in bad weather. I think this an ideal house for a large farm flock under Colorado conditions. If you have a sloping piece of ground you might profitably build a semi-underground house in the bank. The slope, however, should be south or south-east on account of the sunny exposure.

The poultry house should be built as low as possible without danger of the attendants bumping their heads against the ceiling. A low house is more easily warmed than a high one.

Favors Purebred Sire Law

To the Editor:

Yours of the 21st received, asking me for my views on a law enforcing the use of purebred sires on the range in our state. While this writing stunt is considerably out of my line, I will try anyway to give you my views on the subject, for I think this is of such importance that we should all do what we can to arouse interest, in order to get such a law, if possible. I don't know of any other law that would benefit the stock industry of this state as much, or in as short a time, as this. But I do not think we should stop at merely a purebred, for even they should have to come up to a reasonable standard, or we would not get the full benefit of the law. While such a law would be to enforce the use of purebred bulls, I do not believe the majority need to be forced. I believe they are ready and anxious to raise better cattle, but they are up against it. They are held back by those who are indifferent to any betterment of conditions. I think you will agree with me that it is poor policy to hold the progressive class back; better force the indifferent along so they can all advance. Some people will say that the Mexican stock are as good as the full blood, yet they will admit that the cattle here are far superior to what they used to be, and give credit to what few purebreds that have found their way to the range, so there you are—all good stock trace back to purebred sires. If Colorado had put all purebreds on the range a few years back she would have a reputation today, and farmers and stockmen would be realizing a better profit on their investment. Some people say they cannot afford to buy good bulls, but if they took everything into consideration they would find they cannot afford to buy scrubs. There are but three things I can see to do: the first is to get the law enforcing purebred bulls on the range if we possibly can, but if we fail we can take our choice of the other two; that is, raise scrubs on the range, or keep good cattle on the ranch at home the year around.—P. H. WILKINSON, Antonito, Colorado.

Under general conditions about one pound of ice will be required to cool and keep one pound of cream in good condition until delivered to the creamery, when deliveries are made thrice a week.

When Market Prices Come Down Our Price to You Is Cut at Once

When the prices of any commodity come down, we immediately reduce the cost to our customers. It has always been the rule of this house to give the customer the benefit of every price reduction regardless of the price quoted in the catalog from which the order is selected. This advertisement is just one of hundreds of money-saving opportunities offered in our latest Price Cutting Bargain Catalog. You can order from this advertisement or from your regular catalog. You always get our lowest price.

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Driving Tread→

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Many of these auto owners tried one or two **Riversides** first and now they know how dependable, long lasting and economical they are—so use **Riversides** all 'round. It is our aim to give auto owners the best tire value obtainable—our direct-to-you selling plan has been a wonderful help in reducing tire prices. Now comes increased tire production with large contracts. These two things—direct selling and big production are the best means of giving you bigger values. The extremely low prices shown here on **Riverside** 5,000 Mile Auto Tires is the best proof of our aim to give **"Most for the Money"**

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Size	Regular Clincher Style	Q. D. Clincher Style	Straight Side or Dunlop Style	Price	Aver. Ship. Wt. Lbs.
28x3	64G3053			$11.75	9
30x3	64G3055			12.10	10
30x3½	64G3059				
32x3½		64G3287	64G3331	15.75	12½
31x3¾	64G3050	Special Giant Size fits 30x3½ Clincher Rims		18.65	13½
31x4	64G3071			19.75	14
32x4					
33x4			64G3335	24.25	16
34x4		64G3301	64G3337	24.75	16½
		64G3303	64G3339	25.75	17
33x4½				26.50	18
34x4½			64G3342	34.75	23½
35x4½			64G3344	35.85	24
36x4½		64G3311	64G3345	37.35	24½
			64G3347	38.00	26½
35x5			64G3350	42.75	29
37x5		64G3323	64G3351	45.00	32

Riverside Inner Tubes Page 64

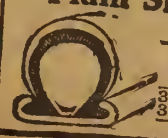
FREE Write for Our New 100-Page Auto Supply Book. It's FREE

Driving Tread Casings

Size	Clincher Style	Straight Side or Dunlop Style	Price	Average Ship. Wt. Pounds
28x3	64G3000		$11.00	8¾
30x3	64G2951		11.70	9½
30x3½	64G2952			
32x3½		64G3254	15.15	12
31x4	64G3018		17.75	13
32x4			23.25	15
33x4		64G3258	23.65	15½
34x4		64G3260	24.75	16
		64G3262	25.35	17
34x4½		64G3267	34.10	22
35x4½		64G3268	35.75	24

Be Sure to Specify Type of Rim

Plain Smooth Tread Casing



Size	Regular Clincher Style	Price	Average Ship. Wt. Pounds
30x3	64G3002	$11.55	9½
30x3½	64G3006	15.00	12

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Soldiers' Homestead Rights

Can an ex-soldier who served during the recent war in Europe file on a homestead now and take advantage of the soldier's rights provision? Or must he have made his filing before he was discharged from the army?—H. G., Colorado.

In the closing days of the last session of Congress an Act was passed giving the soldiers and sailors in this war the same rights and privileges as those accorded the soldiers in the Civil and Spanish American wars. This means that the soldier can take advantage of the act whenever he desires to use his military service on a homestead during his lifetime—or if he dies before he exercises that right then same passes to his widow or minor orphan children.—Mary Wolfe Dargin, Register U. S. Land Office.

Road on Section Lines

Is there any law compelling a farmer that owns his own land to give 30 feet on all sides of his land on section line for a roadway?—R. T. N., Arapahoe county, Colorado.

I know of no such law. The county commissioners have the right to declare a highway along section lines of the public domain. It may be that the county commissioners at one time had so declared the road before this gentleman owned the land.—Hamlet J. Barry, Attorney, 724 Equitable building, Denver.

Husband and Wife Equal

Answer to Subscriber, Colorado:

There is no community property in husband and wife in Colorado. The property belongs to the husband, or to the wife, as the case may be. The only restriction is that the husband or wife cannot will away from the surviving spouse more than half his or her property. Husband and wife are equal in Colorado before the law. If the wife has the property in her name it belongs to her. If the husband has property in his name it belongs to him. Where a piece of property is used as a home and either the husband or wife own it, and either the husband or wife claim a homestead exemption on it, then and in that event the land can be conveyed only with the signature of both husband and wife. —Hamlet J. Barry, Attorney, 724 Equitable building, Denver.

Can Offer Relinquishment

Can a bomesteader offer his claim for sale before he proves up without danger of anyone reporting him to government authorities and without running a chance of losing his claim?—A. B. C., Wyoming.

The Department has held that the mere offering of a relinquishment for sale is not of itself ground for cancellation, but any agreement to sell the land before final proof would result in cancelation of the entry if properly presented with proof.—Mary Wolfe Dargin, Register, U. S. Land Office, Denver.

Cannot Vote in Town

At the coming town election there is an ordinance to vote on, to bond the town to buy the old electric light plant or also to bond the town to accept and equip an electric light plant. Do property owners who do not live in the incorporated limits of the town but who pay taxes on property have a rigbt to vote?—A. B., Conejos county, Colorado.

No one except a resident within the corporate limits may vote at any town election. The fact that you are a tax paying property owner does not qualify you as an elector on municipal questions if you live outside the town limits.

Rutabagas for Dairy Cows

Answer to J. D. T., Jefferson county, Colorado:

Rutabagas are a good cow feed. They must be fed right after milking as the milk will take on a peculiar taste if rutabagas are given before milking. They will not dry up cows but on the contrary are a good succulent feed if the above precaution is adopted.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Is there any disease among caives that would cause the tongue to get sore and prevent them from swallowing? We bave one 10 months old. Been wintered on dry hay, mostly alfalfa. He was in pretty fair shape, but suddenly seemed to fall off, but as his appetite seemed good we didn't think much of it. But now he can't eat hay at all; drinks good. Have got him to drinking milk and by hand-picking alfalfa leaves to get all stems out and dampening he can eat enough to live on, but sore is about as large as a dollar. Part of it is raw and part seems to have a growth something like proud flesh, only more yellow. Has only been sore a short time. He isn't sick. We just vaccinated to prevent blackleg today. Was it all right to vaccinate him too? We haven't any blackleg bere so far. Did not vaccinate two heifers due to freshen in June. Do you advise me to do them too? Please tell me what this is and what to do for it. Will it spread to my other calves? Sore is back almost at root of his tongue. Bleeds a little when we clean it.—Mrs. B. E. R., Chaffee county, Colorado.

The disease is probably necrotic stomatitis which is commonly spoken of as a sore mouth due to infection with the bacillus necrophorous. This disease is not uncommon in different farm animals,—"bull-nose" in hogs, contagious footrot of cattle and sheep, lip and leg ulceration of sheep, calf diphtheria, etc. The sore on the tongue may possibly be caused by pieces of wire, foxtail grass, or something of that kind but the symptoms given rather indicate infection. Since you have no veterinarian at Salida you should first make a very careful examination of the tongue for foreign bodies. If nothing of this nature is found, ulcers should be touched with lunar caustic, croupous membranes with mild solution of iodine and the whole mouth disinfected several times a day with a saturated solution of boracic acid. Healthy calves should be placed by themselves in clean quarters and their mouths examined every day for inflamed areas or ulcers. If such are found they should be treated at once as indicated above. It seems practically impossible to outline a definite course of treatment. It probably is an infectious disease and should be treated as such—isolation, disinfection and good nursing. We have no serum or other biologic that will reach these cases.—G. H. G.

Treatment for Wire Cut

A horse which has wire cut below the fetlock was found nearly bled to death. What is the best cure for such cut?—A. B., Oregon.

In the matter of the horse, if the cut involved the coronary cushion, more or less deformity of the hoof can scarcely be avoided. The excessive hemorrhage might easily have been prevented by a twist (torniquet), applied to the leg. While waiting for an assistant to get appliances the bleeding may be controlled temporarily by compressing the artery or vein with the thumb or finger. In treating disease it is quite important to have the correct point of view. Strictly speaking, no effort of man could ever cure a disease. Nature cures the disease, providing such restoration is not rendered impossible by the presence of untoward conditions which the physician seeks to avoid or control. In the "cure" of disease then we should simply try to make conditions favorable for the uninterrupted progress toward natural restoration to normal conditions of health. To this end we may say that the outline of treatment should be as follows: Check hemorrhage, clean and disinfect, provide for drainage, and leave the wound alone. In case of the horse, because of hair adjacent to the wound, and the constant danger of his interference with the wound, it is found better to leave it uncovered and apply antiseptic astringent dressing two or three times daiiy. There is a choice of many different things that will attain this end, such as the white lotion, carbolized oil, oxide of zinc ointments, etc. It may be advisable to change dressings occasionally. There is nothing that can be looked upon as a "cure all" and too much meddling is sure to be disastrous. —G. H. G.

Removing the Afterbirth

I have a cow which had a calf and will not clean. What should I give ber to make her drop the afterbirth. Also I have another cow which acts as though she has a cramp or pain in the bowels and I have given her salts and nitre. She wil not chew her cud.—P. M., Garfield county, Colorado.

There is nothing that can be given to make the cow discharge the placenta (afterbirth). It must be removed manually, after carefully cleaning and disinfecting the hands and arms. This should be done on the first, and not later than the second day, after the calf is born. After removing the placenta, which must be done carefully, you will need to do nothing more, since it is found better to allow the womb to clean itself. Washing out the womb with disinfectant solutions is ordinarily not to be recommended. This is work for the veterinarian only, but since you have no veterinarian at Carbondale or Glenwood it will be necessary for you to do the best you can under the circumstances. Retained placenta is common in herds where there is contagious abortion, and for this reason should cause some apprehension. As for the other cow, that has cramps and will not chew her cud, the symptoms indicate indigestion, which may be induced by impaction of one of the fore stomachs. A physic (one to two qounds of glauber salts, or one-half to one gallon of raw linseed oil) should be given. One dram doses of powdered nux vomica every three hours, is indicated. When cows will not chew the cud, the reason is that they are not eating and so have no cud to chew. When the appetite is restored, they will regurgitate the food from the first stomach in mouthfulls, and chew it a second time. This is called "chewing the cud" or rumination.—G. H. G.

Relieving Alfalfa Bloat

Will you please tell me through your veterinary department of a good simple remedy for alfalfa bloat in cows? Is kerosene a reliable remedy and what is the dose and how given?—C. L. J., Jefferson county, Colorado.

Alfalfa bloat, when severe, is a mechanical condition and is not amenable to treatment with drugs. The pressure of gas in the first stomach is so great that kerosene or like remedies will be either retained in the esophagus (gullet), enter the lungs, or be expelled through the nose. To relieve pressure on the lungs stand the animal with the fore feet on high ground. Place a gag in the mouth which will sometimes cause eructations of gas and give relief. Massaging the stomach is sometimes helpful. If these efforts fail and the animal is in immediate danger the rumen should be punctured at once. For this purpose a trocar with cannula should be used. If a knife is used it must be withdrawn immediately, otherwise the peristaltic movements of the stomach will cause a large incision which may cause serious trouble later. However, do not be in too big a hurry about puncturing the stomach, for it may require several weeks for the animal to completely recover from its effects. When the pressure of gas in the stomach is greater than the blood pressure in the blood-vessels, there is absorption of carbonic acid and other gases, which rapidly causes asphyxiation. There is no condition under which alfalfa or clover is safe to pasture animals that ruminate.—G. H. G.

May Be Lumpy Jaw.

I have a three-year-old Holstein cow that has a lump just under her lower jaw, very hard and the size of a baseball. It has been there about a month and a day or two ago it broke and is running. How shall I treat it and is there any cure?—N. L. W., Pueblo county, Colorado.

The tumor may be actinomycotic and it may not be; I have no way of telling. If the pus that came from it had a very offensive odor it probably is not actinomycosis or lumpy jaw. In either case it should be opened freely to allow of easy escape of pus. These tumors are quite likely to be caused by the lumpy jaw fungus, in which case it is well to remove them entirely if small. If too large to extricate they should be opened and injected once with tincture of iodine. If this treatment fails there still remains the potassium iodide treatment, which is quite expensive but if properly

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given is usually effective. If the condition mentioned is merely an abscess, recovery should follow the release of the pus without further attention.—G. H. G.

Governor Shoup Issues Proclamation for "Farmers' Week."

Governor Shoup of Colorado has issued a formal address to the people of the state and urges that the week beginning June 9th be publicly recognized as "Farmers' Week." This is the week of the Mountain States National Tractor Demonstration which is to be held at Denver June 9th to 12th. He urges that every farmer in Colorado take advantage of the occassion and to make a thoro study of the automotive tractor at the demonstration. The proclamation follows:

"To the People of Colorado:

"The Denver Civic and Commercial association and the Denver Tractor club, acting in conjunction with the National Tractor Manufacturers' Association, are arranging for what will undoubtedly be the greatest display of power farm machinery and farming implements at Denver, the week of June 9, ever held in the West, and I suggest that the occasion be taken to make that 'Farmers' week.

"We are on the eve of a mighty 'back to the farm' and home-owning era. Upon our agricultural resources and the development of the farm industry largely depends our future welfare and prosperity, and just such exhibitions of the advanced science as shown in farm machinery cannot but have a powerful tendency toward the improving of that industry. Every progressive and successful agricultural worker should realize that these agencies must be utilized in every possible way to bring about the successful result so much desired here in Colorado.

"I therefore urge that everyone who can possibly do so will visit the Mountain States National tractor demonstration and make a thoro study of it in order to get all possible advantage therefrom.

"Respectfully,
(Signed) "O. H. SHOUP,
"Governor."

Mr. L. L. Clinton president of the Avery Machinery Co., and Chairman of the Tractor Demonstration executive committee says—"The Mountain States National Tractor Demonstration is the first of its kind ever held in the West; and true to the reputation the West has justly earned for doing big things in a big way, this demonstration promises to be the biggest showing of power farm machinery ever held in this country. Now that the war is ended, we are again in a position to turn our undivided attention to the internal development of our country with particular interest to our own section thereof.

Douglas County Farmers To Build More Silos

(Continued from Page 4)

Herefords, and using registered bulls exclusively. He also has some pure-bred cows. There are two tall concrete silos on the ranch, each with a capacity of 215 tons. Corn is produced on the bottom farm for filling these silos which, Mr. Lowell says, are a great factor in keeping the herd in fine condition and cutting the cost of beef production. He feeds out a bunch of beef stuff each year and finds the ensilage ration to have considerable influence in putting on fat. This is due to the fact that the corn grown in that section, as stated above, runs as heavily to grain as it does to forage. Rich ensilage of this kind, together with alfalfa hay, furnishes practically a balanced ration.

On returning to Castle Rock, the farmers gathered at the court house where Prof. R. W. Clark, livestock extension specialist of Colorado Agricultural college, spoke on the necessity for silos on every beef and dairy farm and answered questions concerning silo construction and ensilage feeding.

Scenes shown on the cover of this issue are from photographs taken on the silo tour.

Reading from the top down the views are: Ranch home of J. N. McInroy; Milking Shorthorns on McInroy ranch; Barn and silo on Charles Heir farm; Holsteins on the Curtis ranch.

Eradicating Poverty Weed

Poverty weed is troublesome because it is a perennial, propagating itself both by seeds and underground root stalks. While it is hard to fight, it is not so hard to fight as a number of the pernicious weeds.

Where there is only a small patch, the best way to fight it is to keep it hoed down by hand so that no plant is allowed to grow above the ground. It will sprout up under such treatment several times, but if the tops are kept cut off close to the ground, the root will finally die.

If in large fields, or large patches, such treatment is unsuccessful. In such cases deep plowing is helpful, disking to keep the tops killed, and sometimes it is necessary to construct a special stiff-toothed rake with a heavy frame, the teeth set with a forward slant. This tool is pulled over the field with the teeth digging deeply into the plowed soil. It will catch most of the plants and pull them to the surface; they should be heaped up and burned. Sometimes such treatment must be repeated several times. Such a method is expensive, but if persistently followed out, will cure the difficulty.

Where the altitude permits growing a cultivated crop, such as Sudan grass or sorghums on the land, these crops make a heavy growth and will tend to smother down the weed. Cultivation will help. Eternal vigilance and a lot of work are necessary. No method without work and watchfulness will be successful.—Alvin Kezer, Chief Agronomist, Colorado Agricultural College, Fort Collins, Colorado.

Cashing in on Poultry Help

This is the way poultry extension workers of the United States Department of Agriculture helped a Butler, county, Mo., poultry raiser. He had a flock of 250 birds. From the sale of chickens and eggs he received $1,489.80. Feed and other expenses amounted to $764, leaving a total cash gain of $275.80. To this should be added the value of 75 hens which he raised on the farm and added to his flock. His birds are of the White Leghorn breed, and there are no unprofitable layers among them, all slackers being culled out. This year this enthusiastic poultry with the extension workers, and his poultry plant will be used as a demonstration farm.

Exterminating Poultry Fleas

Will you kindly tell me how to exterminate fleas? I have tried common salt, lime and sheep dip, but can get no results.—J. W. M., Rio Grande county, Colorado.

I wish it were possible for you to send us a few fleas in a small bottle. Yours is the second case I have heard of in Colorado and I am very much interested in knowing whether or not these are the fleas which cause so much trouble in warmer sections. Very likely the hens are infested with them and the fleas remain on their bodies. If the hens are furnished a good dusting place, they can to a large extent, rid themselves. Probably the best way to combat them is to destroy breeding places. Those places are in damp, filthy litter, very likely about the floor in the hen house. If all of the material be thoroughly cleaned out and thrown out into the air breeding places will be eliminated. The larvae feed on organic matter and if this is not present in the hen house, breeding places must be found elsewhere.

Three hundred and sixty-eight Manitoba farmers borrowed $215,581.90 last year under the provincial Rural Credit Act, and with the money broke more than 10,000 acres of new land, cropped thousands of acres that would otherwise have remained idle, and brought five carloads of blooded livestock into the province, according to the first annual report of the Rural Credits Association, placed before the legislature at Winnipeg.

A good way to handle the shelves in the kitchen and pantry is to paint or enamel them. Painted shelves can be wiped with a damp cloth every day if need be. Shelves covered with paper are less apt to be cleaned as frequently as is needed, and are always a bid for dust and vermin.

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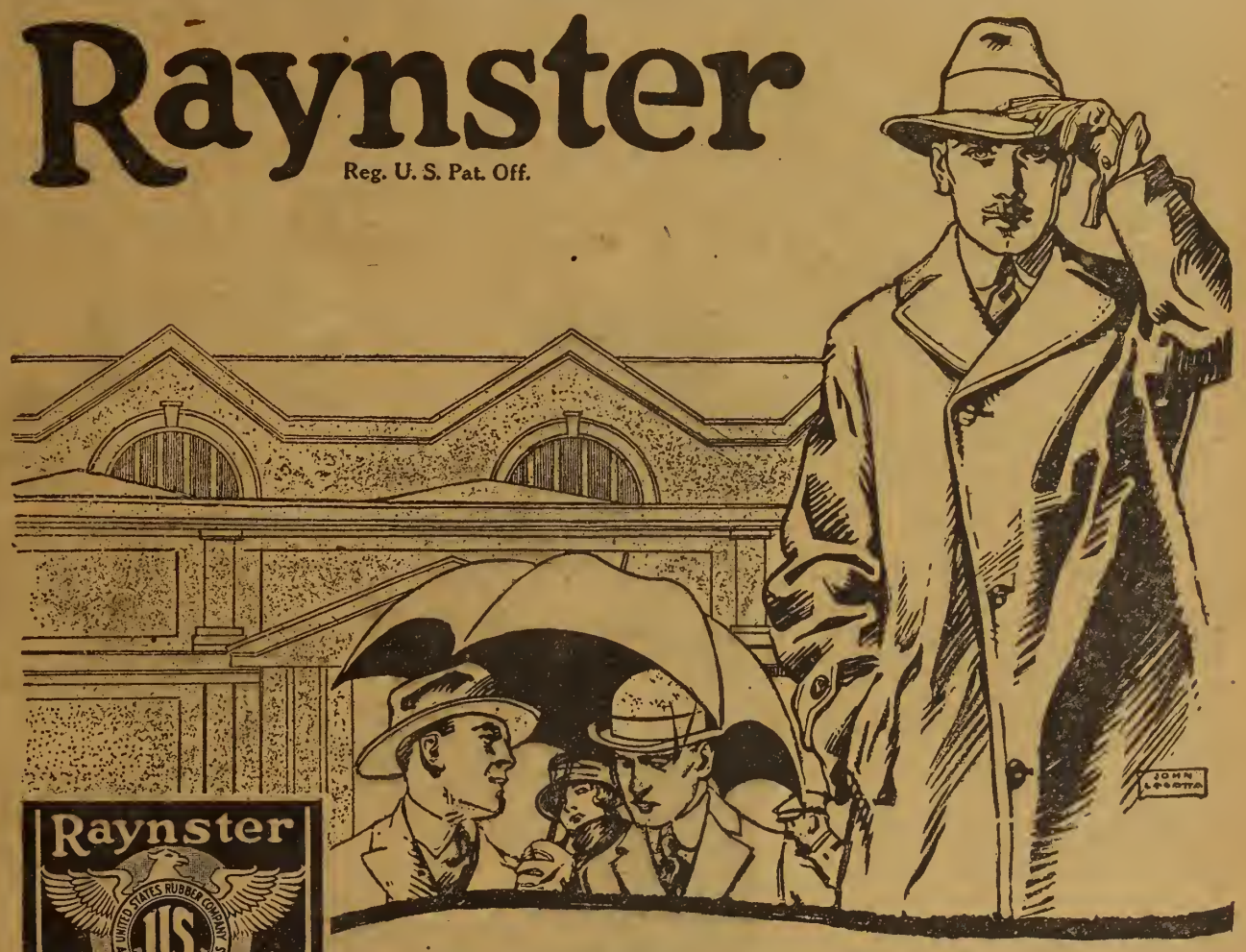

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CHAPTER XIX.

DAYLIGHT BREAKS IN THE NARRIS

Hugh stood sweating, his length of pump-casing in his hand. His legs trembled, his tendons strained to fly, but he gathered reason enough out of the tumult to hold himself there. If he should retreat one step, he knew, his fear would multiply and grow shameless; he would streak the night like a meteor.

The one thought that grew big above the confusion was that the dead are voiceless. If Randolph was under the earth there, he must be living and, if living, able to answer to his name.

He fitted his length of pipe into the hole and put his mouth to it, Randolph's name shaping on his tongue. It was a foolish thing to do, he said, philosophy back in its seat in all severity, but nobody could ever charge it up to him.

"Randolph—John" he spoke softly into the pipe, like a telephone. "John, are you down there?"

He laid his ear to the pipe and listened. The result was no less disconcerting than the first cause of his panic. Randolph's voice answered him, a little thick and weak, but plain enough to be identified.

The schoolmaster's doubt and fright disappeared immediately. He was as steady as a rock, even a little resentful that Randolph should set him puzzling over his apparent defiance of all physical laws.

"How did you do it? How in the name of sanity did you do it?" he demanded.

"Get me water—I'm dying for water!"

"What are you in—have you got air?" the schoolmaster inquired, the wonder greater on him than the sense of Randolph's need.

"I must have water—water, or I'm a dead man!"

There was something so solemnly imperative in Randolph's thick voice that Hugh woke suddenly to the gravity of his necessity. How Randolph had forced himself down a two-inch hole, and how he had accommodated himself at the bottom of it for more than two days; why he had not come out the same way that he had gone in—these were questions which wait for adjustment between them. Just now Randolph was perishing for want of water; his voice was thick from thirst.

"Have you got your hat?" Hugh shouted down the hole. Randolph replied that he had it. "Hold up a few minutes longer then, I'll get water to you."

Hugh hung his own hat on the pipe to help him find it quickly again, and within five minutes he was back with lantern, bucket of water, and cup. He directed Randolph to hold his hat under the hole, and began pouring.

"Go easy on it, the dirst will make you sick," Hugh cautioned.

Randolph begged for more, which Hugh denied him. He bent over the tube and urged Randolph to tell him how he came to be buried under forty feet or more of earth, and how to proceed to get him out.

"Langworthy's mine. I found an iron door in the old drift and broke it open. When I tried to leave it was fastened on the outside."

"You mean the min'e a blind? You mean it's a tunnel to the wreck?"

"Give me more water—a little more water, please, Hugh."

"Go on to that door and pound on it so I can find it and let you out."

"The drift comes out under a big elm with grape-vines on it. Is it morning?

"Almost morning, John?"

"If you'll just pass me down another drop of water, Hugh—"

"Go to the door—I'll be there ahead of you."

Hugh hurried to the tent for an ax and crowbar. Armed with them he soon was groping among the trees on the bank of Skillet Lake, looking for the mouth of Langworthy's mine. It was a tangle of brush and vines there, with matted weeds encumbering the feet. More than one elm had grape-vines on it, and it was all strange territory to the schoolmaster, who never had visited that spot before.

He plunged frantically through the tangle, shouting Randolph's name, full of the fear that he might not be able to find him in time to bring him from his tomb alive. It was Randolph's faint pounding on the hidden door that guided him to it at last, the sound coming dim and smothered, like the ticking of a death-watch behind a wainscot.

Even with that to direct him, Hugh had a bewildered time to locate the door. It was far back from the mouth of the old tunnel, around a sharp angle, a heavy log propped against it. It was made of riveted boiler-iron, and had been locked at top, bottom, and center with padlocks which Randolph had broken off to enter.

Randolph staggered out of it, his face as white as milk, and dropped to his knees besides the water-pail that Hugh had carried with him in his struggle through the thickets. The cup clicked against his teeth as he drank, the schoolmaster supporting him with tender hand.

"That will be enough for now," Hugh cautioned, taking the cup away, upsetting the pail with his foot.

Randolph was steadier now, and came to his feet with little help. He put out his hand behind him with a fearful gesture toward the door, leaning away from it as if to flee from the horrors which he had so miraculously escaped.

"Shut it up, Hugh, for God's sake! It's full of dead men!"

The schoolmaster closed the door quickly, and set the log against it as it was before.

"Come on, let's get out of this—you must have something to eat " he said.

He hung the lantern on his arm with the word and started to pick Randolph up and bear him off in his arms. The secret of Langworthy's mine was second in his consideration; that could wait.

"I can walk all right, Hugh," Randolph protested; "I'm not so far along as that. I've had plenty of rest, such as it was." He shuddered as he stood with drooping head, his shoulder against the tunnel-wall. "They're all in there, Hugh—the whole story's there!"

He stretched his hand in that movement of staying some terrible thing crowding after him, and staggered on away from the door, the schoolmaster steadying him, for his legs were as weak as clay.

"When you get something to eat—you can tell me then, John."

There was a cold, creeping feeling at the schoolmaster's back as he hurried Randolph along to the tunnel's mouth. When they reached it, and the rescued man saw the stars bright over him, he freed himself from the schoolmaster's restraining hand, threw his head back and breathed, long and deep, as if he drank from the fountain-head of life.

"Now, I'm a man again!" he said.

"You must be hungry, John," suggested Hugh, with mild wonder.

Randolph stood as if he did not hear. He had faced back, and was looking at the black hole in the bank.

"They're in there—those missing men!"

"Come on away from here, you can tell me later," the schoolmaster urged.

Within fifteen minutes Randolph was breaking his long fast on bacon and soft-boiled eggs.

There was a distant candle paleness in the east when Randolph finished his meal which had been broken only by an immaterial word here and there, for Hugh would have none of the story until the fast was broken. Hugh put out the lantern now, and Randolph stretched himself with a sigh.

"I'm twice a man now, old fellow," said he, reaching over and clasping the schoolmaster's hand.

"So that was the secret of old Sam Langworthy's dreaming and mining all the time." said Hugh. "The shrewd old devil never was crazy at all!"

"Far from crazy at the beginning, but if he isn't crazy now he ought to be, and his precious, imp-faced son as well. I doubt the sanity of any man who can carry out such a diabolical, systematic plan of wholesale murder as they've put through down there."

"It was that old man's plan to tap the wreck when he came here—I can see through it now as plain as glass, John. He knew about that wreck—before he ever settled across there from Moore he knew it. Do you think they've—"

"No, they've never found the wreck, close as they came to it. It's been a groping in the dark; but they came mighty close, mighty close!"

"That accounts for Joel's interest in the progress of our work. He feared we'd discover his mole-hole under here, and the secret he's been hiding in it."

"The bones of the poor devils who came here ahead of me on this unlucky hunt. They're down there, Hugh; the three of them unaccounted for—they're down there sitting in a row."

"It's like him," said the schoolmaster grimly. "But they may not be the bones of those men; they may be victims of the wreck."

"No; these men were never buried; they were shut in there till they shriveled up and died. Their hair and their shrunken skin is still there on their poor pathetic skulls."

"It must be the missing three. He lured them in there; he murdered them."

"Like he intended to get rid of me. They're sitting there with their backs against the wall, like men asleep."

"The fiend out of hell!"

"To hideous for even hell, I think. One of them has been crudely articulated, bound together with baling wire."

Randolph was standing, gaunt of face, pale, his eyes hungrily on the east, where the morning glow was spreading. A miracle was being heralded there which he never had hoped to behold again. The schoolmaster stood near, the light of the growing day strong on his face.

"There isn't a mark on their bodies to tell how they died," Randolph said. "They were shut in that cave until their tongues swelled and choked them, like dry rags crammed down their throats!"

He reached to the collar of his flannel shirt, already loose about his neck, and

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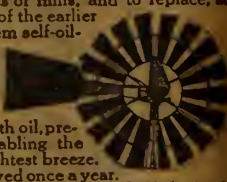

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opened it; dipped a cup of water and drank thirstily. The schoolmaster touched his arm.

"How did you stumble onto that door, John?"

"I'll go back to the start of it—I'll tell you."

They sat down again. Randolph told of the attack of the biting savage, and at the hearing of it the schoolmaster nodded slowly many times, as if some suspicion in his own mind had been confirmed.

"Next morning," Randolph said, "I found tracks leading off toward the lake. The rain had distorted them and nearly blotted them out—all I could make of them was that they had been made by bare feet when the ground was soft. I felt pretty sure that creature had gone that way, but you people came before I could follow them up. I didn't want it spread around that Arkansaw's snapping ghost had been after me, so I kept still about it that day. But you noticed I had my wrist tied up."

"It's known now; Arkansaw found the cloth."

"It's too bad. I'd rather—but no matter. After supper that evening, quite a while before sundown, I took up that trail again. It led me to the woods on the lakeshore, and I found it there. I'd given it up, and was looking around in the brush for some ripe pawpaws when I stumbled onto that tunnel. I remembered Langworthy's gold-mine, and I also thought that it would be a natural lair for the Narris vampire."

"A logical conclusion; a very logical conclusion," said the schoolmaster, again nodding slowly.

"No, there was nothing to it. I got a club and went in as far as the door. I was so amazed when I ran up against that boiler-iron door that I stood there and burned all the matches I had, kind of hot under the collar and a little panicky, like a man feels, you know, when he begins to sense it that he's been tricked."

"I understand your sensation—I have gone through it myself."

"From the general plan of the thing, I knew then that the tunnel ran under Moore's land. So I came back and got my flashlight and gun, and that little carpenter's bag of Gregg's—I guess you've missed it?"

"No."

"I believe that door is over Moore's line, and I didn't question my rights as lessee to investigate what was back of it. I pried off the three locks you saw the hasps of there on the door and went in. The tunnel's narrow all the way, like you saw it there in front, but deep enough for a man to walk upright. All propped up like a coal-mine, and walled solidly with logs a hundred feet or more from the door—back to the point where the exploration drifts were run out right and left during the years that old Langworthy was groping around and sounding for the wreck. It's even floored with split logs in front, as if it was designed to keep anybody from digging either in or out. There hasn't been any work done in there for a good while—several years, I think.

"I went on back along the lead, somewhat stunned by what I'd found. They've made a chamber at the inner end, where soundings have been made for the whisky barrels—they've got a pump in there already. But they didn't hit them; they weren't far enough in. When I saw all that I started back, red-hot and fighting mad, to tell Moore about it. The door was shut; I couldn't budge it."

"You might have shouted your head off, too, and nobody would have heard you unless he was right there, listening."

"Yes, I thought of that, Hugh; but it didn't keep me from setting up considerable noise, I guess. I'd left the bar outside; I had nothing but my bare hands to tackle those timbers with, and I knew I couldn't get out. I tore around there like a wildcat for a while, until I began to get thirsty and came to my senses. Then I figured it out that if I'd keep still, go back to the skeletons, and wait, somebody was bound to come in there after a while to see what he'd caught. I hunted around for a seep where I might collect some water, but there wasn't a trickle. It's a horrible hole!"

Randolph was so shaken by the recollection of his tortures that he seemed unable to carry his story to its close. He stood, drawing his breath deeply as if to make sure of his freedom.

"Tell me the rest," said Hugh, touching his arm, an eagerness on him that made his hand shake. "Nobody came; you didn't see—"

"No, he didn't come."

Randolph sat again, his chest heaving, his hands clenched as if for battle.

"I walked a beat from chamber to door, Hugh, and watched daylight come and go around the chinks of it. This place where that poor crazy vampire bit me throbbed like it was infected, but it got easy after a while, and I slept. That was the second night. I wanted to keep alive long enough to meet the man that would come to sit me out against the wall with the other three. The thought of water was the hardest thing next day; it was harder every hour. But I watched daylight go again through the little cracks around the door, and I hammered on it with my gun till my arms gave out."

"I was right here, John, but I might as well have been five miles away. Not a sound as big as the tick of a watch ever reached me."

"I know that, old man—you'd have been down there like a hornet. But I was asleep when you began to drop those pieces of weed down that hole. I didn't know the hole was there, but I was under it, and the little, broken bits of weed fell in my face."

Randolph reached for the water again and drank. He caressed it in his mouth like a gourmet rinsing a precious wine to give his tongue a prolongation of a seldom met delight; he drew his breath long when he had drained the cup, and sat with his hands clenched hard.

"I stood on a keg and felt the timbered roof over inch by inch, for my battery was dry. I had no more light. I found the hole; then I called you."

"How did you know it was I?"

"I knew there wouldn't be anybody else with courage enough to come here, much less to stay."

"You're wrong there!" said the schoolmaster triumphantly. "You are altogether wrong."

Randolph's face lighted with a flush; a softness as of tears came into his eyes. He looked steadily at his friend a moment, then rose as if lifted by the wings of joy.

"Did she—come down here, Hugh?"

"More than once. I'd bet all I've got that she hasn't closed her eyes this night."

"God bless her!" said Randolph, his voice soft and low.

"And keep her," the schoolmaster added. "She is as noble as she is true and brave. Well, the rope that will hang Joel Langworthy is woven at last."

"It's doubtful, Hugh. A man that can hide a secret like that for twenty years is going to prove a mighty hard customer to corner."

"How do you suppose the crafty devils lured those men into their trap, and what was their motive for doing it, John?"

"I think Joel was lone-handed in that part of it, Hugh. You know he had the old man declared incompetent about that time and himself appointed guardian over him. But that may have been a blind—all a part of the scheme. One way or the other, it don't cut much figure now; but my theory is that old Langworthy began tunneling to tap the whisky. Joel may not have been very keen on the work at first, but when those men began to come here and nose around, he believed there was something more than whisky that they were after, and he set his crafty mind to work to get it out of them. There are a hundred pretenses that would induce a man to walk into that hole."

"That would be the smallest part of it, John."

"Maybe he got their secret out of one of them, first or last; or maybe the tale of the treasure is only a golden lure to lead men to their graves. Old man Moore told me it was; he said no man's hand ever would lift it from the place where the Missouri had buried it."

Hugh stood a little space in front of the treasure-hunter, his face set strong against the light of the east, his chin up, reaching forward a little in the poise of his body, as if the last hurdle was just ahead and he was sure of the leap.

"Or else those men were suspicious of Langworthy's activities down there, and their suspicions led to the discovery that Joel and his still-mouthed, black-hearted old father were probing for the wreck," Randolph said. "They would have murdered to keep the fact of their tunneling from Moore."

"They would have done that, and more," Hugh agreed.

"But the last man—it's harder to account for him. He seems to have been an innocent who escaped the tortures of death in that hole to fall in even a more terrible way. He doesn't fit into the theories which dispose of the others, Hugh, for they're only theories, of course, and must wait their justification until the final day of reckoning with Joel Langworthy, the specter of the Narris."

"It was the same hand all the way through," the schoolmaster said. "The last man escaping with the secret of the tunnel; he was going toward Moore's house when he was killed."

Randolph lifted his bandaged arm and looked at it, a shadow of distress and fear darkening over his face, like a man who hears himself pronounced mortally stricken without a warning symptom.

"You mean—you mean— Oh, that's impossible, Hugh! He's a murderer—he's a cowardly, treacherous murderer; but not—not that!"

"He's the whelp of a wolf!" the schoolmaster said.

Randolph was shocked, incredulous, dazed at the monstrous charge.

"It's impossible—it can't be, Joel! Even the devil in his face doesn't foreshadow a trait as base as that."

"It's Joel," the schoolmaster insisted. "The curse of blood-thirst is on him! I've known it a long time, but I lacked proof that would give me ground to whisper it to even you. Jonathan Randolph, I tell you that man's breast is the house of a demon."

"I can believe that; but I can't charge him up with this night-roaming, this blood-thirst of a beast. It's the work of a crazy man, Hugh; and Langworthy is anything but that."

The schoolmaster stretched out his hand toward the woods, his face as grim as judgment.

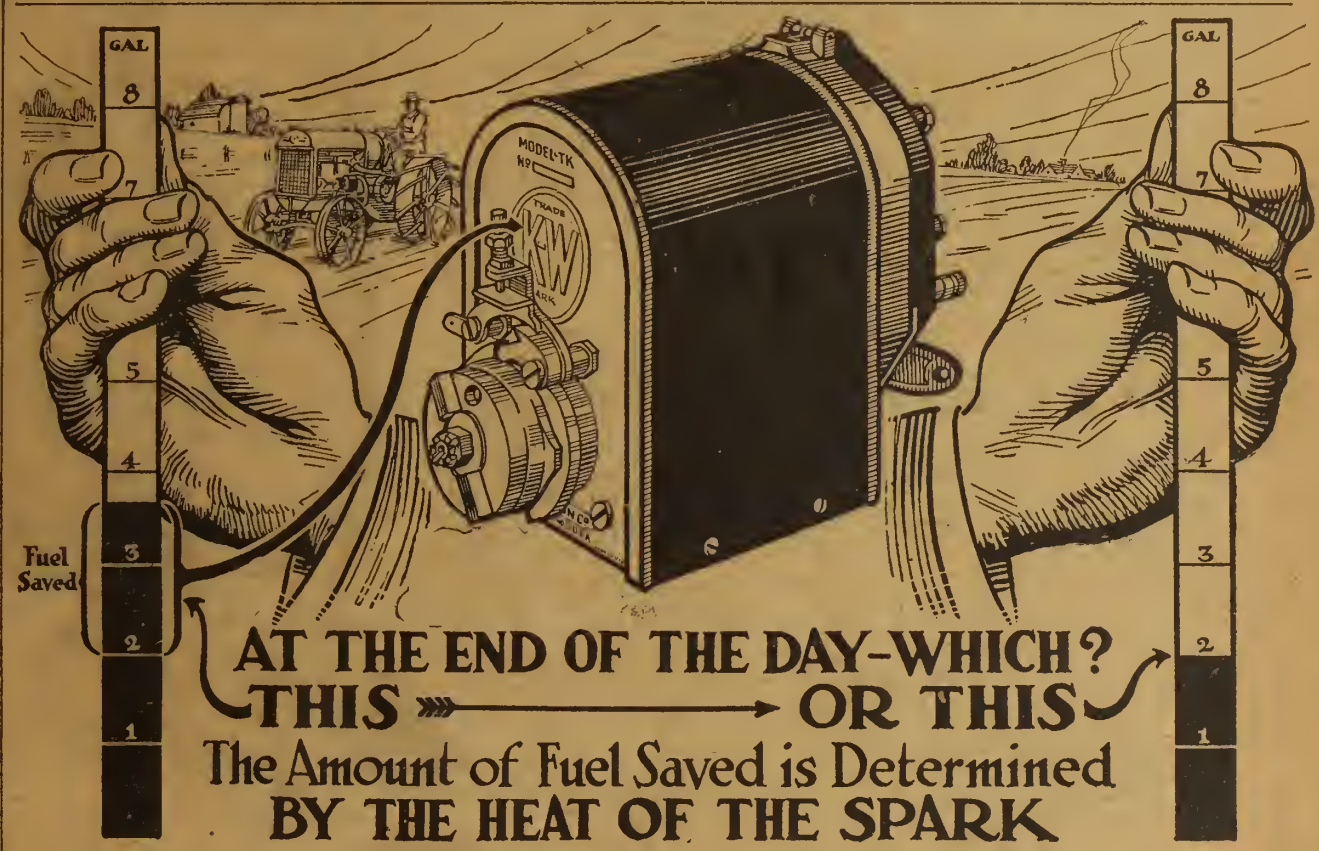
"I've walked that road at night in the hope that he'd spring out on me as he has on others—many and many a night I've waited for him. I've seen him; I've pursued him, but he's as swift of foot as a deer. If he'd tried to set his hell-forged teeth in my flesh I'd have put my seal on him. I'd have marked him to the bone!"

Randolph sat down on his cot, his wounded wrist clasped in his hand as if it had sprung a hemorrhage at the mention of Joel Langworthy's name. Sweat stood on his forehead; his hand trembled.

"I thought it was the work of a madman—I charged it to another!" he groaned.

"Another?" The schoolmaster looked at him strangely. "Who else is there outside of hell to charge with a crime like that?"

"I thought it was some half-witted person known to Moore—some poor creature who suffered these wild relapses—



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somebody that he was responsible for in some way. I thought that—I even thought at times that it was Moore himself! God pardon me for the unspeakable wrong I have done him!"

"Moore!" said the schoolmaster in horrified astonishment, looking at his friend in more of censure than sympathy for the grueling of conscience that he was suffering that moment. And again, his face white, his eyes staring: "Moore!"

"Oh, I've had a thousand wiid conjectures around him and his lonely old house," said Randolph, grinding his face into his hands like a groveling penitent; "but I never suspected Langworthy. I thought Moore might have somebody, even a crazy son, locked up in some room of that old house—he gave me such mysterious hints; he had such spasms of what seemed to me nothing but colic of the conscience."

The schoolmaster was silent, pondering it from this view of a stranger.

"He warned me against something"—Randolph looked up almost defiantly—"in a vague, incoherent way the very night this"—lifting his arm—"happened to me. He was shaken to the foundation. I thought he was carrying some secret—and I believed Juliet partly knew—that he was afraid would come out on him, and add to his shame and sorrow in the end."

"It was not an unreasonable conclusion, all considered, John."

"Poor old soul! I'm sorry I wronged him by a suspicion so hideous. God knows what it was that he fancied he saw at the window that night—he threw his glass at it—his jaw was set like a dead man's. A man would have to look beyond the things of this world, Hugh, to freeze the blood in him that way."

"The day of specters in the Narris is nearly past, thank God!" said the schoolmaster fervently; "the holy water that will disperse the demons is distilled."

"Do you think Moore knows it, then? Do you believe it was Joel he warned me against?"

"If he knew it he'd shoot him down like a wolf! I don't know what it was he warned you against—he spoke about it to me, too, in a rambling, insane way, only yesterday. The old man's mind is going, John."

"Maybe if we could get him away from here, and these gloomy associations, he could be cured. It's a place of doubt, dread and insane horrors! I feel it in my own blood, Hugh—I'm sick, sick of it to the bone—I could almost wish I'd never come!"

He seemed sick, in truth, the reaction of his long strain upon him. He bent forward, his face hidden in his hands, shivering as if the day was coming in cold instead of red with the fire that the sun was bringing, still hidden in its brazier below the horizon.

"You're not through yet, John," the schoolmaster said. His voice was gentle, but there was a spure in it that was almost a taunt. Randolph shook himself, got to his feet with something of his natural force and sprightliness, and looked around him at the green summer world.

"No, of course not—I haven't much more than begun!" he said. He put out his hand in apology and appeal: "Don't get it that I'm a coward from that break I made a minute ago, old fellow—it was only a passing chill."

"I couldn't think of you as that," the schoolmaster said, in simple sincerity.

"Even if I never discover what I came to hunt, Hugh, I'll not go away from here any poorer. And I don't believe it's there, the thought that it isn't haunted me like a delirium while I was down there. Oh, let it go to hell!"

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The schoolmaster turned to him from his mental hurdle-leaping, a smile in his solemn eyes.

"It's there, John," said he calmly.

"How do you know that, Hugh?"

"Because we were within a foot of the old safe when we quit work the last day. That mush of quicksand has settled around the sides of the pit where we'd dug deeper, to let the casing down—you can see the corner of the safe sticking out."

Randolph was not excited over the news. He did not leap, shout, fling his hat nor laugh. All he did was color a little in his lean cheeks—leaner for his days of privation in Langworthy's trap—and look at the schoolmaster with something near to comic incredulity in the puzzled alertness of his eyes.

"Well, that's funny!" he said.

CHAPTER XX.
THE TREASURE SAFE

With the windlass over the mouth, it was still dark in the shaft as Randolph and the schoolmaster climbed down the ladder nailed to the casing side.

Hugh was first down, with the lantern. Randolph followed eagerly, the chill of discouragement gone out of his blood, which was bounding in his veins again with all the romantic fire of his dreams.

"I thought it might be a piece of the machinery," Randolph said, on his knees beside it, scraping away the wet sand, "but there's no mistaking it, it's got the shape of a safe."

Within an hour they had laid the face of the safe bear. The schoolmaster sent down sledge and bar, and followed to spring the rusty hinges.

Time had not weakened the safe that hid the treasure, however great or small, of the Morning Star. Rather, it had cemented the seams of its door with rust, and set it in place so firmly that all the schoolmaster's strength was spent on it in vain.

Randolph took his turn at the sledge. The steel of the old safe mocked them, throwing back the hammer with no more effect on the metal than if they had pelted it with a pill.

"It'll take a charge of dynamite to do it, Hugh, and we haven't any."

"I'll go up to Richfield and get some—I can be back by noon."

Randolph stook looking at the brown iron of the safe, scaly with the rust of its buried years. The sun was white on the windlass above, the strong light of day struck down to the bottom of the shaft. It whitened like a nimbus on the treasure-hunter's tumbled, sunburned hair, and shadowed in the hollows of his gaunt face. He stood pensively silent thus a while, then turned to the schoolmaster.

"I wonder if there's anything in it, Hugh?"

"Can you doubt it now, after coming to it through so much faith?"

Randolph looked at the safe again, bent to it, ran his fingers along the rust-bound seams of the door.

"But I haven't come to it in the way I had it all imagined, Hugh, the way I've already discovered it a thousand times. I don't feel the thrill of it like I should to make it seem true to me."

"The gloom of that hell's pit is on you—you must get up out of here into the sun."

"I guess you're right, old philosopher."

"Half a stick of dynamite will crack that rust and tear the door loose," said Hugh. "Come on, let's get out of here. It can't get away now."

"I don't seem to be able to believe it's there," Randolph told him, laughing a little at his own want of conviction in face of the material fact. "I'll go on up and look at it from a distance again—maybe that will help."

The sun was up the height of tall corn, its arrows coming hot from the forge.

"They'll be stirring by now," Randolph said, looking toward the house on the hillside. "I'd almost forgotten that my first duty is to relieve the anxiety of my friends."

"How much should they know—all of it?"

"I've been considering that, Hugh. It's got to be explained, but I think it would be wiser for me to stay under cover a little longer and let that scoundrel go on thinking he's got me shut in his trap and out of the way. As soon as we blow the safe and see what's in it, I think we'd better have the sheriff and coronoer over here to investigate that tunnel."

"I was thinking the same. If Joel knows you've got out, he'll more than likely leave the country."

"Then I'll lie low, Hugh, till we can get the county officers down here. I'll be back to nobody but Juliet and the old man. Langworthy will hardly be going to look in on me today—it's too soon, he'd expect me to be alive, with a fight left in me yet."

"It's the best plan. I can stop in as I pass and tell Juliet, unless you'd rather risk being seen to go up yourself?"

"I'll wait till evening; I'm in no presentable shape anyway, with all this mud and whiskers and stuff. Hugh, does she know about the safe?"

"I left that for you to tell her, John."

"But you didn't know I'd ever come back. If I hadn't, what then?"

"Nobody ever would have known it then but myself. I'd have blown the pit up, as Moore suggested, and buried it again for good."

"What a case you are, what a genuine old character!"

Randolph slapped him heartily on the shoulder as the schoolmaster turned to go on his double errand. There was a mistiness in his eyes as he watched the master away up the corn-bordered road, and a softness in his heart for the treasure that he had found in that place, even though the safe of the Morning Star should prove empty at the last. The treasure of a good man's friendship and a good woman's esteem—or kind interest and good wishes, at least. A thing more tender, lying close to his heart like a new-unfolded leaf, he could not so boldly claim.

He felt weak and trembling, shaken in the legs as if the sap had been drawn out of them, after his vain exertions to open the safe. He seemed to have entered a cold shadow, which deepened as the schoolmaster passed out of sight. The hardship of his imprisonment must have dried the courage out of him, he charged, as he hung his mirror on the tent-pole to shave, and felt his lean jaw, and passed his finger-ends over the deepened hollows of his cheeks.

And yet there might be reason in his low spark of enthusiasm over the discovery of the safe. Perhaps that indefinable coldness of dread was intuitive; maybe it was guilty treasure, a thing carrying its curse with it, as Moore had said. No matter, said he, in a burst of defiance. He had yet to hear of anybody's curse or clinging misfortune impairing the purchasing power of a dollar.

He was bending over the basin washing off the lather when he first saw Joel Langworthy. The front flap of the tent was down to shut out the sun. Joel doubtless had taken it, from the appearance of things, that the camp was deserted. He stood between excavation and tent, looking about him with animal alertness and suspicion. Randolph stepped back out of sight, watching him through one of the numerous holes in the canvas.

Now the fresh earth on the dump drew Joel's attention. He took a long, leaping stride, leonine in its grace and swiftness, stopped, head thrown back. He seemed to be sniffing the wind for a scent of human presence which neither his eyes nor his ears could tell him of. Now he went on again toward the shaft, cautiously, half-crouching, and stopped at the mouth, leaning over to peer down.

Randolph reached for his revolver in its wear-polished holster, went out and stood in the sun at the tent-side, his arms folded, in the severity of one who waits to pass judgment and enforce its decree. His battered and soiled campaign hat was pulled down to his eyes, the shadow of it making his serious face almost grim; his feet were firm beneath him now; the weakness had gone out of his limbs.

Langworthy was at the ladder, hand on the scantlings of it which extended above the casing. A moment after Randolph's appearance he bent there, gazing down into the excavation, one foot far back from it, hand extended, as if balanced to spring away at the sight of anybody below. Then the wind, or some sharper sense than ordinary man has to stand guard for him, seemed to tell him that he was not alone.

Joel straightened from his stealthy investigation, turned, saw Randolph, waved his hand in greeting and came forward. Randolph remained as he had drawn himself up beside the tent, giving no heed to Joel's salutation, his bearing stern and unfriendly, watching every movement that Joel made as he came up the bank in long strides as if the eagerness of joy at a friend's return hastened him on.

"Back again!" said Joel, sprightly and confident as always, the good side of his face presenting a smile making it more winning, his small, even teeth sparkling between his lips.

"Against the expectations of everybody and the hopes of some," Randolph replied. He looked darkly at Joel, ignoring his offered hand. A shade of perplexity, astonisment, humiliation, clouded Joel's fair features at this apparent affront; he stood back a little, his despised hand sinking slowly to his side.

"Expectations and hopes?" said Joel, recovering himself in a breath. "Why, school-teacher and I knew very well you'd be back in good time, and no mystery in the case at all. Gregg was for raising a terrible row over it, and bringing the sheriff in to hunt you."

Joel laughed over it, quite himself again. It was difficult to identify this confident, free-mannered man with the stealthy creature who had stood sniffing the wind like a hound only a few minutes before.

"The schoolmaster's faith is the finest thing that ever came into this hell-hole of the Narris! But you didn't expect to see me on top of ground any more, Langworthy, for all of your confidence in my ability to come back."

"I didn't expect?" Joel, searched him from head to foot with slow, amazed look. "Why, sir, you—you confound me, you stun me!"

"Langworthy, there isn't any need beating around the stump—your graveyard didn't hold me. It's kept its secrets a long time; you've got an interesting collection down there."

Joel surveyed him again, slowly, with injured surprise.

"Mr. Randolph, you seem to have a strange capriciousness to joke this morning, sir," he said, "but the subject of your pleasantry is very obscure. Maybe when I'm in a brighter mood I'll be able to appreciate it, but right now I think I'll trot along."

Joel set his foot forward on the intention. Randolph stepped in front of him, holding up a commanding hand.

"You'll stay right here, you'll not leave my sight till you go with the sheriff."

Joel fell back, his face white. "Your conduct is felonious, sir! I'm not armed—"

"I am," Randolph said, lifting his blunt-nosed revolver from the holster.

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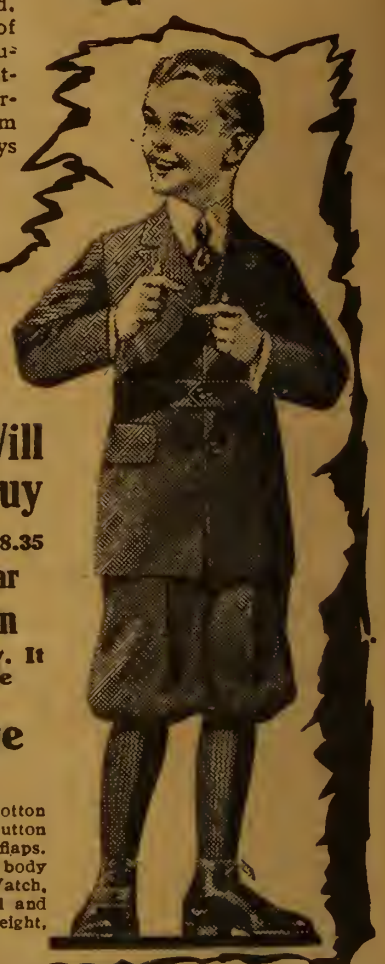

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pushing it back again when Joel had seen it.

"You forget that I'm an attorney, Randolph, that I know my rights!"

"Heaven knows I wouldn't take any of them away from you, Langworthy, such as they may be! You'll need them all, and more, to get you out of the pit you've been digging these twenty years. The county authorities will be here before night to investigate the mysteries of the catacomb you've been building under Moore's farm."

Joel flashed a quick look of intelligence. "Oh, you've found it at last, have you?"

"At last," Randolph nodded solemnly. "And you thought you'd fixed it so I'd keep the secret, like the others down there have kept it."

Langworthy laughed, with apparent sincerity in his mirth. "I understand your absence now. You were shut in, was that it?"

"The joke seems to have turned," said Randolph, dryly, "but the humor of it passes over my head. I was shut in, and you shut me in, like you shut the other three in to die of thirst and starvation."

"My advice to you would be to withhold judgment on that, Randolph, and not go around making any rash charges."

"Judgment! If I gave you the judgment that's your due I'd shoot you in your tracks like a wolf."

"Randolph—" Joel raised his hand as if to soothe and pacify, his voice low and gentle, his gaze frank and steady—"I don't blame you for your feeling in this matter. A man who has suffered what you must have gone through down there is in no condition to render judgment, or even to see the truth in the evidence before his eyes. I didn't have a hand in shutting you in; I never turned a key on any man that ever went in there and failed to come out."

"I'm not trying you here, Langworthy; that will come in its place."

"You're mistaken on that—it will never come!" Joel spoke with heat; his face reddened, he bent his slender brows in a frown. "You think right now you're going to hand me over to the sheriff, but you're not. You'll not hand me over to anybody, you'll keep that gun in your pocket, and you'll set up and eat my dough-cake out of my hand, that's what you'll do!"

"There's no use blustering and bluffing, it won't get you anywhere, Langworthy."

Randolph was careful to stand clear of him, leaving space enough between them to give him time to sling his gun if Langworthy should attempt a sudden assault. He regarded his prisoner with a feeling of loathing, of untinctured hate. Truly the humor was on him to treat the man like a wolf and send him out of the world with a bullet without waste of another word.

"I'm not bluffing, Randolph. There are people here in the Narris that I could bring to their knees inside of fifteen minutes, and I expect I could have you hunkerin' down with them, beggin' me to keep my mouth shut. Well, I don't know whether I'm going to keep my mouth shut much longer or not!"

"I suppose people commonly go down on their knees to you, Langworthy," Randolph said contemptuously.

"No," Joel returned, seriously, "I've never put the screws to them yet. But, I can do it, and I will do it. I'm tired of totin' other men's burdens around, by God!"

"You're going to tell me you didn't dig that tunnel, and didn't shut those poor devils up in it to choke on their swollen tongues. No, you didn't do it, you poor damned innocent!"

"Yes, I had a right smart to do with the tunnel from first to last. But I didn't go it on a lone hand, I didn't trap those men—there's not a speck on my conscience nor a smirch on my soul on their account."

"You didn't?" Randolph seemed to have forgotten that Joel was not on trial.

"If you want to know who did that—" Joel caught his words up there as if he had reconsidered it and would not tell.

"Well?"

Joel wheeled back again, anger in his face.

"If you want to know, go and ask old man Moore! But keep your gun in your hand when you do it."

"Oh!" Randolph dismissed the indictment against Moore in that sneered word. "You couldn't make a case stick against that old man if you had twenty years more of free-handed villiany ahead of you. You've spun the rope that will hang you, Langworthy, as the schoolmaster said not an hour ago."

"It'll quicker hang him—or you," said Joel earnestly. "I can't make a case? Well, I tell you Randolph, I'm nothing but a country lawyer, and maybe not overly sharp, but when I play with fire I keep a bucket of water handy, and when I work with a madman I lay a club up where I can reach it any minute of the day. I've been storin' up evidence against Caleb Moore since the first man went into that place down there, lured in to starve him into giving up what he was supposed to know."

"You may have your evidence, but you'd never be ahle to convince anybody with it. Moore knows no more about those bones down there than I did three days ago."

"All right, I'll not try to convince you. It's entirely immaterial to me what you believe, Mr. Randolph. But men like you don't make up the juries in this county, nor in any one around here that he could take his case to on change of venue. The evidence 'd hang him, whether you believe it or not. That's plenty for me."

"You'll tell it that Moore had you and your family dig the tunnel to try to find the wreck. Is that your game?"

"Moore inspired the tunnel, he engineered it, from the first shovelful that was thrown," Joel declared, vehement in protesting this thin and foolish charge.

"Very likely tale, good business for a man as shrewd as Moore to go tunneling for five or six years to find something that he knew where to put his hand on all along. That's another thing you'd never make stick."

"He never knew where the wreck was—he believed it lay over there on the shore of the lake. Don't doubt I'll make it stick, when the time comes."

"You're a precious example of — oh, well, it don't matter. Better sit down over here in the shade Langworthy; it'll be some time before Hugh Atchison comes back from Richfield. When he comes, we'll consider disposing of you till the sheriff can get here."

Joel ignored the invitation. He stood straight as the cornstalks in the field around him, looking at his captor with frowning brow.

"Moore took me up as a boy," he said, "and shaped me to his hand. He helped me, he did a lot for me, in his way. Gratitude made me loyal, and kept me loyal many a year, but I tell you, Randolph, it will not keep me loyal to the hazard of my good name and my neck. You can hand me over to the sheriff—I'll save you the trouble of guarding me till he comes, I'll furnish the horses and we'll ride over to the county seat this morning."

"I prefer to wait."

"But I prefer to go now, and have it over with. Then you can talk, Randolph; you can talk as loud as you please, and show off what there is to be seen, but the more you say and the more you show the tighter you'll knot the rope around the old man's neck. I'll not hide his secrets any longer, damn my soul if I will!"

Randolph was turning the probability of the outcome of Joel's presentation of what he termed his "evidence" against Moore. He was considering the prejudice that had grown and thrived against the old man in that place for half a century, and the grim notoriety that had gone abroad. Langworthy would have little trouble in convincing the public that Moore had been the inspiring force behind the tunnel. He could cover the improbability of such a tale under the old man's well-known stubbornness and dislike of publicity. To the people of the Narris, and that county outside of it, it would be only natural that Moore should avoid an open exploration for the wreck after he had talked so bitterly and openly against the cargo that it carried.

A jury would find against Moore on Joel Langworthy's word alone. He could convince them with a word that Moore had imprisoned those adventurers who had come seeking the wreck. He looked at Langworthy. Joel had worked up considerable heat. He was sweating, his face was inflamed. Now he raised his fist and hammered with it into his palm.

"Look here, Randolph! I had my own father declared incompetent by a court so I could have authority over him and keep him out of that hole after Moore began to shut men up in it and try to starve their supposed secret out of them. I've kept him out of there, he's never set eyes on the rack of bones that crazy old murderer keeps piled down there. You know they're there, and I know it. No other living man but Moore does know. Set your tongue clappin' and by God! I'll have you up as a witness to help hang him!"

"If this tale of yours is true, Langworthy, assuming for argument a moment that it is true, why did Moore give me permission to explore the wreck, when he knew that I might uncover his secret while I hunted for the other? Why didn't he lure me into the tunnel, and try to starve it out of me?"

"Because the plan failed on the others. He was wiser when he was older; he let you uncover your secret first."

"Then he locked me up?"

"I didn't see him lock you up," Joel returned, with a small lawyer's caution.

"But you knew where to look for me, all along, didn't you?"

"Of my own personal knowledge, I did not."

There was no use trying to tie an eel. Joel was confident, he was cool again, he was serene.

"I don't know that a case could be made against you, candidly, Langworthy," Randolph confessed.

"It does your legal mind credit, Randolph."

"I'm not yielding a point on my belief in your absolute and damnable guilt, only I'm inclined to take my hand off to spare that old man the added trouble that your prosecution would bring him."

"His own prosecution you should have said. The grand jury never would return an indictment against me."

"Probably not, considering the—considering everything in this place. I'll tell you what I'll do, Langworthy; if you'll leave the country between this and sundown and not come back as long as Moore is alive, I'll agree to drop it."

"I'll accept no conditions," returned Joel loftily. "You started out to hand me over to the sheriff; go ahead."

Joel was defiant, triumphant. Randolph felt that he had made a grand bluster and came to a bluffer's end, although his intentions at the beginning had been serious.

"Langworthy, you win," Randolph said at length. "I know that ruin and desolation would result from opening the case against you. The murderer of four defenseless men—"

"If you'll say that before witnesses I'll make you prove it!" Joel flashed.

"Wouldn't stop at the indirect murder of one doubly defenseless in his age," Randolph finished, unmoved by Joel's outburst. "But there's one thing standing between you and me that calls for no court to adjudicate. You must stop forcing your attentions upon a young lady who shall be nameless in this controversy."

"I don't take 'must' from any man!"

"You'll take it from me!"

"I've taken more from you already than I ever took from any man, you upstart adventurer, you unknown!"

"That will be enough." Randolph gave it to him as counsel calmly. "Your attentions are distressing to her; keep away."

Langworthy turned to him with a quick little start, but stood silent a moment as if fighting to restrain hot words. Then he said very quietly: "I am going to marry her. Do you suppose I've kept silence twenty years for no reward? It's understood, I tell you—it's arranged. I'm going to marry her."

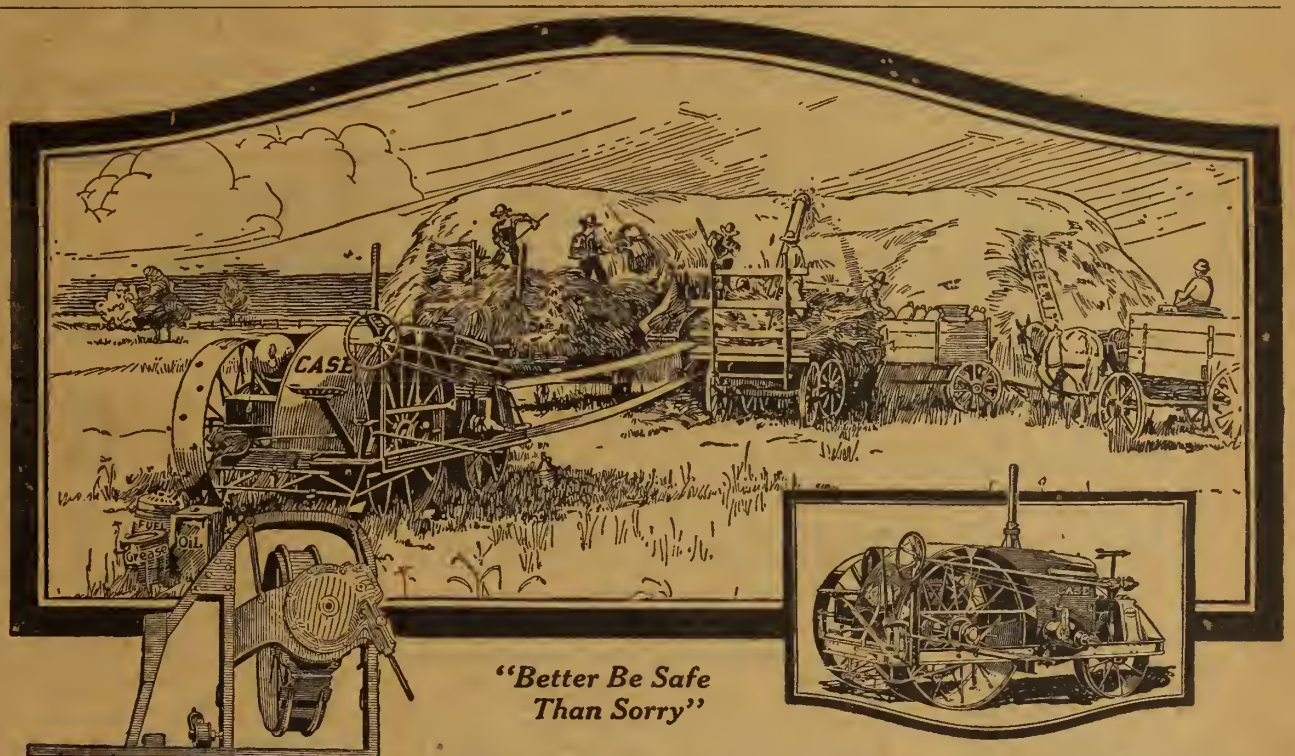
"You lie, you scoundrel!"

"You'll settle with me one of these days for all this when we meet on equal terms," said Joel as a man speaking of a debt for which he held surety. "Juliet—"

"Don't speak her name, you beast! It's profaned in your mouth—there's blood on your lips, you whelp of hell!"

Langworthy sprang back at the charge

(Turn to Page 29)



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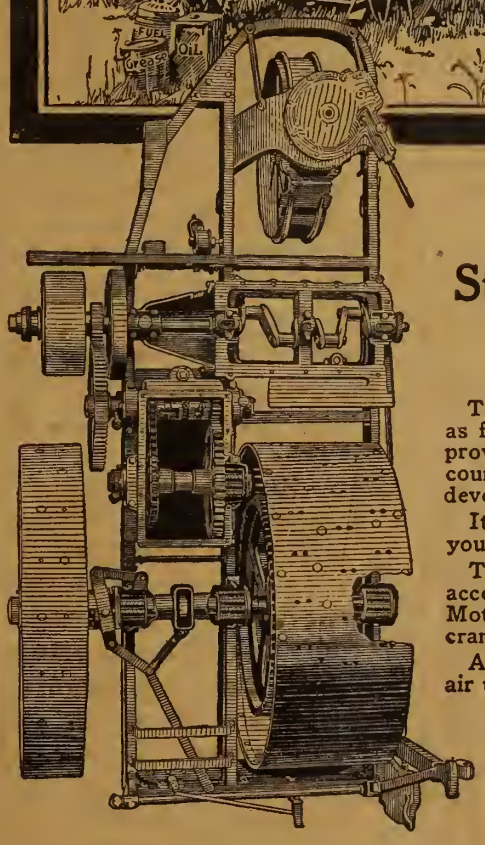

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Belief among many stockmen in the grazing regions of the West that cattle were poisoned by oak leaves caused specialists of the U. S. Department of Agriculture to undertake experiments in 1915, the results of which have just been published in Bulletin 767, "Oak-Leaf Poisoning of Domestic Animals." It has been found that the continuous feeding of oak leaves produces sickness of cattle, which frequently proves fatal. In order to cause sickness, however, oak leaves must take up a large percentage of the ration. If eaten with other feed the animals are not injured. It was found experimentally that as small a quantity of alfalfa hay as three pounds daily, fed in connection with oak leaves, prevented poisoning. Most poisoning cases occur in the spring, because at that time there is a scarcity of other forage on the range.

A sympton of the disease, although not always the first one to be noticed by the stockmen, is pronounced constipation. The affected animal appears gaunt, its coat is rough, and its nose becomes dry and cracked. The attitude, both standing and walking, is peculiar; the head is extended forward and the animal shows depression, discomfort, and sometimes evidence of pain. The animal grows rapidly weaker and may die at any time from a few days to a few weeks or more. As a rule, affected animals lose their appetites at an early stage of the disease. They refuse food but have a craving for water.

Observations on the range and experimental feeding both show that some cattle may eat oak leaves for a long time with no definite bad effects, and some will even eat them exclusively with no harm. Generally speaking, those that are injured show the results only after eating a considerable quantity through a rather prolonged period. Observations on the shinery oak show that symptoms resulted after the animals had been feeding from 16 to 35 days.

Judging from the investigations thus far made the specialists believe that oak-brush ranges can be used for grazing during the summer not only with no harm to cattle but with positive benefit. To make certain that there is no loss from oak poisoning in early spring when other forage is not available, it is important that an examination of the condition of the range be made before the cattle are turned upon it. There is no fixed date when cattle may be turned on range with safety, but if grass has gotten a good start there is little danger of oak poisoning.

PORK ON IRRIGATED LAND

Specialists of the United States Department of Agriculture, in Department Bulletin 752, report that the swine industry in the irrigated country has been subject to periods of expansion and depression. One cause is lack of knowledge as to the possibility of using certain irrigated field crops, and as to the value of these crops when measured in terms of pork production. If full advantage is taken of the wide range of feeds available to swine growers on irrigated lands, pork production can be conducted more extensively, and with more assurance of success.

Irrigation farmers interested in pork production have had to rely on results obtained in nonirrigated sections, and applied to localities where web-footed crops grow. This lack of definite information was especially noteworthy in the case of field crops, which in other sections of the country are pastured by hogs or hogged off. Hence, since 1912 the department has been making observations in its western irrigation projects on the utilization of irrigated field crops as hog pasture. These investigations include pasture tests with 149 lots consisting of 3,795 hogs pastured on alfalfa, sweet clover, corn, field peas, and milo.

Pasturing alfalfa with hogs has been demonstrated a satisfactory method of utilizing the forage, and one of the cheapest ways to produce pork. However, to obtain satisfactory results, the alfalfa pasture must be supplemented with some carbonaceous feed, such as a 2 per cent ration of corn, barley, milo, wheat or shorts. Under such conditions one good acre of good alfalfa pasture will produce, with reasonable surety, about 2,500 pounds of pork a season. Exceptional gains, as high as 4,292 pounds an acre, were reported in the case of one lot of hogs pastured on alfalfa, and given a 3 per cent supplementary ration of corn. Naturally the gains on alfalfa depend on the size and quality of the crop, the character of the hogs, the method of management, and the quantity and quality of the supplementary feed. It is poor poli y to try to make pork on alfalfa pasturage alone without supplementary feed.

Hogs on alfalfa pasture, supplemented with about a 2 per cent ration of corn, barley, wheat shorts, or milo, will consume from 250 to 350 pounds of grain for each hundred weight of gain. In general the grain requirement increases as the hogs get larger. The feeding values of corn, barley, shorts, and milo as supplements to alfalfa pasturage are so nearly identical that the choice among these "side dishes" should depend on prices, cultural adaptability, and general economic conditions. Where the grain is to be grown by the swine raiser, preference usually is given to corn, barley, and the grain sorghums, depending upon the adaptability of these crops to local conditions. An acre of good alfalfa pasture supplemented with a 2 per cent ration of grain will support 2,500 pounds of hogs during the entire growing season. The carrying capacity of alfalfa pastures increases rapidly with greater grain allowance, and it varies somewhat during the growing season with the rate of crop growth.

According to specialists of the United States Department of Agriculture an acre of good alfalfa pasture, if supplemented with a 2 per cent ration of corn, or barley, will support six to eight sows and 50 to 70 suckling spring pigs for about 60 days in early summer, during which the pigs should gain from 25 to 30 pounds apiece.

A few tests have been conducted to try out the value of sweet clover as hog pasture, and the results have proved that this crop cannot be regarded as a rival of alfalfa. However, on soils which are too wet or too salty for alfalfa, the irrigation farmers find sweet clover a valuable forage crop. Irrigation farmers are coming to appreciate hogged-down corn and field peas as a desirable combination for pork production, in that it saves labor, produces satisfactory gains in the hogs, and adds manure to the soil. Extensive tests of "hogging corn," reported in the bulletin, show gains of from 183 to 1,048 pounds an acre of corn when no supplementary feed was provided, and from 335 to 1,377 pounds an acre where the corn was supplemented with other feed. It is estimated that in these tests an average of about 450 pounds of corn was required to produce 100 pounds of gain when no supplement was used, as compared with an average of 409 pounds when the corn was not in combination with forage, late alfalfa pasture, or rape. Alfalfa pasture is preferable as an adjunct to hogged-down corn on irrigated lands, because of its cheapness, relative abundance, and reliability.

Field peas are of high feeding value for hogging purposes in the irrigated belt. Gains in live weight per acre of peas in 17 different experiments range from 250 to 949 pounds, averaging near 600 pounds. These results compare not unfavorably with those obtained by hogging corn, when cost of production is considered. But in some districts where corn grows well, field peas do not produce so abundantly as in cooler localities less favorable to corn. Field peas are particularly valu-

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able for hogging off when the more common grain feeds are expensive, and the swine grower is seeking a substitute.

Use of horse beans as a hog pasture in the irrigated districts is still in the experimental stage, this crop being especially susceptible to attacks of certain funguous diseases. Although grain sorghum, particularly milo, is utilized to some extent in the Southwest for hogging off, its chief value for swine production rests in its usefulness in combination with alfalfa pasture and as a finishing feed. For both these purposes, grain cracked or ground is believed to have higher feeding value than when the hogs harvest the crop and eat the whole grains.

SOME REMARKS ON SUNSCALD

To the Editor:

Despite the unwarranted prejudice among farmers, and the stuff doped out about the sunscald and etc. by the college professors against the white hogs, I am still for them.

I have Miss Wildwood, out of White Beauty, and sired by Prince Wildwood, as the chief matron of my herd. Last spring she farrowed eleven pigs, her first litter. I saved two of her sow pigs and this year I have them and "the old lady" (Miss Wildwood). Out of these three two gilts and one tried sow, I got forty-one pigs. The gilts having: one, fourteen and the other ten, while Miss Wildwood came across with seventeen. Some sow.

I have been reading about what college professors tell us about the white hogs having no pigment, or whatever it is, in their skin, and how they cannot withstand sunshine. Strange as it may seem, there is not a tree or bush for shade within a mile of my place, my hogs run out on the range the year round, are in the sun as much as any hog and still I have not had one case of sun scald since I have been here.

I feel like, probably Thos. J. Putnam would say, "What's the difference whether these here white hogs have any of that there pigment in their skin or not, so long as they have the pigment on their bones, and can bring a couple dozen little ones a year, for pigs is pigs right now. If you don't believe it just ask the price of Swift's bacon."

I have an idea that if this sun scald was followed up and investigated you would find the hogs so troubled have been sleeping in the manure pile, or are suffering from some skin disease or parasite that thrives on hogs. I would like to see some of this sunscald once and have an opportunity to have it proven that it is not something else. If any case comes to your knowledge within a reasonable distance of my place I wish you would let me know and I would go and see how the hogs are taken care of.—Ray Marple, Cope, Colorado.

Sunflower Silage in Idaho

The Animal Husbandry department has had a number of inquiries concerning the yield and feeding value of sunflowers for silage.

In the spring of 1918 two acres were planted to sunflowers. The field was checked the same as for planting corn. The seed did not germinate well, resulting in a poor stand. The field was replanted, and the final stand was none too thick and not uniform in stage of growth. At the time of cutting for silage many of the stalks were mature and rather woody, while others were small and immature. This field of two acres, though planted late and the stand not satisfactory, made thirteen tons of silage.

The silage was fed out in December and January. The stock had been eating corn silage, but they took as readily as could be expected to the sunflower silage, eating heartily, and, as far as could be determined, thriving just as well on the sunflower silage as on the corn silage.

The low yield of 6½ tons per acre was due to the reasons stated. If the stand had been uniform and the plants all the same age, the yield would have been increased considerably and the silage would have been much more palatable. There is every reason to believe that in the less humid districts where corn will not make large enough tonnage, sunflowers can be grown very successfully for silage. The feeding value, as far as determined, compares very favorably with corn silage. — Idaho University News Letter.

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Starting With the Cattle

"It requires considerable time and money to get a start with a large herd, and it is not a business in which the novice should engage on a large scale without knowledge or experience," says Chas. I. Bray, of the Colorado Agricultural College. "A man with little capital may begin by taking cattle to graze in the summer, selling them in the fall as grass fat stuff. The advantage is that no money is tied up in breeding stock, no winter feed has to be provided and no money has to be expended in buildings, feed yards or equipment.

"Another way to begin is to take cattle on shares, some cattlemen providing the herd and the beginner furnishing the land and labor for a share of the increase.

"A man who is not familiar with the western cattle business should work for a year with some experienced cattle company to learn the business. In this way the best methods are learned without the losses which result from inexperience. At the same time money is being obtained which can be used in stocking up later.

"The farmer can also stock up with a few cows, to the extent of his available capital and build up his herd gradually from this foundation by the use of good bulls."

Changing to Purebreds

The Del Norte Shorthorn Growers' Association shipped into the valley a carload of registered Shorthorns, mostly cows with calf at foot. These animals are good ones and come from the herd of Carr W. Pritchett, Steamboat Springs, Colorado. The president of the association, Mr. H. G. Morecraft, went to the Pritchett ranch to look the stock over, and later came in with them. The following men took these cattle: H. C. Aydelotte, Gus. Fuchs, R. A. Chisholm, J. H. Warr, Vasco Stone and Bauer Brothers, all of Del Norte. All of these men already had pure-bred stock on their places prior to this shipment and they know full well the value of good breeding.

A little over a year ago, a carload of coming yearling registered cattle were shipped into the Del Norte section by the Del Norte Shorthorn Breeders' Association at an average cost of one hundred thirty-eight dollars. A short time ago Fred Fuchs refused three hundred dollars for his young bull, and J. H. Warr, who bought two head of the above shipment, has just about closed a deal for two hundred fifty dollars for one of his bulls; a white one.

These prices indicate several things: First, that registered stock is in growing demand; that farmers are alive to the difference between the grade or scrub and the pure-bred. Second, that the association method of buying is cheaper than the individual method of buying. The bulls referred to above, if bought singly, would have cost the purchaser from one hundred fifty to two hundred dollars and the freight and other expense would have added considerably to the first cost of the animal. —C. D. Hyatt, County Agent in Monte Vista Tribune.

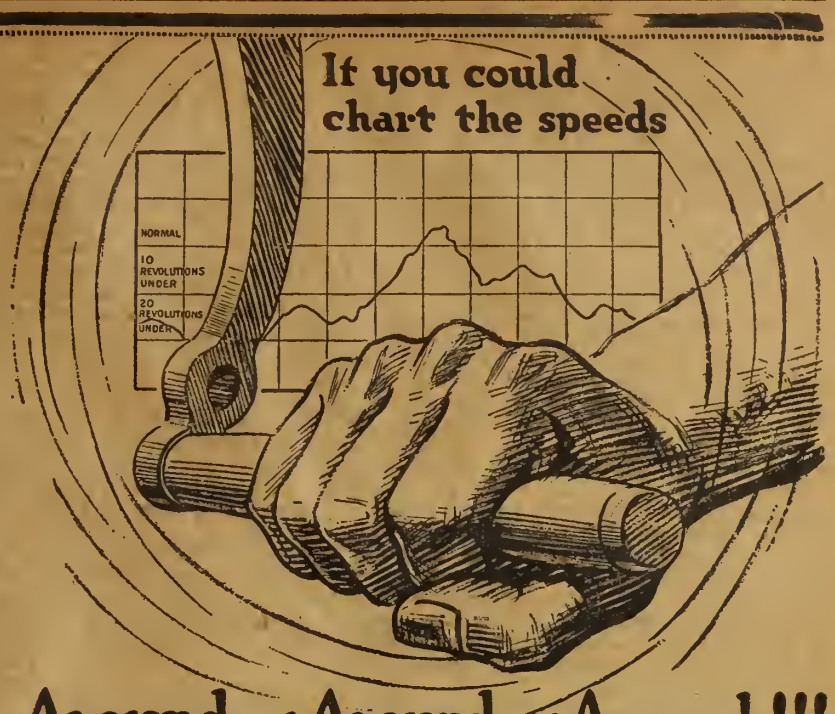
Diversified Farming Pays

The man who attempts to raise only wheat or nothing but beans or alfalfa is putting all his eggs in one basket. The difference between this and a diversified type of farming is illustrated from records of farms in the same community.

Twelve farmers made an average labor income of $1,921. Their average receipts were: Alfalfa, $1,546; beets, $1,996; livestock, $629; grain and beans, $250. These men were all well protected because if alfalfa failed they had beets and livestock to fall back on. The same can be said of other crops and livestock.

But a farmer in that community with practically the same acreage in crops made only $750. He received $3,075 from alfalfa, $195 from grain and beans, and $69 from livestock. He had only one main source of income. The other twelve men had three. What if his alfalfa had partly or entirely failed? Or suppose labor had been so scarce that he would have had to do all the work himself? Last year in parts of Colorado, wheat was left in the field because of a scarcity of labor at harvest time. Other men had to pay so much for labor that there was little or no profit left for the farmer.

The records from 91 farms in this community show that the average income of all that had only one source of income of over $400 was $437, compared with $998 for those who had two sources of income, and $1,302 for those with three. In other words, a cash receipt of $1,200 from one crop will not leave near the net profit to the farmer that $1,200 from three different sources of $400 each. In the latter case the cash expenses are much less. It is only proof of the old saying, "Don't put all your eggs in one basket."—O. S. Rayner, Colorado Agricultural College.



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If every owner of a fixed feed separator—especially those who *think* they are skimming clean—could see a chart of the great *variation* in speed during one week's separation, they would be amazed. The chart would show that practically all the time the separator was being turned *below* speed and wasting butterfat. Actual tests prove that 95% of all separators are turned below speed most of the time and all separators are turned below speed some of the time. No matter how careful you are, it is humanly *impossible* to turn at a fixed speed, day in and day out. Speedometers, bells and other contraptions only show the wastefulness of fixed feed separators.

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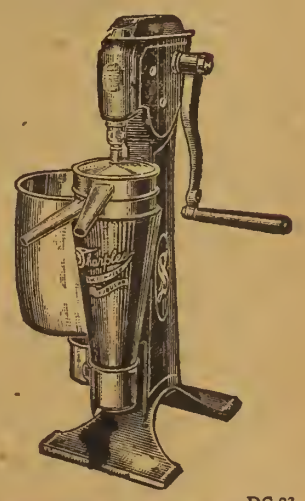

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A Model Dairy Community

GEO. H. DACY

To make dairying mean more prosperity instead of drudgery has been the notable achievement in the Grove City community of Pennsylvania. Unprofitable methods with inability of local farmers to gain more than a meagre living from the soil had distributed seeds of discouragement throughout the community.

Under such conditions the United States Department of Agriculture induced the business men and others of Grove City to establish a creamery. Built and equipped by home capital, this plant is operated by the Department as a part of its experimental and demonstration work. In three years Grove City has developed into an advanced dairy community. The first day the creamery opened its doors 20 patrons marketed 78 pounds of butterfat. By June 30 of the same year, the number of patrons had increased to 106, a year later to 338, the next year to 579, and at the end of the third year, or June 30, 1918, it was 614. But the increase in the income is even more remarkable. The first fiscal year, or from July 1, 1915, to June 30, 1916, inclusive, the gross income of the creamery was $82,432; the second year it had increased to $212,904, and the third year it was $375,596. Last year one of the Grove City banks increased its deposits $450,000, of which approximately one-third resulted directly from dairy farming improvement.

The Grove City community has followed the principle that "In union there is strength," and at the present time is admirably organized for profitable results. The local commercial club of 200 members has been of great assistance in winning the confidence of the farmers, in making them feel at home, in entertaining them and in strengthening the bonds between them and their town neighbors. The club rooms are now used as headquarters by farmers and their families when they are in town and twenty of the most progressive farmers are now members. Often the club has been active in obtaining help for the farmers during busy times while occasionally the members themselves have assisted the farmers in urgent work.

The two local banks have supported the "better agriculture" movement and one of them has aided in financing the purchase of purebred dairy sires and cows. It has brought in eight carloads of high-producing animals and distributed the cattle at cost among the farmers. In addition it has loaned money for the purchase of better cattle and for general farm improvement. The bank publishes a monthly paper which circulates among the creamery patrons and deals with community development problems and other topics of interest. Each month it publishes the names of farmers receiving the largest checks from the creamery and the names of the owners of cows whose average production exceeds 40 pounds of butterfat a month. The lists stimulate friendly rivalry among dairymen and benefit the local industry.

Today Grove City is a region of profitable dairy cows, due to the intensive work of the home cow-testing association which has worked for the shipping in of better dairy animals and the shipping out of low producers. Farmers have heeded the evidence of the milk scales and the Babcock test. One dairyman found that nine of his eleven cows were "loafers." He immediately sold them to a local butcher and purchased profitable stock to take their places. The Grove City Cow-Testing Association records for 1917 and 1918 show that it cost an average of $74 a cow to feed the 262 cows that completed a year's test—approximately $50 to feed the lowest producers, and $97 for the cows whose average production was 400 pounds or more of butterfat a year. One cow in the 400-pound class yielded more income over cost of feed than an entire group of 25 cows that averaged only 100 pounds of fat a year.

Two cooperative bull associations, Jersey and Holstein-Friesian, have been organized since the development work began. Each of these organizations is divided into four sections or blocks, with one bull to eacb block. The Holstein-Friesian Bull Association consists of 25 farmers who subscribed $75 each for the purchase of four registered Holstein sires of meritorious breeding. To avoid inbreeding, the sires are changed from one block to another every two years, and according to this plan, the bulls now in use will be serviceable for the next eight years. Thus each member of the club gets the use of a fine sire while the organization is able to keep its bulls at a maintenance cost of about one-sixth of what it would be if each herd were headed by a separate bull. The Jersey Bull Association was organized along similar lines. This campaign for better breeding has brought about the establishment of more than forty pure-bred herds in the community during the last year.

The Guernsey Breeders' Association at Grove City consists of 28 members, owning 71 registered Guernsey's, each member owning either outright or jointly a carefully selected registered sire.

In the main, the dairy cattle in the community are free from tuberculosis; more than 100 herds have successfully passed two annual or three semi-annual official tuberculin tests. As a result they have been included in the tuberculosis-free accredited herds listed by the U. S. Department of Agriculture.

The Boys' and Girls' Pure-Bred Dairy Cattle Club was organized more than a year ago with 53 members. In addition to the cattle club there are pig clubs, garden clubs, canning clubs, and a club recently organized under the direction of the county agent known as "The Young Farmer Club," in which eligibility to membership requires the winning of a prize in some "worth while" contest.

In spite of the high price of building materials last year, 25 new silos have been built while 57 old barns have been remodled and equipped with such improvements as concrete floors, up-to-date stanchions and better lighting and ventilating facilities. In the Grove City district, dairy development has made such rapid progress that many dairymen have had to keep their cattle in barns not designed for such a purpose. However, using these old barns has allowed the dairymen to devote more of their capital in the purchase of high-producing cattle.

Another organization, known as the Grove City Federal and State Association Dairy Cattle Show and Sales Association, encourages the development of healthy herds and the exhibition and sale of dairy cattle. Each member must furnish the secretary-treasurer with an extended pedigree of all animals he offers for sale or exchange. Once a year the county holds a round-up picnic and dairy cattle show. Last year 1,500 people attended.

The creamery fieldman aids the farmers in building silos, remodeling and rearranging their barns, tuberculin-testing their herds, detecting and disposing of undesirable cows.

Under the supervision of a qualified man, practically any farming community, it is believed, can improve its organization, farming methods, market operations, and similar activities. Whenever such a community tackles the business of self-advancement energetically in the proper manner, a spirit of confidence will prevail and work well begun will go forward to still further success.

Straining the Milk

Sediment in milk indicates carelessness in its production or handling.

Sediment contaminates milk and makes it less salable.

Most of the sediment in milk comes from the bodies of cows and consists of hairs, manure, bedding, etc.

Straining removes only the coarse particles of dirt and removes neither the bacteria nor the fine dirt.

Straining improves the commercial quality of milk, but does not appreciably improve its healthfulness.

The best system is to prevent, so far as possible, the entrance of dirt into milk. This can be done best by having clean cows in clean stables, milked with clean hands, into clean-small-top pails.

Filter cloth and absorbent cotton are efficient materials for strainers. Cheesecloth and wire gauze are less effective.

Straining cloths should be changed whenever they become soiled. They should be thoroughly washed and sterilized after each using. Efficient sterilization is accomplished by boiling or exposure to steam for at least five minutes.—Farmers Bulletin 1019.

Veterinary, legal, crop and general farm questions cheerfully answered for all subscribers. Write to Western Farm Life Service Bureau.

The Simplicity of Empire Milking

makes it easy for anyone to operate the Empire Milking Machine. There is nothing intricate about it. You start the engine, attach the milker to the pipe line, apply the teat cups and the machine does the work. It is so simple that boys and girls are successfully doing this work on many farms.

Empire Milking Machines have taken all the wearisome labor out of milking. They not only make this job easier but they do it better and with more uniformity. The operation of the Empire is the same at all times—gentle and soothing to the cows. You save help, for one person can do the work that it formerly took three to do, thus giving you more time and more help for field work.

Put Empire Milking Machines to work in your dairy. They will not only increase the production of your hard milkers and nervous cows but they'll cut dairy costs and make you independent of hired help.

Don't delay learning more about the Empire. Write at once for catalog No. 28 and get complete information. Let us have our local dealer give you a demonstration.

EMPIRE CREAM SEPARATOR COMPANY, Bloomfield, N. J.

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MILKING MACHINES

THE UNITED STATES DISC SEPARATOR

Right or Left Hand

The *United States* Disc Separator is the only separator that can be run from *either* side.

No matter whether you are right- or left-handed; no matter what space or corner you want to fit it in, the *United States* will conform. The *United States* is the only separator that can be equipped with crank and power at the same time.

Just another exclusive feature of the *United States*---the separator holding the WORLD'S RECORD for close skimming.

Ask the *United States* dealer to show you other equally-important features.

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Watch your newspaper for this advertisement telling where you can see the United States Separator. Agents and dealers wanted in some localities.

105

FEEDING THE CALVES

Wheat bran is eaten readily by young calves. Corn has an excellent physiological effect and to a great extent may take the place of fat removed from skim or separated milk. Experiments tend to show that corn fed to calves should be cracked rather than finely ground. Ground oats are good in grain mixtures when available, but in many cases cost much more per unit of feed than corn and bran. The following grain mixtures are recommended by dairy specialists of the United States Department of Agriculture:

(1) Three parts cracked corn and one part wheat bran.

(2) Three parts cracked corn, one part wheat bran, and one part ground oats.

(3) Three parts cracked corn, one part wheat bran, one part ground oats, and one part linseed meal.

(4) Five parts cracked corn, one part wheat bran, one part ground oats, and one part blood meal.

(5) Oats, ground.

Clover hay, alfalfa hay, or the most palatable roughage available should be given the calf after the second week. Alfalfa is likely to cause scours, and should be fed sparingly at first and increased only after the calf gets accustomed to it. At first hay should be furnished only a handful at a time, and be placed so that it can not be soiled. For the first six months, at least, the calf should receive all the roughage of good quality that it will eat up clean. When the calf has access to good pasture during the first six months it need not receive other roughage. It is not advisable, however, to have the calf under 2 months of age on pasture in the early spring.

Dairy and Hog Farm

I own a farm of 320 acres in Kit Carson county and would like to know if it would be all right to go in the hog business. I want to know if it would be a safe proposition to fence 160 acres hog-tight and plant it to corn every year. How would Jerusalem or alta corn be for hogging down? Would it be safer to put half in barley and half in corn so in case one would fail I would still have the other for feed? Can alfalfa be raised there and should it be put in rows or broadcast? Could I raise one hog on two acres of corn?—W. R. B., South Dakota.

Eastern Colorado generally has an annual rainfall of 16 to 18 inches which classes it as semi-arid. In such sections careful dry farming methods must be followed. That means deep plowing, where the soil is not too sandy, and the conservation of moisture by careful tillage methods. If you are not familiar with the methods followed under conditions of light rainfall, a close reading of the articles by Mr. E. R. Parsons appearing in our magazine from time to time will give you a good idea of the theory underlying dry farming practice. At the foundation of dry land farming is livestock. The best combination on the plains is a dairy herd and hogs. A great many farmers in that section are too largely engaged in the growing of small grains as a cash crop and when a dry year comes along they get little or nothing for their efforts. The farmers who have succeeded are those who have built up on a livestock basis, starting with a small bunch of dairy cattle and hogs, providing themselves with a pit silo or two and arranging their crop program so as to produce plenty of roughage. Hogging down corn is done by some farmers, but it is hardly practical to enter exclusively into hog raising and expect to pull through on a large acreage of corn with some pasture. The average yields of corn in the eastern Colorado counties are from 20 to 30 bushels. In extremely dry years it is sometimes found necessary to cut the corn before it is mature and save it by putting into silos. Without a silo in a year like that, a man would have little left for his hogs if he relied on corn exclusively. As far as pasture is concerned, alfalfa is best where there is bottom land along a draw or creek. Upland alfalfa in the dry farming section is usually grown in rows so it can be cultivated. Perhaps the better pasture where a man has no alfalfa bottom is sweet clover, which answers the purpose of both pastures and hay and has practically the same feeding value as alfalfa but will grow where it is often hard to get a stand of alfalfa. Rye is a better crop than barley for pasture on the plains. Many of our dry land dairy farmers are using it in this way. We think it advisable in planning for grain for forage not to rely exclusively on corn but to also put in a good acreage of the grain sorghums such as kafir, milo maize or feterita. These are splendid for hogging down. There is very little Jerusalem corn grown in this state. The latter is one of the grain sorghums but the farmers find that kafir, milo or feterita serve better.

Mare Suckles Calf

"This mare is sure ambitious about raising young stuff," writes G. W. Colleps, a subscriber of Eagle, Colo. "When we weaned her colt this skim-milk calf was in the same stall with her, and you can see how things went." Things went very well for the calf, for on looking closely you will find that the animal between the hind legs of the mare is not her colt, but the calf, helping himself to mare's milk.

The Dairy Cow

(With apologies to Walt Mason)

The dairy cow's a thing of charm; she lifts the mortgage from the farm and makes the farmer's life more sweet and sets him down on Easy Street. Wher'er the dairy cow is queen, a country prosperous is seen, and dairymen in joyful ranks are packing bullion to the banks. Why plug along the old sad way, producing nutmegs, prunes and hay, and putting up a bankrupt wall if one year's crop should chance to fall? There is a better method now—the method of the dairy sow; this critter always earns her keep and piles up riches while you sleep, and pays the taxes and the rents; and here in old Linn county, gents, we have the climate and the feed, and all conditions dairies need. So let us boost the dairy cow, which beats the old breech-loading plow; the Jersey, Holstein, Guernsey, too, as smooth as any cows in view. Lets take up dairies, milk and cream, the safest money-making scheme. —Linn County (Oregon) Farm Bureau News.

More on Bull Associations

J. E. Dorman.

The high cost of food and labor makes it necessary for every dairyman to increase the average production of his herd. Herds of 12 cows or more may join a cow-testing association and share in the benefits which have accomplished a great deal in increasing the average production of the herds. However, about 75 per cent of the cows in the United States are in herds of 12 cows or less, and because the cow testing association can not admit these small herds to membership the owners must keep private herd records or carry on herd improvement along some other line.

Cooperative bull associations were planned particularly for the benefit of small herds, though large herds may not be barred from membership. The cooperative bull association is a farmers' organization whose purpose is the joint ownership, use, and exchange of three or four high-class, pure bred bulls. The territory covered by such an association is divided into three or more breeding blocks and a bull is stationed in each block for the service of the 50 or 60 cows in each block. After two years the bulls are interchanged, thus at the initial cost a bull for every 60 cows is provided for six or more years. The cost of bull service is thus greatly reduced. The very best bulls can be obtained, and the man with the limited means and only a few cows is enabled to improve his herd. Bulls of outstanding merit are preserved for their entire period of usefulness. Associations of this kind teach cooperation, encourage careful selection of cows, and introduce better methods of feeding and management, intelligently combat infectious diseases of cattle, and assist in the marketing of dairy stock and dairy products.

The principal reason why the owners of small herds do not have a better class of cows is the difficulty of procuring the services of a bull of real quality at a reasonable price. The cost of a desirable bull makes it almost prohibitive to the owner of a small herd, but where the cost is divided among several the expense is less than the cost of maintaining a mediocre bull in each of the small herds.

The value of a good bull in increasing the production of the daughters over the dams has been demonstrated many times. One man in Newaga county, Mich., by using a purebred Guernsey sire steadily for seven years raised the profit of his herd from $13.04 per cow to $50 per cow. In another herd, by using a bull of the same breed the increase in production per cow was raised from 225 pounds of butterfat to 341 pounds, and the percent of fat in the milk of the herd went from 3.94 to 5.05. These figures show what can be done if the farmers will do their part in the efforts being made to improve the quality of the dairy cows in this country.

For further particulars concerning the organization of cooperative bull associations, write to the office of the Western Dairy Division, 318 Federal Building, Salt Lake City, Utah.

Dietary Suggestions

The special function served by fruits and vegetables in the diet is four-fold, according to Miss Inga M. K. Allison, of the Colorado Agricultural College.

"The cellulose which serves as the framework of the fruit and the vegetable, is very desirable. Because of its bulky residue it gives a laxative tendency. Also, because of bulkiness, fruits and vegetables are the more satisfying to the appetite. Within the last half dozen years this group of foods has come to be known as an important source of the very minute quantities of certain food accessories known as vitamines and which are regarded as highly essential to growth.

"The organic acids found in fruits and vegetables give to them pleasing flavors, exert a laxative effect and serve other useful purposes.

"The fourth function is that of supplying to the body the essential mineral salts, iron, calcium, phosphorus, potassium, sodium, sulphur, and chlorine. The average dietary is often lacking in these food constituents and, of the elements named, the first three cannot be safely left to chance.

"If each day's ration contained two medium-sized potatoes, a serving of some other vegetable, and the equivalent of a medium-sized apple in fresh fruit, the needs for mineral matter and of growth-giving substitutes other than protein would probably be supplied.

"A special care should be exercised, then, to make sure that the dietary includes a generous supply of foods in which iron, phosphorus, and calcium do occur. Foods rich in iron are egg yolk, lean meat, spinach, fruits, and cereal grains. Generous use of milk, legumes, celery, cabbage and cereals will insure an adequate supply of calcium salts to the body. Phosphorus contained in egg is considered to be more completely utilized than that derived from any other source, but beans, wheat and oats also serve to supply that element."

Wanted—A Victim.

An old man and woman were drawing near the twenty-fifth anniversary of their wedding day.

"James," said Martha, "It will be our silver wedding next Wednesday. We ought to mark the occasion. Shall we kill the pig?"

James looked up in surprise.

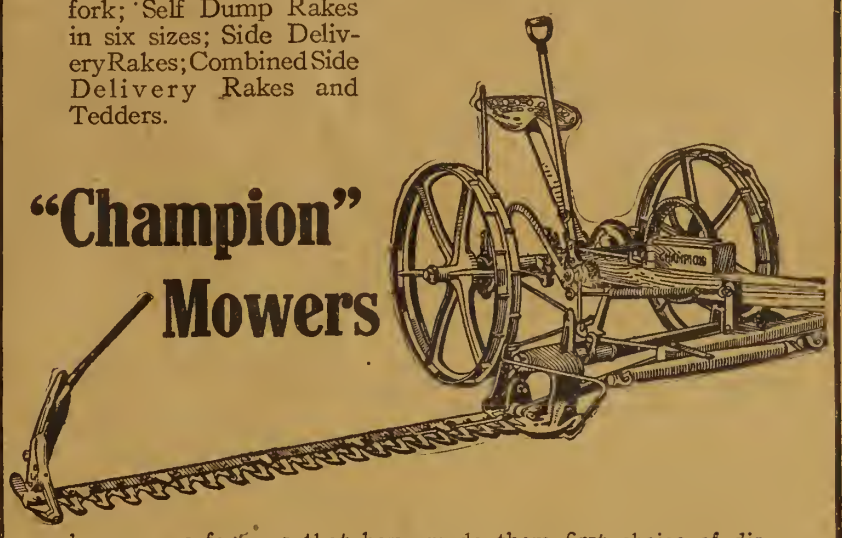
"Kill the pig? Wot's the good o' murderin' a innocent pig for what happened twenty-five years ago?"

B. F. AVERY AND SONS

"Champion" Hay Tools

give you a wide range of choice. They include Mowers, regular or vertical lift 4½ to 7-foot cut; Tedders, 6 and 8 fork; Self Dump Rakes in six sizes; Side Delivery Rakes; Combined Side Delivery Rakes and Tedders.

"Champion" Mowers



have many features that have made them first choice of discriminating farmers, for example:

Pitman connection is self-adjusting to take up wear.

The knife head is unusually long, giving added strength just where breakage is likely to occur.

Outer end of crank box is closed and has an oil-tight chamber that holds enough oil for several hours.

Fly wheel shield is made of malleable, rendering breakage unlikely. If broken, it can be replaced at small cost because it is a separate piece—not a part of main frame.

Coupling yoke is unusually wide, giving great leverage and holding cutter bar in alignment.

B. F. AVERY & SONS, Founded 1825 Incorporated 1877 Louisville, Ky.

Prevents and destroys worms; aids digestion; saves 25% of feed; supplies necessary mineral matter.

CAREY-IZED STOCK TONIC Brick Or Block

Keeps stomach, bowels, liver and kidneys in order; keeps animals in prime condition to resist disease.

We make no claims for Carey-ized Stock Tonic Brick or Block which are not borne out by our own positive knowledge and by the experience of practical stock raisers. We guarantee satisfactory results in every case if fed as directed.

Try It 60 Days at Our Risk

Order 12 bricks or a 50-lb. block from your grocer, general store, druggist, feed or hardware dealer. If he can not supply you send us his name and we will send him for you 12 bricks (35 lbs.) at $2.50 f. o. b. Hutchinson, or a 50-lb. block $3.00. Or, if you prefer, send us the amount and we will supply you direct, freight charges collect. If at the end of 60 days feeding according to directions you are not entirely satisfied, return what you have left and we will refund all your money, including carrying charges. Our guarantee is good. Ask your banker.

Write for free book, "Making Live Stock Pay."

The Carey Salt Company
Dept. 251
Hutchinson, Kansas

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Man and Nature

O steadfast trees that know
Rain, hail, and sleet, and snow,
And all the winds that blow;
But when spring comes, can then
So freshly bud again
Forgetful of the wrong!

Waters that deep below
The stubborn ice can go
With quiet underflow,
Contented to be dumb
Till spring herself shall come
To listen to your song!

Stars that the clouds pass o'er
And stain not, but make more
Alluring than before:—
How good it is for us
That our lives are not thus
Prevented, but made strong!

Birds and Flowers for May.

These are birds and flowers which may be found almost anywhere this month. You will know many more, but be on the watch for these.

The western tanagers and cedar wax wings are mentioned here particularly as you will rarely find them later except in the higher altitudes. They will stay in the lower country only until food gets more plentiful on the high lands. Most of the other birds will be with us from now on.

Flowers to Find: Violets, daisies, buttercups, loco, wild pea, mustard, wood sorrel, wild flax and bladderwort, are among the commonest of our May flowers.

Birds to look for: Western tanager, cedar waxwing, nuthatch, downy woodpecker, flicker, kingbird, yellow and olive warblers, gold finches, redstart, and yellow throat are all flitting through your fields and giving you a cheerful song.

Back of the loaf, the snowy flour,
Back of the flour the mill:
Back of the mill, the wheat and the shower
The sun, and the Father's will.—Mills.

Books on Nature Study

As several inquiries for good nature study books have come in, a request was sent in to the Colorado Agricultural college library for a list of books which might be of assistance to one interested in these things. Almost everyone who likes outdoors well enough to find out something about it, wants books which can be carried about easily. Of the ones given in this list, the "Rocky Mountain Flowers" of Clement and Clement, and the little Bird Guide for one dollar are easily carried. Any of these books may be procured at a good bookstore.

The list as given by the college librarian, Miss Charlotte Baker, follows and gives some of her comments on the books:

Longyear, B. O., "Rocky Mountain Wild Flower Studies," an account of the ways of some plants that live in the Rocky Mountain region. State Agricultural college, Fort Collins, Colo., $1.00. This book has 156 pages. Illustrated in black and white. Takes up about 20 or 25 plants. Good for 8th grade work or for adult who wants to look up Colorado plants.

Clement, F. E. and E. S., "Rocky Mountain Floyers;" published by H. W. Wilson Co. $3.00. Clement is head of the botanical department of the University of Minnesota. This book has 25 plates in color and 22 in black and white. It is an illustrated guide for the plant lover and plant user. One of the best things on the market for the average adult.

Clement, E. S., "Flowers of Mountain and Plain." This is an abridged edition of the book above. It has 42 colored plates that take up the entire page. There is a brief text opposite each plate to help identify the plant. To be used in walking trips.

Rydberg, Per Alex., "Flora of the Rocky Mountains and the Adjacent Plains," (Colorado, Utah, Wyoming, etc.), 1,110 pages. $3.75. Can be bought of P. A. Rydberg, 3304 Rochambeau Ave., N. Y. City. This is a technical botany for a localized section. Takes botanical training to use it.

Coulter, J. M. and Nelson A., "A New Manual of Botany of the Central Rocky Mountains." American Book Co. $2.50. This is based on the old Gray's botany we used to study in the east. One has to have some botanical knowledge to use it. You will probably find the text of the old Gray in the first part of the book.

Slater, W. L., "History of the Birds of Colorado." Witherby and Co., London, 1912. $5.00. This book was written at the home of General Palmer in Colorado Springs by his son-in-law, who is an Englishman. This may not be easily gotten now.

Most good bookstores have some little volumes called bird guides that fit in your pocket and cost a dollar each. These are not especially for Colorado, but have many of our birds, and people use them here. Biological Survey of Colorado, North American Fauna No. 33, Bureau of Biological Survey, U. S. D. A. 1911. This can be bought from Superintendent of Documents, Washington, D. C., for 35c. Do not send stamps or mutilated coin. This monograph is separated into life zones and under each zone takes up mammals, breeding birds, plants and reptiles. The work gives good descriptions of mammals and some plants. Birds are merely mentioned by name.

Fifty Common Birds of Farm and Orchard is Farmer's bulletin 513. This may be bought from the Superintendent of documents, Washington, D. C., for 15c. This is not especially for Colorado, but has some of our birds. Tells which birds are useful and which are injurious to farm crops.—E. D.

What Mary Wants

Dear Sarah:

You needn't have worried so much in your last letter about the awful weariness which should have brought about such a peculiar excited ending to my letter. For I did have something to get excited about and I'm getting more so. Now don't immediately hold up your hands, (mentally) with the unspoken sympathy for the tired farmer's wife. This isn't something to make you tired,—it's something to make you rested and it's like this:

John almost more than loves his dairy cows; weighing milk and balancing rations are a delight to his statistical soul; that each stall shall be clean, every drinking cup exactly full of all the fresh water she needs to keep every one of her sleek Holstein hairs in place is only a labor of love for each individual bovine. Even extracting all the lacteal fluid in its entirety is interesting; but turning the separator to divide that same fluid,—oh—that is the hand organ task which my lord and master loathes with a deadly loathing!

But the joke of it is,—so does the hired man, only he is clever enough to get out of it without seeming to do so, and John realizes that the job is up to him to endure, or to change as his ingenuity devises. That is the sort of joke a sensible wife never sees until it is pointed out to her; and my one aim in life has been to be a sensible wife.

Then John got busy and this is what he thought: "Now the only way to get out of turning the old machine is to get a motor to do it for me, and the very best sort of a motor is an electric one." The more he thought the better it sounded, and I'll have tto say right now that the motor for the separator wasn't the only thing he thought of. John's nothing with his good ideas if not generous for others; and so this dream of his had lights, house and barn, and a washing machine, and an iron, and a dish washer, and a mangle,—don't gasp, Sarah. they're not all coming at once; but the washing machine is ordered. And tomorrow night we hope to stick out our tongues at the coal oil lamps sitting in a dark and dismal row on the kitchen shelf, while we peruse our Western Farm Life under a glowing tungsten.

It's no wonder there was excitement in my letter. It's the dream that I've only dared mention as one does a Rembrandt painting in the Metropolitan museum. And now it's come true and I never said a word! Blessed is the mind of man,—in desire it worketh as a ferment; and the only thing a real wily women has to do is to instill the proper desire!

Do you suppose even that far-seeing old Benjamin Franklin ever visioned all the things that might happen when he hitched up a shock for himself with a kite, and a silk and a key and God's own good thunder storm? Wouldn't he have gasped if he could have beheld his mother, or any of the feminine portion of her seventeen progeny ever sitting down to mend a bit while the washing did itself, by the power in that same shock? You wouldn't see it in my letter, Sarah, and so I'm going to have a picture of my electric washer made and send you; and then you won't need a 'vision."

Excitedly but still lovingly,
MARY.

PATTERN DEPARTMENT

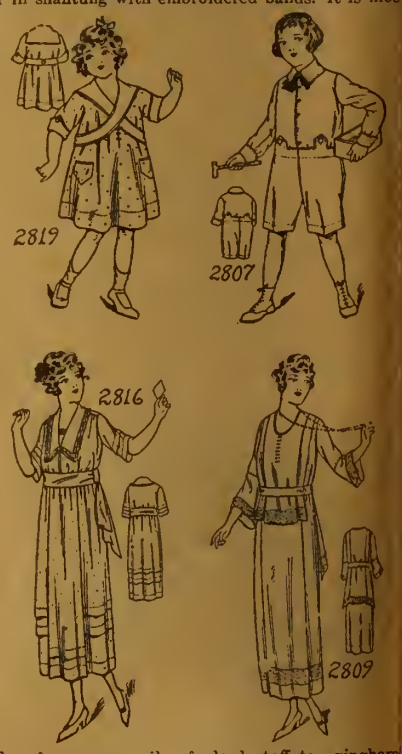
All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2819—A Pleasing Design—This neat, simple little model may be finished without the collar trimming. It is nice for all wash fabrics, and for serge, gabardine, silk and crepe. The closing is at the center front under tbe crossing of the collar portions. Cut in sizes: 2, 4, and 6 years. Size 4 requires 2¾ yards of 36-inch material.

2807—Boys' Suit—This is a very comfortable suit, and the style is adaptable to all materials usually employed for boys' suits. Wash fabrics such as khaki, drill, galatea and gingham are appropriate, likewise flannel, serge, corduroy and velvet. Tbe sleeve may be in wrist or elbow length. Cut in sizes: 3, 4, 5, 6, and 8 years. Size 4 will require 2⅛ yards of 40-inch material.

2816—A Pretty Summer Frock—Tbis is a charming model, especially for slender figures. It is just the thing for organdy, dimity, veile and crepe, and will require little trimming excepting a smart sash or belt of bright ribbon. Dotted Swiss, with collar of organdie or net edged with Val. lace, and a sash of Chinese yellow or Liberty red, would be very attractive for this style. Cut in 4 sizes: 14, 16, 18, and 20 years. Size 18 will require 6¼ yards of 27-inch material. The skirt measures about 2 yards at the foot, with plaits drawn out.

2809—A Very Attractive Gown—This style would be effective in linen with cluny or filet lace, or in shantung with embroidered bands. It is nice



also for serge, voile, foulard, taffeta, gingham and other wash fabrics. Cut in 7 sizes: 34, 36, 38, 40, 42, 44, and 46 inches bust measure. Size 38 will require 6 yards of 44-inch material. Width of skirt at lower edge is about 2 yards, with plaits extended.

Still Need the Horses

"Do you think the motor will entirely supersede the horse?"

"I hope not," replied Farmer Corntossel. "There must be some market for hay. I depend on what I make on hay to buy gasoline."—Washington Star.

MOLINE GRAIN BINDER

Absolute dependability during rush of harvest season, plus service without delays or breakdowns makes Moline Grain Binders popular with every farmer who uses one. For over 50 years, Moline Grain Binders have been giving such service in all parts of the world.

Owners tell us without reservation or condition that Moline Grain Binders are positively dependable—that they are exceptionally light in draft, and that they do good clean work in all sorts and conditions of grain.

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Main frame made of two pieces instead of four.

These are just a few of the many superior features of the Moline Grain Binder.

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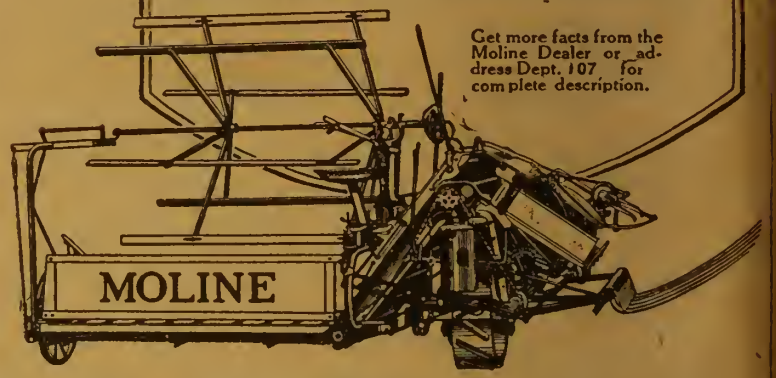

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MANUFACTURERS OF QUALITY FARM IMPLEMENTS SINCE 1865

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

Vaplon Sees Lars Carlson.

Fort Collins, Colorado,
April 27, 1919.

Dear Mr. Steinel:

There has been so much interest in the work being done with poultry by Lars Carlson that I took the day off yesterday to visit him again. After writing you about my second visit I thought perhaps your readers would be satiated with news of that kind and felt like swearing off; the contrary is the case and I am convinced by the letters and telephone calls I have received that just such experiences are the kind of information most appreciated.

Mr. Carlson had just returned home from a ten days' trip and I found him cleaning coops and buildings and generally straightening things up. "I have pretty good help and am sure the hens and chicks are well cared for in my absence, but there are a lot of little things to look after when I return, especially the cleaning, filling up the hoppers, etc.," said Mr. Carlson. When I told him of the many inquiries I had received regarding his stock, methods, etc.; he thanked me for heading them off; "I have no time to give to writing letters and have little to sell, as my neighbors and acquaintances take all my surplus stock and eggs. Then, as you know, I am not trying to build up a large flock at present. Probably a little later I may branch out and go into the thing on a business scale, but not until I can quit my traveling. The poultry game is as real a business as that of the manufacturer or merchant and requires as close supervision, and I don't want to spoil my faith in its possibilities by making a failure of it; I am real glad to have you call and will give you all the information I can for your readers and will gladly answer any questions I may be able to through you, but really, I can not permit myself to take up correspondence or write for any paper."

The Bottom of This Trough Is a Piece of 1x4. The Sides Are Lath. This Trough Is for the Chicks Up to Two or Three Weeks of Age; Then a Larger Trough of Same Size Is Used

Mr. Carlson has two hatchings of chicks running together and sharing one brooder. They were a little over three weeks apart but seemed to get along the nicest kind; altogether there were 118 sturdy youngsters, the youngest two weeks old.

"Mr. Carlson, what's the idea of running these chicks all together; you have two brooder houses all equipped, and I understood you to say on a former visit that the present number of chicks is all you care to raise; wouldn't these younger ones do better by themselves? Don't those big fellows run over them, trample them, gobble up all the food and naturally keep the little fellows down?"

"Possibly, but I have never noticed any hurt and I have done this same thing repeatedly. This last hatch came off just before I was to leave home for a ten days' trip and I thought it would lessen the work of the wife and children to put the whole bunch together; the brooder is plenty large for all of them and furnishes an abundance of heat, so there is no danger of crowding; there is always fine grain in the litter to be had for the scratching and the dry mash and beef scrap hopper are always full, so there is no danger of even the smallest going hungry. There were 63 of the second hatch, (out of 95 eggs) and three decided that it wasn't worth while and gave up the ghost; not one died after the second day in the brooder. Last year the first pullet to lay was from the second hatch and I had raised two hatches together; on the whole the earlier hatch laid earlier, but at six months of age there was little noticeable difference in the pullets; the difference was more marked in the cockerels. You see, I have the last ones punched so there can be no mistaking them when they are grown."

"You said the beef scrap hopper was always kept full; do you mean to say that these little fellows get an unlimited amount of beef scrap?"

"You can see for yourself; that hopper contains bran, corn chop and ground barley, all carefully sifted through an old corn popper to take out all coarse particles and hulls; this hopper contains beef scraps, also sifted through the corn popper; when these smallest fellows were taken from the incubator and placed in this brooder, those hoppers were just in that condition and always have been since, and were from the first day of the first bunch. I also keep sour milk before them when it is obtainable, but do not have enough. By weight the chicks eat about as much dry mash as beef scrap and of course they get all the grain they will scratch out of the litter."

On a shelf in the brooder house were boxes and cans containing wheat and corn, both finely cracked; also oatmeal; these constituted the grain feed which was scattered.

The Candy Bucket Used by Lars Carlson. Why Would Not a Barrel or Keg Be a Good Thing Out in the Orchard, for a Large Flock?

"Then you don't believe in balancing the ration for the chicks, just so much of each?"

"Oh, I guess that would be all right, but I really haven't time, although I do keep account of all feed eaten by them. I prefer to give them the grain straight, feeding oatmeal once, then corn, then wheat. Doing so, it would be rather difficult to keep track of the exact amount of each. They seem to enjoy their bill of fare, never show any signs of digestion difficulties, and so I see no reason for changing. With such a variety of feed and running out as they do, I see no reason why they will not balance their rations to suit their needs. I know there is some opposition to feeding an unlimited amount of beef scrap, but we have never seen any ill effects from it."

"Mr. Carlson, some people recommend no water for chicks the first day or two, but I never heard of anyone withholding it for six weeks; where is your water dish?"

"We don't withhold water but we try to keep it in the shade; you will find it on the north of the brooder house where the sun strikes only for a short time just before sundown."

Back of the brooder house I found a candy pail setting up on a box about 14 inches high. Driven through the pail near the bottom was a faucet, a wooden one, just like the one my old man used to have for that Saturday night keg of beer; beneath the faucet a pan with rim about two inches high; around the edge of the pan were inch boards which would permit the smaller chicks to reach in for their drink; in the water in the pan was floating a square piece of board to prevent the chicks from drowning if they fell in. The water was dripping from the faucet into the pan just rapidly enough to provide plenty of water without running over the pan. Over the pail was a wet gunny sack.

"This device furnishes a supply of fresh, clean water all the time and requires but one filling a day. Using a low open dish for water requires about 40 fillings and rinsings a day and is a nuisance and chicks never have clean cool water at that. Put your hand into that water, almost as cool as when it left the well. The reason so many people hate the work with young chicks and old ones too, for that matter, is largely due to the lack of conveniences. It doesn't take over three minutes in the morning to empty a pail of water into this candy bucket, scatter a few handfuls of wheat in the litter and open the door of the brooder and fill up the two hoppers. This finishes the morning's work. Cleaning is done twice a week, but it takes only two minutes more to sweep the floor and scatter a shovelful of sand and scatter a handful of straw under the brooder. The brooder has a wickless burner and the fount requires filling only about once a week, as we turn the flame out during the daytime. No one can complain of the work with the season's chicks when it can be done so easily. And to take care of 200 or 500 would require very little more time, providing they were all kept in one flock; a larger room to sweep, larger hoppers to fill, a little more grain to scatter. Not that I want you to believe that I think that this business requires no work or is all play, but I do want to insist that most of the unpleasantness and drudgery experienced by the majority of people can be eliminated in this day of conveniences."

"Do you furnish grit or charcoal in your feed or in any way?"

"No—I have always considered these things unnecessary when fowls and chicks have some range and have a variety of feed, including greens. Charcoal is only a regulator or cleanser and while it may be a good thing for fowls kept in small pens, I do not feel that a farmer's flock needs it. Grit can always be found where fowls range and the fact that our fowls and chicks never show any 'stomach troubles' convinces me that they are getting all they need; I always have clean sand for my brooders and if the chicks need grit they probably find it there."

I was rather surprised at the simplicity, (if I may use the word), of Mr. Carlson's methods and the fact that in spite of the lack of fuss so often seen in the poultry yard, everything was shipshape in the highest degree and cleanliness seemed so apparent that it was almost a fault. Certainly his chicks were happy, strong and hearty. I have myself thought that poultrymen are inclined to be too much slaves to rule, doing many things needlessly or in a cumbersome way. Here I saw things done in so simple and easy a way, and yet so very well done, that I am wondering if perhaps many failures are not due to this one thing; not only lack of knowledge of how a thing should be done, but lack of understanding that many things NEED NOT be done.

I found Mr. Carlson's hens laying 71- per cent during April and his records showed 68 per cent for March. This must be considered consistent laying, as his flock has been at it all winter, laying as high as 80 per cent on one day in January, showing that practically the entire number were in the lay during that month.—W. E. VAPLON.

Poultry Breeds for the Farm

What is the best breed of chickens for this part of the country? We are located on a homestead in eastern part of El Paso county. We are interested in chickens, turkeys, ducks and geese. —S. C., El Paso county, Colorado.

Your question as to the best breed for your country is difficult to answer except in a general way. You have undoubtedly received from Western Farm Life some bulletins, one of which describes the American breeds; for a general farmer no doubt one of these breeds is best suited. There are many varieties that one can easily satisfy his taste for color; the size is much the same, running from 6½ to 8 pounds in hens. Although I am not breeding the Rhode Island Reds, I consider them one of the very best farm fowls, maturing quickly and furnish a nice carcass at any age. However, if your likes run toward the Plymouth Rocks you can make no mistake in selecting one variety, either the White or the Barred being preferable. There is a good deal of thought and effort being given toward standardization of crops and livestock. It might be well to consider this in selecting new breeds of poultry. When a community can furnish a large quantity of good quality there will be a demand at good prices. The Bronze turkey, Pekin duck ann Toulouse geese are probably standard in Colorado.

WHITE LEGHORNS

Hatching Eggs and Baby Chicks

Do You Want Eggs and Big Profits This Winter?

Then get your hatching eggs and baby chicks from our strain of TOM BARRON ENGLISH bred-to-lay LEGHORNS, TESTED 9 YEARS for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for circular, prices and facts from customers before you buy eggs or chicks. It's free, write.

The Fowler Egg Farm, Fowler, Colo.

Save the Baby Chicks

Our book, "CARE OF BABY CHICKS," and a package of GERMOZONE are the best insurance against chick losses. Those formerly losing more than half they hatched now raise better than 90 per cent. To you who have never tried GERMOZONE, we will send postpaid, book and package as above. You pay, if satisfied, 75c; 60 days' trial. We trust you.

Druggists and seed dealers sell GERMOZONE, the best poultry remedy and preventive. For old and young.—bowel trouble, colds, roup, musty or spoiled food, limber neck, chicken pox, sour crop, skin disease, etc. Sick chicks can't wait. Do it now.

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Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

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S. C. BROWN LEGHORNS, EGGS 15 $1.25—100, $7. Mrs. E. L. Zeiner, Ramona, Kans.

S. C. BLACK LEGHORNS; STOCK AND EGGS for sale at all times. Harry Grimes, Chula, Mo.

SINGLE COMB WHITE LEGHORNS—YESTERlaid-Young strain; 108 eggs $5.00; chicks 15c. Mrs. C. C. Cole, Levant, Kansas.

EGGS, S. C. WHITE AND BROWN LEGHORNS; 15, $1.50; 50, $3.50; 100, $6.00. H. N. Holdeman, Meade, Kansas.

CHOICE YEARLING S. C. WHITE LEGHORN hens. Extra layers; reasonable. Mrs. Geo. Stephens, Overton, Neb.

PUREBRED SINGLE COMB BROWN LEGHORN eggs, $5.00 per 100. Manda Godard, Mound City, Kans.

EXTRA QUALITY S. C. BROWN LEGHORN eggs, 17, $2—50, $5. L. Hastings, Thayer, Kans.

S. C. WHITE LEGHORN EGGS, 15, $1.50—100, $6. Stock headed by 200-egg Yesterlaid Strain. Linna Seaver, Egbert, Wyo.

S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

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HATCHING EGGS FROM SINGLE COMB WHITE Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Rohert Shumway, Fountain, Colo.

FOR SALE—PURE-BRED WHITE ROCKS AND S. C. White Leghorn eggs for hatching, $6 per 100; $1.25 per setting. Lloyd Willeman, Central City, Nehr.

FAMOUS YOUNG STRAIN SINGLE COMB White Leghorns costing $20 setting, $7 hundred, $2 setting. Elsie Thompson, Mankato, Kans.

PURE BLOOD SINGLE COMB BROWN LEGhorns. Setting eggs from healthy range flock. $1 per 15; $6 per hundred, prepaid. Order today. C. O. Johnson, Boyero, Colo.

SINGLE COMB WHITE LEGHORNS. 95-96½ scores. Winners, layers. Finest eggs, cockerels. Reasonable; honesty. Mrs. Albert Ray, Delavan, Kan.

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"RUSSELL'S RUSTLERS," AMERICA'S FAmous Single Comb Brown Leghorns. Free catalog. Winners at largest shows. Eggs prepaid, $2.00 per 15 and up. Geo. Russell, Chilhowee, Mo.

WILKINSON'S S. C. W. LEGHORNS—BRED to lay. They also won all firsts and specials at Eastern Colorado show, January, 1919. Eggs, $1.50 to $5 per 15. E. C. Wilkinson, Box 94, Fort Morgan, Colo.

BREEDING OF BRED TO LAY SINGLE COMB Brown Leghorns in large quantities a specialty;; 50 for $4.00; 100 for $7.00; 150 for $10.00, prepaid. Cockerels, $3.00 to $6.00. Chas. Bowlin, Olivet, Kan.

BUFF LEGHORNS, BEST LAYERS ON EARTH. Baby Chix, not the cheap kind. 25c each. One or a hundred. Hatching eggs, $1.50 for 15, prepaid. You will he pleased with my stock. Champney, 25 So. Logan, Denver.

SINGLE COMB WHITE LEGHORN CHICKS, 15 cents; from world's hest strains, Young Smith and Ferris, from hens that pay $8 each per year from eggs. Layers, winners and payers, $5 to $25 each. Clara Colwell, Smith Center, Kans.

SINGLE COMB WHITE LEGHORNS. THE LAYing kind; the paying kind. No hucksters, hut genuine business hirds that fill the egg basket all seasons of the year. Standard bred, line hred and trapnested continuously. I breed from nothing hut the best. Selected for prepotency, size and vigor, and verified the trapnest route. Eggs, $2.00 per setting. Incuhator lots 8c each. Send for folder. J. S. Stever, Rock, Kans.

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WINTER LAYERS, BARRED PLYMOUTH ROCK eggs, $1.50 for 15. Mrs. Lon Edwards, 1105 Garfield Ave., Loveland, Colo.

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WHITE WYANDOTTE EGGS — PUREBRED. $1.50 per 15; $8.00 per hundred. William F. Holmes, R. R. 5, Gallatin, Mo.

BUFF WYANDOTTES—PRODUCERS, HEAVY laying Missouri Egg Contest Stock; heavy laying qualities; wonderful soft golden color. L. E. Jones, 2227 Mapleton, Boulder, Colo.

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EGGS. S. C. RED. TROPHY CUP, BLUE RIBhon winners. Get mating list. Mrs. John D. Shaw, Rt. 1, Atlantic, Iowa.

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STANDARD BRED REDS, EITHER COMB. "Hoganized" flocks, dark rich color, none better. Eggs, $7.50 per hundred. Special matings, $3.00 setting. Circular free. Edson Snyder, Butler, Mo.

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ROSE COMB REDS, FARM FLOCK; EGGS $6.00 per 100; special yard mating, $3.00 per 15. Single Comh Reds, eggs $2.00 per 15, $5.00 per 50; safe delivery and strong fertility, guaranteed. Free mating list. Mrs. E. C. Grizzell, Claflin, Kans.

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S. C. ANCONAS—FOR MORE EGGS TRY OUR Anconas, bred from the famous Sheppard strain which holds the world's records for egg production. They fill the hasket with large white eggs. Price, $2 per fifteen; $8 per hundred. Mrs. J. B. Shenk, R. F. D. 2, La Junta, Colo.

ANCONA HATCHING EGGS FOR SALE; PRIZE winning strain at the Heart of America and Kansas City shows; greatest winter layers from the largest stock west of the Mississippi. Our best, $3 setting; other pens, $12 per hundred; guaranteed 85 per cent fertile; now booking orders for haby chicks from March 1 and thereafter, $35 per hundred. J. E. Diveley, Diveley's Ancona Egg Farm, Excelsior Springs, Mo.

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ROSE COMB RHODE ISLAND WHITE COCKerels and hens, $3, $4; prize winning, trapnested, vigorous, large as Reds, mature earlier; eggs, 15, $2.00; 50, $5.50; 100, $10.00 Catalogue. Col. Warren Russell, Winfield, Kans.

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SETTINGS FROM PURE-BRED LIGHT BRAHmas. E. Grosser, 2238 Perry, Denver, Colo.

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DARK CORNISH BIRDS — PRIZE-WINNERS wherever exhihited. Best layers, most delicious meat. Adapted to this climate. Write or see J. B. Benedict, Prop., Wyldemere Farm, Littleton, Colo.

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BLACK LANGSHAN EGGS, 15, $1.50; 50, $4.50; postpaid. Elmer White, Sorrell, Mo.

SPECKLED SUSSEX EGGS FOR HATCHING. B. K. Hanhury, La Salle, Colo.

FOR SALE—PHEASANT EGGS; THREE KINDS $4.00 per setting, mixed. J. T. Graves, Bentonsport, Iowa.

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COCKEREL BRED BARRED ROCKS. WINNER Kansas and Missouri shows. Eggs, $5 per 15. Chas. Darnell, Topeka, Kans.

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty hest varieties. Modlins Poultry Farm, Topeka, Kan.

75 BLACK LANGSHAN COCKERELS. WON first ckl. at Illinois and Kansas state shows, 1919. John Lovette, Mullinville, Kan.

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PUREBRED BARRED ROCKS—EGGS IN SEAson, one dollar for thirteen; seven dollars per hundred. Peter H. Friesen, Lehigh, Kan.

BEAUTIFUL SILVER CAMPINES — 240 EGG strain—$8.00 for 100; $5.00, 50; $2.00, 15; large white eggs. Culvendale Farm, Red Oak, Iowa.

EGGS FOR HATCHING, SILVER CAMPINES, $3; Barred P. Rocks, $2; Blue Andalusians, $2; Single C. R. I. Reds, $1.50 for 15 eggs. John L. Miller, Arvada, Colo. Phone Arvada 10J.

PRIZE-WINNING BARRED ROCKS, SIZE AND quality. Tested layers. Eggs, 15 for $2.00; 50 for $6.00; 100 for $10.00. Jos. V. Beran, Verdigre, Neh.

WHITE ROCK, PURE FISHEL STRAIN EGGS for hatching; cockerels this year direct from Fishel stock also. Eggs carefully selected and well packed, $1.50 per 15; $4.25 per 50; $8.00 per 100. Mrs. Jack Cavett, Box 553, Bayard, Neb.

BLAKESLEE'S BRED-TO-LAY® PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

REV. LEE WHIDDON, BOGARD, MO.; ADVICE free; how any minister, teacher or farmer can make from $200 to $500 as side line out of fancy chickens and rabhits; stock and eggs from the best strains of White Wyandottes, Anconas, Black Minorcas; 200 eggs per year hens; eggs, $2 to $10 per 15; Buff Orpingtons, White Rocks, White Leghorns, Barred Rock eggs, $1.50 to $5. Chickens, $10 each; rahhits, Flemish Giants, New Zealand Reds, Belgians, $1 to $7.50 each; guaranteed tahlets to make your hen double egg production, $1 box.

BABY CHICKS

BABY CHICKS—YOU BUY THE BEST, GUARanteed alive, at Colwell's Hatchery, Smith Center, Kans. Shipped anywhere, 15 cents.

BABY CHICKS FROM LARGE BONE DARK Rose Comb Reds, mated to males from winners in egg laying contest. Hen hatched 16c. Mrs. Alex. Leitch, Parkerville, Kans.

COLUMBIA HATCHERY — ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will he service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

DENVER BABY CHICK CO., 2436 W. 43RD Ave., Box 1328 Denver, Colo. Booking orders now for quality hahy chicks. White Wyandottes, Buff Orpingtons, White Orpingtons, Rhode Island Reds, White Rocks and Barred Rocks and Leghorns. Strong and vigorous chicks from carefully selected, heavy-laying stock. Live delivery guaranteed. Prompt attention to all orders, large or small. Write at once for prices.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have heen making the Denver Incubators and hatching and selling hahy chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18. Why not huy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live. Hatching eggs, $7.50 per hundred. Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

DUCKS

RUNNER DUCK EGGS; $1.00 SETTING OF eleven; $3.50 for fifty. Mrs. Baker, Route 1, Arvada, Colo.

BUFF DUCK EGGS, $1.75 PER 12, PREPAID. Laylong strain. Mrs. E. C. Grizzell, Claflin, Kans.

PUREBRED BUFF INDIAN RUNNER EGGS, $1.50 for 15; duck and Leghorn; parcel post. Oak Grove Poultry Farm, Kell, Ill.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive hest in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver. Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—Pure-bred Ayrshire bull calf; price $75. Box 15, Gurley, Nebr.

FOR SALE—HIGH GRADE HOLSTEIN GUERNsey heifer calves; $24.00 crated or $30.00 express paid. Herbet Taft, Whitewater, Wis.

ABERDEEN ANGUS BULLS AND TWO YEAR old Percheron Stallions. R. R. Lucore, Arriba, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLhred Holstein bull calves from three to nine months old. Registered, high-producing stock, no hetter in Idaho. Intermountain Institute, Weiser, Ida.

HOLSTEINS—HAVING DECIDED TO QUIT milking, I will sell my 16 head of high-grade young cows, all real producers; also 14 head of yearling heifers. Prices right. W. P. Perdue, Carlton, Kans.

FOR SALE—SHORT HORN BULL, BETTER Goods 4th., 418157, four years old, color red, a prize winner at Denver Show in 1917 and 1919. Priced right. A good breeder. G. W. Ball, Pierce, Colo.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $150 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

BIG TYPE POLAND CHINA; BOAR PIGS, OLD enough for service; correspondence solicited. Gad Barney, Haswell, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender hoar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

REGISTERED BIG TYPE DUROC-JERSEY hogs for sale; September gilts and hoars; one fine July hoar. R. C. Van Scoy, Highland Sta., R. 5, Denver, Colo. Phone Arvada 105R2.

HORSES

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good hone, length and color. J. O. D. Ranch, Aroya, Colo. On U. P. R. R.

FOR SALE—ONE PAIR BLACK REGISTERED Percheron mares, both sure breeders and sound, good workers; average weight 1,775 pounds, both prize winners, age 12 and 8 years old. Price ior pair $800. For sale because we are not able to handle registered horses any longer. R. G. Douglas, Rush, Colo.

DOGS

REGISTERED COLLIE—MALE, WHITE AND sahle, three years old. Fine specimen, price $10. Fred Huff, Caddoa, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

EXTRA GOOD RECLEANED SHROCK KAFIR seed, $3.50 per hushel. Sample on request. J. P. Nachtigal, Buhler, Kans

SEED CORN, $3.00. NINETY BUSHEL KIND. Must suit or I will return money. Wiltse, Rulo, Nebr.

GOOD PINTO BEANS $6.50, AMBER CANE seed; $3.00, Dwarf Broom Corn; $4.00, all per cwt., in new bags, f. o. h. Lamar, Colo. J. W. Hoover, Joycoy.

BLACK AMBER CANE SEED, $3.00 PER CWT. Kaffir seed, $4.50 per cwt. Both 1918 crop, recleaned. Sacks free. F. E. Eakins, Oherlin, Kans.

WHITE SILVER MINE AND WHITE CATTLE King Seed Corn, 98 per cent vital. Order now; $5.00 per bu., f. o. h. John Lichty, Axtell, Kansas.

SWEET POTATO PLANTS — NANCY HALL, Southern Queen, Triumph, Porto Rico, Cuba Yam, 100-55c, 500-$2.25, 1,000-$4.00, postpaid. Ozark Nursery, Tahlequah, Okla.

BLACK CANE, 3c; KAFFIR, 4c; FETERITA, 5c; schrock kaffir, 7c; milo, 4c; red millet 5c; per pound. Early white seed corn, $4.00 per hu. Track Concordia, Kan. Sacks free. Bowman Bros. Seed Co., Concordia, Kan.

FLAXSEED—YOU CAN FIND A MARKET FOR large and small lots with Uncle Sam Breakfast Food Company, Omaha, Nebr., who will quote you full market price. Send samples and advise amount on hand.

RECLEANED SEEDS—ALFALFA $10.00 BU.; White Kaffir $2.00; Red Kaffir $3.00; Amher cane seed $1.75; Orange cane $2.25; Sumac $2.75; Schrock $3.00; common millet $2.00; Hungarian millet $2.25; Siherian millet $2.65; Milo $2.50; Feterita $2.50; Reid's yellow dent seed corn. $3.00; seed rye $2.00; Sudan $.20 lb., $18.00 cwt.; sacks free. We ship from five warehouses and save you freight; order right from this ad.; satisfaction or your money back. Liberty bonds accepted at par. Meier Seed & Produce Co., Russell, Kansas.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—TO HEAR FROM OWNER OF GOOD farm for sale; state cash price, full particulars. D. F. Bush, Minneapolis, Minn.

IF YOU WANT TO SELL OR EXCHANGE YOUR property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

WANTED—TO HEAR FROM OWNERS OF farm or unimproved land for sale. O. Hawley, Baldwin, Wis.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

WE LOAN OUR OWN MONEY ON NON-IRRIgated land. Write for particulars. The Eastern Colorado Farm Loan Company, 410 First National Bank Bldg., Denver. Colo.

10 SECTIONS CHEYENNE COUNTY LAND, $9 to $12.50 per acre; 10 sections Kiowa County land, $9 to $15 per acre. Write me for legal description, price and terms on any of these tracts. A. N. Mitchem, 305 Gas & Electric Bldg., Denver, Colo.

320 ACRES OR 160 ACRES, 8 MILES FROM Denver, $17.50 per acre; 10 acres adjoining Littleton for $2,500; 40 acres, half in alfalfa, well improved, bargain for quick sale; 1,100 acres, good place for cattle, $15 per acre. Sydney C. Osmer & Co., 308 15th St., Denver, Colo.

320 ACRES 1½ MILES FROM INTERURBAN station, close to Lincoln Highway; 13 miles from Denver; fine water right, 3 good lakes; 7-room house, good barn; 120 acres alfalfa; fine thorough stock farm close to loading station; only $140 per acre. B. J. Hockabout, 527 17th Street, Denver, Colo.

160 ACRES IRRIGATED LAND, WELL IMproved and a dandy farm, only 7 miles northwest of Denver; about 50 acres fall wheat and 70 acres alfalfa; 7 acres orchard; good house and barn and other buildings. This is a good place and worth $200 per acre. To settle estate will sell for $175 per acre. Terms. See Morlan, with the John M'Donough Security Co., 207-9 Central Savings Bank Bldg., Denver, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AGENTS—MASON SOLD 18 SPRAYERS AND Autowashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

NEGRO SOLDIERS IN WAR. BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

WANTED—AMERICAN WIDOW, WITH DAUGHter old enough to assist, aa housekeeper in village home where there are children. J. W. Curtis, Gardner, Colo.

U. S. GOVERNMENT WANTS RAILWAY MAIL Clerks—Men—Women 18 to 35. $1100 first year. Permanent positions. List Government Positions free. Franklin Institute, Dept. F 171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

IF YOU WANT TO MAKE A SATISFACTORY job of Canning all kinds of Vegetables, Fruits and Meats, by all means use an Alexander Home Canner, and you will never be disappointed. Thousands of people are delighted with the superior quality of the canned products. Canning Experts and Demonstrators say the Alexander Home Canners are the best Family Canners on the market. For prices and description write G. W. Alexander & Co., Plattsmouth, Neb.

PIPE — PIPE — PIPE — CASING. 4,500 FT. 2-inch std. second-hand black pipe. 6,000 ft. 1½-inch s. h. light weight black pipe. 1,000 ft. 3¾-inch s. h. casing. 2,500 ft. 3¼-inch s. h. casing. 1,000 ft. 10-inch s. h. casing. 1,000 ft. 9-in. riveted pipe. 600 ft. 18-inch riveted pipe. 3,000 ft. 22-inch riveted pipe. 1 mining whim, 1 Spence heater, 1 boiler feed pump. Get our prices on pipe not listed above. Havens Bros., 1622 Wazee St., Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES—Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

FARM MACHINERY

ONE-MAN SLING. CHANGES HEAVIEST HAYracks. F. Lovering, Fremont, Nebr.

FOR SALE—HAPPY FARMER TRACTOR, 12-24. L. A. Engle, Wiota, Iowa.

CABBAGE CUTTER SIX KNIVES—SLICES ALL kinds of vegetables rapidly. Fine for Saratoga chips. Prepaid $1.00, three for $.200; Agents wanted. Lusher Brothers, Elkhart, Ind.

Steamboat Gold

(Continued from Page 21)

—a swift change coming over his face. The darkness of the withered portion seemed to spread in it, drawing it, distorting it in horrible grimace out of all resemblance to its cast of a moment before. The man crouched like a creature gathering itself to spring; his limbs trembled; his eyes glowed green in bestial rage. His face, wrinkled like a snarling cat's, was blackly red with gorged blood; his thin red tongue-tip ran like a flame from side to side of his parted lips.

He was a creature possessed by a destructive passion—his human soul submerged in the wild raging of a beast. He began to creep forward, low-bent, his arms reaching out with stealthy uplifting, his mad eyes gleaming.

Randolph fell back a step or two, his revolver drawn. Amazement had displaced his first cold horror of the transformation. Langworthy's hair stood like the bristles of a wolf—like a wolf scenting hot blood, he whined.

A few seconds, Randolph was saying to himself, in a leaping, lightning stab of thoughts: "When he comes that far I'll shoot!" But before he came to Randolph's imaginary dead-line, Langworthy shook himself and stood erect again. His fearful hair sank down; the blackness cleared out of the fair half of his face. He stood panting, his thin, delicate nostrils flaring.

"Randolph," he said, his voice deep in his throat, thick with falling rage, "there'll be a settlement between you and me before long, and when it comes—when it comes!"

To be continued.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24TH, 1912, OF "WESTERN FARM LIFE," PUBLISHED SEMI-MONTHLY AT DENVER, COLO.—FOR APRIL 1, 1919.

State of Colorado, County of Denver. Before me, a notary public in and for the state and county aforesaid, personally appeared W. S. Edmiston, who, having been duly sworn according to law, deposes and says that he is the publisher of the Western Farm Life, and that the following is to the best of his knowledge and belief a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Name of publisher—W. S. Edmiston, Denver, Colo.
Editor—none.
Managing Editor—A. T. Steinel, Denver, Colo.
Business Manager—None.

2. That the owners are:
W. S. Edmiston, Denver, Colo.
A. T. Steinel, Denver, Colo.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contains not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholders or security holder appears upon the books of the company, as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect, in the said stock, bonds or other securities than as so stated by him.

W. S. EDMISTON,
Publisher.

Sworn to and subscribed before me this 3rd day of April, 1919.

EDMONTE O. HAFFNER,
Notary Public.

(My commission expires March 14, 1920.)

Gets Many Valuable Pointers

Riverton, Utah, Jan. 4, 1919.

Western Farm Life:

Your paper suits me fine. There is so much common horse sense to it and a great many very valuable points I cannot obtain elsewhere. Find inclosed $2 for five years.—N. H. Silcox.

"History's Greatest War"

A Complete and Authentic Story

BY S. J. DUNCAN CLARK

Correspondent and International World War Analyst

This book also contains special articles by JOSEPHUS DANIELS, Secretary of the Navy; JOHN J. PERSHING, Commander-in-Chief of our European Army; and WILLIAM S. SIMS, Commander-in-Chief of our European Naval Forces.

THE GREAT WAR UP TO DATE

It tells of the armistice terms, the Reconstruction of Europe, President Wilson's Attendance at the Peace Conference; the Second War in Europe, the Polish Drive on Berlin, and the Bolshevik contamination of Europe. The narrative is complete from the Demolition of Liege to the Signing the Terms of the Armistice and the Abdication of the Kaiser. It does full justice to the sacrifice, courage, steadfastness in the face of apparent defeat, of the tireless fighting men of Great Britain, France, Italy, Belgium, Serbia and the United States.

A Large and Well Illustrated Book

The complete book measures 8x10½ inches. It comprises 352 pages and over 345 illustrations, not including maps, etc. The illustrations include De Luxe Color-Gravures of President Wilson, Generals Foch, Pershing and Haig, a camouflaged gun and views of intense interest to be detached and framed, if desired. It is handsomely printed on ebony paper, with the illustrations printed on ivory paper. It is bound in rich, olive green cloth, silk de luxe grained. A very neat and substantial binding.

How It Can Be Secured

If you will send us a club of 3 two-year subscriptions to Western Farm Life at $1.00 each, we will send you as a reward for your efforts, all charges prepaid, "History's Greatest War."

Be sure to enclose money order, currency, or your personal check for $3.00 when you send in the club, so that there will be no delay in mailing the "History" to you.

YOUR OWN SUBSCRIPTION CAN COUNT AS ONE OF THE CLUB.

Western Farm Life **Denver, Colo.**

FOR SALE
Purebred Livestock

Herefords, Shorthorns, Holsteins, Jerseys, Aberdeen-Angus, Galloways

If you wish to buy anything in the way of purebred live stock write our live-stock department, stating what you want, and we will place you in touch with Colorado breeders that have just what you want. There are almost 1,000 Colorado breeders. We can find some of them that will have real bargains for you. Our services are free to our subscribers. Address

Livestock Department
1400 Arapahoe Western Farm Life
Denver Colorado

WESTERN FARM LIFE --- FREE

Get up a small club of WESTERN FARM LIFE subscriptions. Send us the names and addresses of the subscribers you have secured, together with the money you have collected, and we will send you WESTERN FARM LIFE, FREE, in accordance with the following schedule:

One year for club of 2 Subscriptions. Two years for club of 3 Subscriptions. Three years for club of 4 Subscriptions. Five years for club of 6 Subscriptions.

SUBSCRIPTION RATES

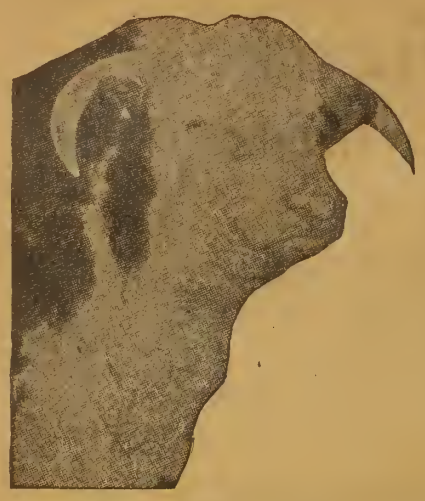
Two years, $1.00; Three years, $1.50; Five years, $2.00

Death Due to Over-Feeding

I recently lost a laying pullet which died on the roost in the morning. On examination it was found to be too fat and bloodless, all the blood having drained into the two blind ends of the intestine and clotted there. Would you consider this condition the result of too fattening a ration? —Mrs. R. G. W., Montana.

Losses in the way you mention are quite common in our poultry flocks, during winter, largely due I think to heavy feeding or lack of exercise. The fact that we feed our pullets very heavily during the winter months for egg production and that the older hens are loafing on the job during that time is the explanation. If we were always careful to induce strenuous exercise by throwing all grain into deep litter the hens could not be overfed so easily. The ideal plan would be to have the pullets and hens kept separate during the winter months, the hens to receive much lighter rations; then when the hens come into the lay they can be fed heavily with the pullets.

Farm Life Publishing Co.: Enclosed find bank draft for one dollar, for which please renew my subscription for two years to Western Farm Life. I read your paper with great interest. The dry farm articles are good ones and should be followed by all.—Frank G. Lindau, Columbus, Montana.



Majestic Sunbeam Herefords

Herd headed by "Majesty Sunbeam" by "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" by "Statesman". Dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM weighs 2,500 pounds. He is the biggest boned Hereford bull in the country.

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Also have several head of big-boned yearling bulls sired by Majestic Sunbeam, and a few yearling bulls sired by "Beau Andrew" from Majestic Sunbeam heifers.

If you are looking for best blood and quality and the biggest boned bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and bulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards DENVER, COLORADO

FOR SALE

Twenty head of full-blooded Poland China gilts by my great head boar, "Wonderking," bred to my great boar "Standard Darkness," the biggest boned Poland China boars in Colorado. Get in the hog business. Fifteen head White Leghorn cockerels one year old; Tom Barron and Ferris strains. Show birds, $2.50.

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE-BRED

Hereford

BULLS

We Have on Hand and For Sale

250 Head Yearling Bulls

100 Head Two-year-old Bulls

Good Bone, Colors and Markings
Fine Condition for Service

Write or phone us regarding these Bulls. It will be worth your while.

715 E. & C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

L. M. BOSTON DISPERSAL SALE

Wednesday, May 28th, 1919, 11 a. m., at Sunny Flats Holstein Farm, six miles south and four miles west of Denver, Colo.; four miles west of Englewood on Morrison and Fort Logan road.

50 Head of Holsteins

30 Head Registered Cows and 5 Head of Registered Bulls

15 Head of High Grades

In this sale you have a chance to buy world's record breeding and show ring winners. Herd headed by Senior Champion Bull of last National Western Stock Show. Catalogs will be ready by May 10th. Auto service from Englewood to the ranch.

L. M. Boston, Owner, Mt. Morrison,, Colo.

Col. G. M. Banks, Auctioneer, Denver, Colo.

Col. H. E. Buchanan, Ring Man.

Edgemoor Farm Durocs

Our spring litters are the best we have ever raised on the farm. Every spring pig which we will offer for sale is sired by a prize-winning boar and out of a prize-winning sow. We can sell you a boar or gilt good enough to show at the State Fair this fall, or the Denver Stock Show next winter, and which will make money for you as a breeder. Put in your order early. Prices reasonable and satisfaction guaranteed.

Edgemoor Farm

CALDWELL MARTIN, Owner

Littleton, Colo.

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Durocs am sold down to November pigs. They are sired by a son of Top Sensation.

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion,
Chicago, 1917
Denver, 1918
and 1919

Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

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Livestock Field Notes

The Pahgre Valley Ranch, Montrose, Colo., are offering some highty good Holstein bull calves at the present time. These calves are of excellent breeding and are priced from $150 up. See their announcement in this issue.

Those wishing young Holstein bulls of the King Segis De Kol Ormsby and Pontiac breeding will find a select offering by W. A. Purvis, Johnstown, Colo.

The City Park Dairy Farm, Denver, Colo., is offering for sale some high-grade Holstein cows. See their announcement in this issue.

Those in the market for registered Duroc hogs will find an announcement in this issue from Dr. F. T. Daly, Cambridge, Nebr. His hogs are of excellent breeding, and he can supply most anything that is wanted.

Five registered Holstein bulls and eighteen very high-grade Holstein cows and heifers are being offered by R. G. Douglas, Rush, Colo. See full particulars in his announcement in this issue.

Thirty head of registered cows and five head of registered bulls and fifteen head of high grades will be offered at public sale by L. M. Boston, Sunnyflats Holstein Farm, Mt. Morrison, Colo., Wednesday, May 28th. Mr. Boston's herd is headed by the Senior champion bull of the last National Western Stock Show. Col. G. M. Banks will conduct the sale. See his sale announcement in this isssue.

Readers of Western Farm Life who are in the market for Poland China hogs should write A. J. Campion, care Sigel Campion Live Stock Commission company, Union Stock Yards, Denver. He has the big-bone type. See his announcement in this issue.

Two hundred and fifty yearling Hereford bulls and 100 head of 2-year-old Hereford bulls are being offered for sale by the Platte River Cattle company, 715 E. & C. Bldg., Denver. See their announcement in this issue.

The Cornforth Live Stock company of Elbert, Colo., sold some fine Shorthorn cows at top prices at the big sale at the Denver Stock Show arena April 30th. Mr. Cornforth recently returned from an extended visit to fifteen breeding farms. He has for sale some more of the high class get of Cedarbarons Best 497572 and Sultan Goods 716615. The former by Robert's Goods out of Cumberland Lady, the latter out of Whitehall Sultan and Choice Goods breeding.

Chicks Need Beef Scraps

Have you ever bad any experience with brooder chicks eating each other? Ours begin by picking the others toes and wben they start to bleed, they all try to get a hold. We have never had them eat a whole chick but imagine they would if we didn't take the injured chick away. We try to keep them busy scratching for their feed in straw and they have access to bran all the time in self-feeders. Is it because they need meat or get idle that causes it? They are a week old and we have not given them any meat yet. There is charcoal, oyster sbell and sand in tbe brooder house for them any time they want it. If tbey need meat, bow much should be fed to a flock of 300 chicks?—Q. E. B., Larimer county, Colorado.

The trouble you mention of baby chicks picking each others toes is a very common one. I think if you furnish plenty of animal food you will have no more difficulty. I am giving mine beef scraps once a day all they will eat up clean. After the chicks are a couple of weeks old you can safely leave the beef scrap before them all of the time.

Please find enclosed check for $2.00. Send me Western Farm Life for five years and the book "Practical Farming," library cover (prepaid). Western Farm Life is just the stuff for western farmers. I need the paper—Albert M. Williss, Abbott, Colorado.

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TWIN CITY

12-20 Kerosene Tractor with 16-valve engine

Western Farm Life

DENVER, COLO.

THE MOUNTAIN STATES
NATIONAL TRACTOR
DEMONSTRATION
DENVER, COLO.
JUNE 9-14 — 1919

June 1, 1919

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A Western Magazine for Western Farmers and Stockmen

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Largest Circulation of Any Farm Magazine in the West

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Runs Six Thousand Acres With Tractor Power

AN INTERVIEW WITH THE PREACHER FARMER OF WELD COUNTY

ALVIN T. STEINEL

SOME men are called to preach the gospel; some are impelled by natural bent to farm; but few there are who have the double mission of growing bread for the physical man and breaking spiritual bread to satisfy the hungry soul. These talents are combined in Rev. W. L. Cline, pastor of the First Christian Church of Greeley, Colo., whose farming operations cover 6,000 acres of non-irrigated wheat land in northern Weld county, in the vicinity of Nunn. There, at an altitude of about 5,500 feet, and under an annual rainfall of approximately 15 inches, he has been helping the nation by producing bread grains without neglecting his duties as a minister. In truth those of his congregation with whom the writer talked, say he brings to the pulpit a freshness of viewpoint born of his daily contact with the soil and the problems of agriculture, that gives his sermons life and distinguishes them from the dry rote of the theologian who does not have opportunity or taste for tackling food production on the prairie.

But this is not to be a disquisition on Pastor Cline but an interview with Farmer Cline, whose seven years of exclusive tractor farming constitutes a fair basis of judgment of the value of automotive power in agricultural production. Six thousand acres is a big job for any one man to tackle. About one-half of this acreage constitutes Mr. Cline's own farms, and on the balance crops are planted, tended and harvested at custom rates for others. At first, farming was of a more diversified character, wheat, flax and millet being the chief crops, but when a world at war demanded bread, operations were changed so that wheat exclusively is now being grown. Like others, Farmer Cline is learning by experience and one thing that he has been taught is that winter wheat, grown on summer fallowed land, yields the best returns, season for season.

"How do you manage to get along without the use of horses?" was asked.

"I couldn't get along at all with horses, if I had them," was the response. "Our operations are based on mechanical power exclusively and we could never attempt, let alone accomplish, what we have done if it were not for the development of the modern tractor."

Rumley Oil Pull machines have been adopted for use on the Cline farms. Plowing is done with big 30-60's, pulling six to ten plows, and the lighter operations, including harrowing, drilling and heading at harvesting time, with 16-30's. After the crop has been harvested and threshed it is hauled to the railroad with auto-trucks, the 2 ton capacity having been found most satisfactory, although larger trucks have been used at times.

At present 3,000 acres of land is passing through the summer fallowing process, to be sown to wheat in early fall, while 1,400 acres of wheat on fall plowed land is getting along toward harvest time.

"What about the time when the price guaranty will not apply; do you intend to contine growing wheat?" was asked. The reply was:

"Yes, we expect to keep on raising wheat, which is a staple crop and will bring a good yield if put in on summer fallow. When the guaranteed price goes off the cost of labor and other things will come down accordingly, and we will still be able to grow wheat at a profit in the way we are handling the crop."

The soil on the Cline farms is by no means easy to handle; it is red clay which, while adaptable to wheat, has a tough sod and takes pulling power for preparation. Sod plowing is done to a depth of 6 inches—and six means six, not five or less, on the Cline farms. For old ground the rule is 8-inch plowing. Disk plows are used.

"Why do you use disk instead of moldboard plows?"

"We find the disks do the work. With our power they go to the right depth and cut up the soil. The tractor that pulls the disks is at the same time dragging a roller that weighs a ton, which crushes the clods and levels the furrows so that the soil can't dry out. The next operation is harrowing, which is done with the lighter tractors pulling peg-tooth harrows. We start plowing for the summer fallow about the first of April and keep the machines going till the last of June before the job is all finished. After the ordinary harrowing we go over the land with a double disk harrow to keep down weeds and conserve moisture. Then about the last of August, we start drilling in the wheat, which keeps us busy till the end of September."

"What is the effect of packing by tractor wheels when you are operating the drill?"

"If there is any noticeable difference where the wheels go it is for the benefit of the crop; such packing is a help and not a drawback. We have had some trouble with wheat blowing out by winter winds, but we don't have that blowing where the soil has been packed by the tractor wheels."

"What is the difference in cost between plowing as you do with tractors, and horses, if you could use them?"

"I think it is fully one hundred per cent in favor of the tractor under our plan of operations. In fact, we could not do what we are doing with horses; if it were not for tractors we would not be in the business."

That last statement is significant. It simply means that if it were not for tractors in use on American farms, and under such able business direction as is the case on the Cline farms, there would have been more hunger and famine in Europe during the war.

The farms on which machines have done work under Mr. Cline's direction, have outyielded the general dry land farms on wheat by many bushels. One field, covering 320 acres of winter wheat put in on summer fallow in 1917, gave a yield of 36½ bushels per acre. That means nearly 12,000 bushels of wheat from half a section of land. In gross revenue from one crop about three times the amount such a half section could have been bought for before the war.

Some interesting figures are given as to comparative costs of horse and tractor labor for the lighter operations, as of heading for example. Before adopting the tractor to push the headers that part of the work was done on the custom plan, for which Mr. Cline paid at the rate of $3 to $3.50 per acre for heading and stacking. Last fall he used the small tractors and, after allowing himself $20 a day for use of the engine, his cost was just 95 cents per acre. And this does not take into account the greater speed with which the heading was done.

"How much work can be done in a day with tractors?" was asked.

"We plow and pack with the roller, using one outfit manned by two men, on an average of 20 acres a day."

"How long would it take with horses to do the same job?"

"Using four horse teams, it would take 28 horses and 7 men to handle the same job and then it would not be so uniformly well done, because the horses would not be steady on the pull. We can easily double the acreage plowed for the same money with tractors over horses. In fact, covering a job lasting 60 days, I would say we can do three times the work for the same money with tractors, because they can deliver the same amount of work day after day and hard plowing doesn't stop them nor slow them up as it does horses."

As to cost of operations, Mr. Cline has figures which give an indication. His rate for custom work in plowing, seeding, harvesting and putting on the cars a crop of wheat (based on an average of about 20 bushels per acre), is $12 per acre, and on that he makes a fair profit. The twenty bushels average is low, as the Cline farms have been going all the way from 18 to 36½ bushels on average yields for a period of years.

As to fuel, distillate is preferred, and the books show that fuel consumption during plowing runs about 3 gallons to the acre.

The men on the machines are mostly trained young farmers who have acquired the knack of tractor operation by experience on the Cline farms. Mr. Cline says that a good deal of tractor inefficiency is due to lack of knowledge of proper operation, and, also, because many tractors are not built for practical use. He is inclined to split fifty-fifty on the two causes when asked why so many machines do not seem to last, and why so many farmers seem to be in continual trouble with their tractors. One gathers from his discussion of the matter that nothing is done in haphazard fashion on the Cline farms and that preparedness is the reason for cutting delays to a minimum. Good management tells the story and farming with automotive power succeeds in no other way, but succeeds mightily when rightly directed.

Tractor Production Figures

A production of 314,936 tractors in the United States in 1919 is estimated by manufacturers reporting to the office of Farm Equipment Control, United States Department of Agriculture. The reports obtained in a special inquiry by the department show a production of 132,697 tractors in 1918. The manufacturers gave the number of tractors of different sizes manufactured last year and estimates of the number of each size that are being made this year, as follows:

Number on hand December 31, 1917	15,525
Number manufactured during 1918	132,697
Number sold in the United States during 1918	96,470
Number sold for export during 1918	36,351
Number on hand December 31, 1918	15,401
Manufacturers' estimate of production for 1919	314,936

Rev. W. L. Cline overseeing a job of sod breaking with disks followed by clod crusher

Power Farming Under Mountain States Conditions

ANALYSIS OF TRACTOR PROGRESS BY AN AGRICULTURAL EXPERT

ALVIN KEZER, Chief Agronomist Colorado Agricultural College

THE questions naturally asked by the land owner are these: Can the tractor replace horses as a source of power on the farm; if so, to what extent? How reliable is the tractor? How expensive is it of repairs? What does it cost in upkeep? All these questions are pertinent but not all of them can be answered as yet.

The day of power farming is here. It is here because the world needs more food. The war and recent industrial development have made it necessary to produce greater quantities of food with less human labor. The only alternative is the application of more power. One of the best answers to some of these questions is what has actually taken place.

The greater demands for food stuffs has also made the cost of the horse power delivered by horses a great deal higher than was formerly the case. It takes on the average, several acres of land to keep every work horse in feed and it takes just about as much feed to keep a work horse which is idle half of the year as it does to keep one which works practically the complete year. In 1917 and 1918 it cost from $85 to $95 a head to maintain a young growing colt or a horse not working where pasture was available. If a proper charge is made for pasture, this cost would be somewhat increased to the extent of the value of the pasture. Horses actually working cost from $250 to $285 per head per year for the two years. These costs include horses kept in the barn and fed at all times.

We do not have at hand adequate figures on the cost of doing various farm operations with tractors and cannot have exact figures because of fluctuating conditions, because the tractor game is new and we do not yet know the average amount which should be charged off for repairs and depreciation, but we do know that the cost per acre of doing farm work with horses has risen very materially with higher prices of products, while the cost per acre of doing work with tractors has not advanced in the some proportion. In some respects, the cost per acre of doing farm work by tractor has decreased. While the tractor itself is more expensive than formerly, and fuel is higher in price, tractors are mucb more reliably built than they once were. They do not require as frequent repairs; the depreciation is less and the amount of time lost while repairs are being made is much less than formerly. The tractor, for certain types of work, has one very decided advantage over horses. When the tractor is not in operation, it is not consuming feed. Its only expense in idle times is the expense of interest and housing. Horses at idle times require daily care, daily feed and housing.

Farmer's Peak Load Periods

Practically all farming operations are limited at one time or another by the amount of crop, or the amount of land that can be handled at certain periods. A farmer cannot successfully plant more crop than he can prepare a seed bed for. He cannot harvest more crop than a limited amount of labor can care for in the short period of harvest. In other words, the farmer runs into what the engineer calls peak load periods. His farming operations are limited by the amount of land or crops which he can handle at these peak load periods. Horses, no matter how efficient they may be, are limited as a source of power, because they must only be worked a limited number of hours per day. The tractor in peak load periods can be operated twenty-four hours a day. This fact enables the power farmer with a tractor to prepare his land more nearly at the time it should be prepared: to handle a larger amount of land in the preparation for a crop. It likewise enables him to enormously increase the peak load which he can carry at harvest. These facts, when applied in farm practice, enable a unit of farm labor to very greatly increase the productive possibilities. If horse-power and tractor-power cost equal, tractor-power would increase in use on the farms because of this development. That is because the tractor enables the same or less farm labor to produce a greater number of tons of hay or bushels of grain.

How has the tractor as a source of power developed in Colorado? Tractors have been used in Colorado for a number of years. Few, if any, definite attempts to determine the extent of that use were made until in 1916, when careful surveys were commenced. When the reports of the first survey were tabulated in September and October, 1916, there were about eight hundred tractors in Colorado. By the close of 1918 there were fully three thousand tractors in the state. This development has come in direct response to a need of greater production by the use of the same labor. In other words, we have reached an era of power farming where gasoline, oil and steam are furnishing the power instead of human hands. Even where horses have not been partially abandoned, the size of horse teams has increased in response to the same demand for increasing power in the hands of a single workman. In one case the increase in power was obtained by the tractor; in the other case by added horses.

Up to very recent time, probably the last three years, horses have been able to do farm work more cheaply than tractors. During the last three years there is but little or no difference in the cost, with the doubt in favor of the tractor where conditions were favorable for tractor use. Even prior to the high food and feed price period of the last three years, the tractor was a more efficient instrument for carrying the peak load of farm work than horses, because it could be forced to a greater extent through limited periods and because it would not consume feed during the idle periods.

Some Farms Without Horses

At first, it was a question of whether tractors would be simply useful in replacing horses for peak load periods of work. Now it has become a serious question on many farms as to whether tractors cannot almost entirely replace horses as a source of power. During 1918 there were a few farms in northern Colorado which were operated entirely without horses. These farms were irrigated farms growing sugar beets. Two types of tractors were used on the farm; one heavy type to do the plowing and beet hauling, plowing out and other heavy work, and the other type a cultivator or light tractor which operated the cultivating machines and marketing machines. There are a great many farms upon which tractors cannot yet replace all horses but the fact that there are a few irrigated farms where horses have been entirely replaced by tractors is evidence that the tractor is increasing in possibilities of application. The farmer naturally wants to know how reliable the tractor is. There is no doubt the reliability of the tractor is being increased as the manufacturers gain knowledge and experience in the shortcomings of their machines. There are tractors in Colorado today owned and operated by farmers which have been in use continuously for five or more years. The newer types are more reliable than the older types. More improvement will soon be made as manufacturers learn how to correct some of the present deficiencies.

Many questions arise as to who can run a tractor. American farming has been machine farming for years, so that practically all farmers and farm boys are familiar with operating machinery. Not every farmer is capable of operating tractors. Neither is every farmer capable of handling horses. In the present day, nearly every farmer is familiar with the gas engine, either as a stationary gas engine or an automobile gas engine. The tractor engine is no more complicated.

The last few years with tractors in Colorado has brought out the fact that the most successful tractor operators are farmers and farm boys. In the first place, this class of operators permitted factory adjustments to remain on the tractors, only making changes when repairs were necessary. Many of the so-called expert operators want to "tinker" their machines and consequently the tractor is almost continuously out of fix. In the second place, many of the so-called expert operators know nothing at all of farm machinery. The farmer and farm boy know how the various machines must be adjusted to do their proper work. The farmer and the farm boy learn the operation of the tractor much more quickly than the so-called expert learns the adjustment and hitch of the farm machinery.

Can Operate More Land

Can more land be operated with the use of the tractor? Unquestionably more land can be operated by the use of the tractor. This has been amply shown by experience in the last three years in Colorado wherever the tractor was adapted for use. On some irrigated farms the topography is such that the tractor cannot be profitably operated. Some lands are too rough for the successful economical use of tractors, but on lands adapted for the use of the tractor, tractors enable the same labor to do more work; do that work at a more seasonable time, thus increasing the size of operations of the farmer.

Very rough land, swampy land or heavy seeped land, land covered with stones are often not well adapted for tractor use. On such lands the attempt should not be made to replace horses with tractors, because advantage cannot be taken of the ability of the tractor to do more work.

A few years ago, growing of colts in connection with farm operations represented a real source of revenue. For the last three or four years, in intensive farming communities especially, it has cost more to grow a colt than he was worth after being grown. This tendency of prices will probably force colt growing to the range districts and assist in keeping the number of horses to a minimum. When colts were a real source of revenue to the grower, extra horses for doing extra work could be kept in shape of brood mares. The brood mares can be doing work in extra periods and be raising colts in the idle periods. With the partial removal of this source of revenue, the tractor becomes increasingly important as a means of reducing farm expenses, especially the cost of feed to idle horses during idle periods. The tractor can do more than replace horses for such purposes. It can carry the idle periods more cheaply. In addition to field operations such as plowing and harvesting, the tractor furnishes a source of power which may be utilized in other operations of the farm such as running the ensilage cutter, pulling the road grader, operating the small farm thrashing machine, obviating the necessity for waiting for the large custom thrashing outfit.

Concerning Types of Tractors

There are many types of tractors on the market. These may all be classified under a small number of headings —the wheel type and the caterpillar or crawler types. Each type has its advantages for special work. The wheel types are simpler and as reliably made, requiring less repairs than the caterpillar types. On the other hand, the caterpillar types can be used in some locations and for some work where a wheel type is not at all adapted. One source of difficulty with the caterpillar types has been the necessity of repairing treads or tracks. These repairs cost money in themselves and sometimes had to be made when the tractor should have been in use. In other words, the cost of repairs had to include time lost as well as the items of repair. These deficiencies are being rapidly corrected by the manufacturers, however. The caterpillar type has greater traction than any of the wheel types. It can work on sandy land and wet, boggy land, where a wheel type cannot be operated at all. The greater traction and the low weight per unit of soil surface are all very decided advantages, especially for working on plowed lands.

Of the wheel types there are in operation one, two and four-wheel drives.

(Turn to page 46)

Preparing the seedbed on Fred Gardner farm, near Watkins, Colo.

Why He Likes Tractors

This illustration shows a tractor at work on the farm of Fred Gardner, near Watkins, Colo., putting the ground in shape for seeding spring grain. In the same field there was a team of mares at work pulling a drill. Mr. Gardner was on the drill, while a young man sat on the tractor seat.

"You seem to be operating your farm with both mechanical and animal horse power," said the man who took the picture. "Which kind do you prefer?"

"Well," replied Mr. Gardner, "these mares I am driving are all right, but since I have had the tractor I don't want to go back to farming with horses alone. You see what a pickle I would be in this spring if I didn't have the tractor. These mares are heavy with foal and if I didn't have that machine I would either have to work the mares beyond a reasonable time, or leave a lot of spring work unfinished. It simply means that I could not farm on as big a scale as I am doing, or that if I did, I would have to use geldings and I wouldn't have the benefit of colts, which helps the horses pay their way.

"Here is another thing. Summer is coming on and heat and flies are a great bother to horses out here on the plains. I can keep the tractor going early or late, even run it at night if I want to, and it won't kick about heat, flies or fatigue. Take it this season, because I have the machine I am able, without much extra help, to farm 350 acres of land. Last season I had 200 acres which I handled principally with the tractor. You may say for me that I find the tractor of immense help to the dry land farmer. I wouldn't be without one again."

Seven Bushels Per Acre Added To Wheat Yield

WHAT THE TRACTOR IS DOING ON THE FARMS OF WYOMING

T. S. PARSONS, Extension Agronomist University of Wyoming

A WYOMING ranchman recently said that it would not pay him to purchase a tractor as he had plenty of horses and the most of his work was harvesting his hay crop. He was undoubtedly right. A dealer suggested that the tractor might be used for pulling the mowing machines, hay loaders, rakes, etc., but this would not be practicable in many of the native meadows of Wyoming as they are often rough and boggy. . On upland meadows and alfalfa fields, however, the tractor might be used to some extent in place of horses, but if there is little or no plowing to be done on the place it will probably be better to stick to horses entirely. Where there is as much as 40 acres of plowing to do the tractor will pay, if it is used as it should be for other work on the farm.

It is where large areas are farmed extensively that the tractor finds its greatest use. Throughout the so-called dry-farm section, where large-sized machinery is used, the tractor can be utilized to good advantage. It may also be used to good advantage on large irrigated areas. On the small irrigated unit, however, it is doubtful if the tractor is a paying investment, unless it can be used for other work than plowing, harrowing and seeding. Of course there should be power on these farms either in the form of tractors or stationary engines to grind feed, pump water, and to do other kinds of farm work.

The tractor is becoming very popular in the dry-farm sections of Wyoming. Here it is considered cheaper than horses and better work can be done in plowing these dry lands where the machine is properly handled. In the dry-farm sections it is necessary to work large areas of land at minimum expense. This can be done better with tractors than with horses. The deeper plowing that can be done with the tractor conserves more moisture and gives better yields. It has been demonstrated that deeper and better plowing can be done with the tractor than with horses and at less cost.

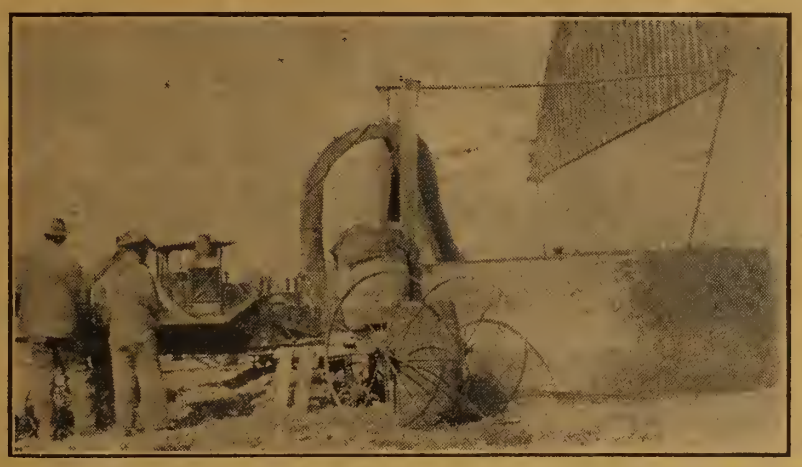
J. W. Shayne of Platte county, Wyoming, plowed a half-section of land for F. Conrad near Chugwater with a 12-25 Mogul tractor. A harrow was attached behind the plows and 50 cents per acre was paid for plowing and harrowing. This land produced four and one-half bushels more wheat per acre than the half-section adjoining where horses and mules were used to draw the plows. The next year Conrad paid Shayne $1.50 per acre for plowing and double harrowing the same land. This year the half-section produced seven and one-half bushels per acre more than the adjoining section worked with horses.

The reasons for the increased yields on the tractor-plowed land were deeper plowing, better pulverization of the soil and better moisture conservation. Mr. Conrad is enthusiastic for the tractor and says he will have no more plowing done with horses. The cost of the above plowing was 40 cents per acre for fuel and 50 to 60 cents per day for keeping the plows sharp. It is very essential that the plows be kept sharp if good work is to be done. Some farmers prefer the disk plow, as there is less trouble in keeping it sharp, but it is doubtful if as good work can be done as with the moldboard plow. Messrs. Conrad and Shayne both prefer the moldboard plow and the tractor that will pull three or four plows. Most of the tractors that are being purchased in the dry-farm sections of Wyoming are the two to four-plow size.

The size of tractor to purchase will depend on the size of the farm and the kind of work to be done. The very large outfits are no longer used except on the largest ranches. Since the number of days a tractor works during the year and the kinds of work it will do largely determine its value, one large enough to do the plowing, disking and seeding, as well as the other necessary field work, should be purchased. It should also be large enough for feed grinding, silo filling and pumping, or any other work on the farm that a tractor should do.

A tractor that will pull three plows in any kind of soil is a good size to have on the 160 or 320 acre farm. The two-wheeled drive is better than one, and if the land is low and inclined to be wet the caterpillar type will not mire so easily. There may be cases where the two-plow tractor can be used to advantage on the smaller farm. Tractors do not hold up to their rated horse-power at the higher altitudes. This should be kept in mind when purchasing a tractor. A tractor used at the Wyoming station a few years ago that was supposed to pull five plows would only pull three in ordinary soils. The way in which a tractor is handled, however, determines largely what it will do. It takes some mechanical ability to run a tractor successfully, although most of them are now as nearly "fool-proof" as it is possible to make them.

The make of tractor to purchase will depend on the purchaser. A man will generally do better with the one he likes the best. There are now many good makes of tractors on the market and most of them will work all right if handled properly. There are certain things, however, that should be kept in mind when purchasing a tractor. It should be simple enough in construction so that the hired man or the boy with ordinary intelligence can run it; it should be of a standard make, so that extras can be obtained quickly and with little trouble; and it should be one that the manufacturer and dealer will stand behind all the time and be ready to render service and to make good any defect. The farmer should expect and receive as good service in the way of repairs and extras for his tractor as for his automobile. The tractor should also be one that will replace four or six horses and not cost more than the horses displaced. It should at the same time be able to do the work of at least six horses in the field.



Filling a pit silo on Japke farm, Laramie county, Wyo. Tractor furnishing power for the outter

Use of Sunflowers For Cattle Feeding In Europe

CRUDE METHOD OF ENSILING THE PLANT COMMON IN OLD WORLD

DR. L. S. DIJKSTRA

SUNFLOWERS, helianthemum, tournsol, or what other name this half plant, half bush may have was known among the old Egyptian peoples. This among others enjoyed the privilege of being a "holy" plant. In many old Roman inscriptions and on old Roman escutcheons we find it also. The plant is widely spread in middle Europe, Asia, Russia, etc., and exactly as we raise crops of corn or grain here, sunflower crops are raised there on a big scale and perhaps have been for centuries.

The crops are raised for two purposes, viz., for obtaining the seeds and stalk, and for forage for livestock, mainly, however, for the seed. The seed is sown exactly as corn, in rows, so that it can easily be cultivated. When the plant is ripe, it is mown and shocked. The seed goes to the mills and the stalks to paper factories, so that nothing of the dry plant is lost. The seeds are pressed into cakes, after a good deal of the oil has been extracted, so that we find a good many sunflower seed products on the European markets, such as sunflower seed oil, sunflower seed hulls, sunflower seed cake meal, exactly as is the case with cotton here. As to the use that is made of these products, the cakes and meal are fed to stock in quantities of six to twelve pounds a day. They form an excellent feed for dairy cattle, not communicating any injury to taste of milk or quality of butter. As a forage crop, the seed is sown broadcast, or in narrow rows. It is cut before flowering, so that the stems are still palatable. If not dried to hay the green crop is fed in wilted or cut condition, but here it should be remarked that cattle have to get accustomed to eating it. In wet seasons, or difficult labor circumstances, the green plants are cut high, so that a high stubble is left, and immediately after cutting, piled up as wet as possible and afterwarls covered with a heavy layer of sod and clay. This is only done, however, when the plants are still very tender. If the stalks are already hard and no cutter is on the place by which the plants might be cut to two-inch pieces, making a good packing of the mass impossible, little good may be expected of the piling up.

According to Professor Kuhnrade, however, the cutting and piling up of the plants in a young state, gives an excellent feed during winter time. He advises at the same time that the packing can never be too heavy and that by preference the cutting of the plants should be done long before budding. The daily quantity of this feed fed to dairy stock may be 20 to 30 pounds, in addition to sufficient hay and some grain. Hogs will not do well on this feed, as it was observed that the bacon from hogs fed sunflowers was rather oily. The following table of Professor Fleischmann and others shows the amount of digestible nutrients in 100 pounds.

	Protein, Lbs.	Carbohydrates, Lbs.	Fats, Lbs.
Packed or ensiled young sunflower plants	1.2	6	0.4
Sunflower seed	12.8	10.3	30.7
Sunflower cakes	35.5	14.7	11.1
These analyses compared with some of our American feeds show:			
Corn silage	1.4	14.2	0.7
Alfalfa hay	11.1	39.1	0.6
Corn chop	7.8	66.8	4.3
Cottonseed meal	37.6	21.4	9.6

Ensiled sunflower plants are not so nutritious as corn ensilage; the seed is very rich in fat; the cakes are very rich in protein and make an excellent feed. These cakes are very hard and not apt to spoil. It should further be remarked that the European plants are much higher and bigger than the kind we find here in general, as a consequence of long selection. I believe, however, that where it is possible to raise corn, this should of course, be given the preference to sunflower ensilage. Sunflowers can stand the drouth very long and do not require rich soil, but as with any other crop, the cultivated sunflower requires crop rotation, as is done in middle Europe. Crop rotation is less required for plants that grow wild in nature, but as soon as man selects and takes care of them, they want man's help to keep up their new state. A good rotation in Europe is sunflowers the first year, then rye is sown in the fall, and early in the spring lupines, vetch, clover or any other leguminous plant, sown in the rye at the rate of 10 to 15 pounds. The rye and clover are cut early, or sometimes eaten down by cattle the following summer. Then the crop of clover and volunteer rye is fine for livestock the next year.

Tractor on Stony Land

A tractor with the right equipment should not be affected by rocks, stumps, or soil conditions of the field in which it is to work. In fact, the tractor can do its work under such conditions without any difficulty, but the success of the outfit depends on carefully and wisely selecting the kind of implement, especially the plow, that is to be used in connection with it. There are plows made for plowing rocky land; they are especially designed for that purpose. There are engine plows made of the independent beam type. These should be used where rigid frame type plows are not practical. The rigid frame type of plows are cheaper and meet many western conditions admirably. Independent beam plows with narrow points, more angularlity to the share and a shorter share are decidedly more practical for stony land.

Tractor Work on Slopes

There is a limit to the grade or slopes on which a tractor can be used satisfactorily, the same as there is with animal power. In this connection it is well to note that every 1 per cent rise in grade—that is, a rise of 1 foot in 100 feet—adds 1 per cent of the weight of the tractor and plows to the draft. In other words, if a tractor and plows combined weighed, say, 4,000 pounds, a 1 per cent grade would add 40 pounds pull or draft to the tractor; a 10 per cent grade would add 400 pounds; in fact, a 1 per cent grade would cut down the available power of the tractor to pull plows to the extent of 40 pounds, or a 10 per cent grade to the extent of 400 pounds. The same thing is true with animal power, as every one who has had experience with horses has probably observed that even a small grade will require the horses to work considerably harder when plowing or pulling any other kind of machine.

Utilization of Beet Tops In Fattening Steers

PULP, TOPS, CORN SILAGE AND OTHER FEEDS COMPARED

CHARLES I. BRAY

THE main purpose of the steer feeding experiment at the Colorado Agricultural Experiment Station during the past winter was to answer, if possible, the following important questions. First: What is the value of an acre of beet tops? Second: Does it pay to make these beet tops into silage? Third. Is it profitable to haul the beet tops to the feed lots, or to run the steers on the tops in the field? Since there were no answers to these questions available, Prof G. E. Morton and T. E. Leiper of the Colorado Experiment Station outlined the following experiment in the summer of 1918. The Great Western Sugar Company at Fort Collins offered to furnish the steers, if the College would furnish the feed and labor, and an agreement was made to pro-rate the profits or losses in proportion to money invested.

The steers purchased by the Sugar Company were not as uniform or well bred a lot as usually purchased by the college for experimental work. They were, however, average Shorthorn and Hereford grade steers, mostly three year olds. Seventy-five steers were turned over to the college by the Sugar Company on October 15th, the average weight being 800 lbs. As the experimental beet fields were not ready they were put on hay. On November 8th a shift was made whereby the college got to pick over the balance of the Sugar Company's steers which were running on beet tops, finally selecting from the entire shipment, 60 head of fairly uniform steers, enough to make six lots of 10 steers each. The Experiment Station beet tops were ready for pasturing November 14th and the experiment was begun November 15th. The four acres of tops for silage was finished first, and the silo filled about a week previously.

Plan of Experiment. Part I.

The experimental feeding period was divided into a preliminary period of forty days and a finishing period of a hundred and ten days. The reason is that the feeding of beet tops as practiced around Fort Collins is usually completed before steers go into the feed lots. Since the main purpose of the experiment was to test the feeding value of these tops, this preliminary period may be considered in one sense the main part of the experiment. No concentrates were fed during this period.

Twelve acres of beet tops were bought from the exeprimental farm and divided into three lots of four acres each. The price paid was $10.00 per acre. The yield of beets was 15½ tons per acre. The yield of fresh tops was 8.5 tons per acre on the part used to fill the silo. These were hauled about four days after topping. One lot of four acres was to be fenced in and the tops pastured off. The tops from another four acres was to be hauled to the experimental feed lots, and fed to steers there. The tops from the third part was to be put in a trench silo immediately after topping, and made into beet top silage. This was to give a comparison of the three methods of handling tops for feeding. To compare these rations with other better known feeds, another lot of steers was to get hay and beet pulp, another lot hay and corn silage, and another lot hay alone. The hay was fed in racks where the steers could get it at all times, a temporary rack being placed in the field for Lot 2.

The following are the numbers of the lots with the rations eaten per day per steer:

Lot 1, Alfalfa hay 8.7 lbs., wet beet pulp 80 lbs.
Lot 2, Alfalfa hay 6.9 lbs., beet tops in the field 4 acres.
Lot 3, Alfalfa hay 18.6 lbs., tops hauled to the feed lot, 35 lbs.
Lot 4, Alfalfa hay 19.8 lbs., beet top silage, 50 lbs.
Lot 5, Alfalfa hay 11.0 lbs., corn silage 35 lbs.
Lot 6, Alfalfa hay alone, 34.6 lbs.

The weather was very favorable for pasturing the beet tops. A slight snow fell three days after starting, but did not hinder the steers from getting the tops. No more snow fell till December 18th, and by this time the four acres was pretty well cleaned up. The steers were brought in on December 22nd and fed dried beet tops and hay for a few days, this part of the experiment coming to a close December 25th. The following is the result of the forty days test.

Preliminary 40 Day Feed. 10 Steers per Lot.

Lot No.	Gain Lbs.	Gain per Day Lbs.	Cost per Lb. Gain
1	790	1.97	9.4c
2	519	1.30	17.4c
3	468	1.17	22.0c
4	452	1.13	23.9c
5	580	1.45	16 2c
6	381	.90	29.0c

Hay at $15.50 delivered at lot. Pulp $2.50 at lot. Beet tops $10.00 per acre, plus labor. Corn silage at $8.00 per ton. Lot 2 charged with $18.11 (one-fifth cost of fencing). Lot 3 charged with $45.55 as pro-rata share of cost of tops eaten including cost of hauling. Lot 4 charged with $40.59 as pro-rata share of cost of beet top silage put up, including one-tenth cost of digging silo and putting up carrier track. Labor charge $6.00 per lot, except Lot 6, $3.00.

Value of Beet Tops Fed in Field

It is not an easy matter to assign a money value to a feeding stuff of this kind on the basis of one experiment. A comparison with wet beet pulp even at $2.50 per ton is hardly fair since we know that this price is much below actual feeding value. We have this to consider also. The farmer, as a rule, does not have to choose between beet tops and beet pulp. He will likely use all the beet pulp he can get. The man who is feeding cattle will use all the beet tops on his own farm without considering what they might be valued at commercially. But the man who buys a field of beet tops will want to know how much he can afford to pay, or whether he can better afford to feed something else.

Beet Tops in Field Compared with Corn Silage

If we compare Lot 2 with Lot 5 fed corn silage, at the prices used in the experiment, we might judge that beet tops were not worth quite $10 per acre compared with corn silage at $8 for the man who is buying either. The silage fed steers ate more hay than those on tops. Higher prices for hay would have raised the cost of gains for the silage fed steers. Had the silage been valued at $9 per ton the cost of gains would have been exactly the same as for the beet top lot No. 2, with the beet tops valued at $10 per acre. As $9 is a normal price it is evident that $10.00 per acre for beet tops is also normal. It will be noted later, however, that Lot 2 made more rapid gains for a while after going on full feed.

Beet Tops in Field Compared with Alfalfa Hay

We may use another form of comparison with alfalfa hay. It took 36 pounds of hay for a pound of gain in the hay feed lot. This is too large an amount, but the hay was not of the best quality this year in most parts of Northern Colorado, owing to rain at haying time. If we allow even 30 pounds of hay to a pound of gain we can credit the 2775 pounds hay fed to Lot 2 with 92 pounds of gain put on out of the 519 pounds put on, leaving 427 pounds to be credited to the four acres of tops. It might be said then, that an acre of good tops will produce 107 pounds of gain. It will cost at least 20 cents to put on a pound of gain with commercial feeds. The value of gains put on might then be considered as about worth $21.40 when compared with alfalfa hay alone. This is a theoretical and indirect comparison of values and should not be given the same weight as the above comparison with silage.

There are two things to note with regard to the pasturing of beet tops. One is that such good results might not be obtained if there was bad weather. A heavy snowfall might cover the tops so that they would not be available. In rainy weather fields might get badly tramped and the tops buried in the mud. On the other hand, where conditions are favorable, it is worth remembering that where tops are fed in this way the fertility is retained on the field as manure where it is needed.

Beet Top Silage

The question of beet top silage is one which has been discussed a great deal the last two years, but this method of feeding the tops has been adopted by only a small percentage of feeders. We do not wish these results to be taken as conclusive until the experiment can be duplicated, as we believe that better returns may be obtained from the beet top silage than were made this year. The tops were ensiled in a long trench silo about six feet wide, and 5½ feet deep. It was made sloping at either end, and the wagons were driven in with the tops, thus helping to pack the tops down. When the trench was full, straw was spread over the top, and dirt thrown on with the scrapers. No salt was used and no layers of straw put in with the tops The beet tops were preserved in fine shape, so far as might be judged by appearances.

The results from this silage were not up to expectations, but still not so much so as to discredit the method altogether. Part of the high cost of feeding for Lot 4 is due to the cost of hauling, which amounted to over $60 for the thirty-four tons of tops. The cattle fed on this silage did not appear to do as well as they should. Their hair was rough, and the gains made were slightly lower than for those fed dry tops. About one-third of the total amount of silage from the 4 acres was fed during the 40 day period as compared with 2/3 of the dry tops, and the whole four acres of pastured tops. The costs of the beet top silage including hauling and one-tenth cost of the silo and carrier track, was $111.74, or about $3.30 per ton of fresh tops.

It is evident from the cost of gains that the beet top silage at this price was not as profitable as corn silage at $8 per ton. However, compared with Lot 6 fed on hay alone, the silage was worth putting up. It is probable that there are other reasons why this lot did not do well. During the following period, several representatives of the Sugar Factory visited the lots, and suggested that possibly the beet top silage was being fed too heavily, especially with beet syrup, and that better results would be obtained if the silage ration was cut down. This was done and the steers showed some improvement. Another year the amount of silage fed will not be quite so heavy.

Analysis of Beet Top Silage

It will be interesting to notice the difference in composition between the beet top silage and corn silage. The analysis was made at the Brighton Sugar Factory, and the comments are by H. Mendelson of the Denver office of the Great Western Sugar Company.

PERCENTAGE COMPOSITION

	Beet Top Silage	Corn Silage
Water	76.19	69.93
Crude Protein	3.64	2.40
Crude Fat	.49	.58
Crude Fibre	2.44	6.14
N-free Extract	9.84	19.13
Ash	7.40	1.82

"1. The high percentage of ash in the beet top silage (mainly earth), suggests that these beet tops may be a somewhat unhealthy food. This is one trouble often experienced with beet top silage, that it is often impossible to put it up without too much dirt.

2. About one-twelfth of the crude protein of the beet tops, but about one-fourth of that in the corn silage, is digestible albumen. Therefore the fresh beet top silage contains about 0.3% and the fresh corn silage about 0.6% digestible albumen.

"3. Using Kellner's starch values, 100 pounds of the fresh beet tops have a value of about 9.5 lbs of starch while 100 lbs. of the silage in question has a value of about 14.3 lbs. of starch. Therefore 30 lbs of corn silage should have the same fattening value of about 45 lbs. of beet silage—on paper. In reality the difference will be more unfavorable to the beet tops on account of the unfavorable influence of the large amount of earth and possibly of the scouring effect of the salts of the beet tops."

One drawback to beet top silage, as suggested by Prof. G. E. Morton, is that too much team labor is required at the time when most beet growers are busy hauling beets. With other ways of handling, the tops can be left until after the beets are hauled. The main advantages of the silo is, of course, that the feeder is made independent of weather conditions. If a way can be found to feed the beet top silage so as to avoid the undesirable scouring effect due to the high percentage of salts the silo will be a great advantage from the feeder's standpoint.

Hauling Dry Tops to the Feedlot

As will be seen from the table this method of feeding was about equal to the beet top silage, or possibly a little better, depending largely on the charge made for labor. The advantages of this method are that if the beet tops can be thrown in piles before snow comes they can be hauled to the cattle regardless of weather conditions, avoiding the trampling of the land in wet weather. Beet growers in states further east say that often it is impossible to run their cattle on the tops for this reason. The objection is in feeding in this way that, if hauled in too large quantities faster than the cattle require, the tops heat and mould and become somewhat unpalatable.

110 Day Feeding Period. Part II.

The steers were put on the following rations after Dec. 25th and fed until April 17th:

Lot 1, Alfalfa hay 11 lbs.; wet beet

(Turn to page 44)

One of the lots used in the Steer Feeding Experiment

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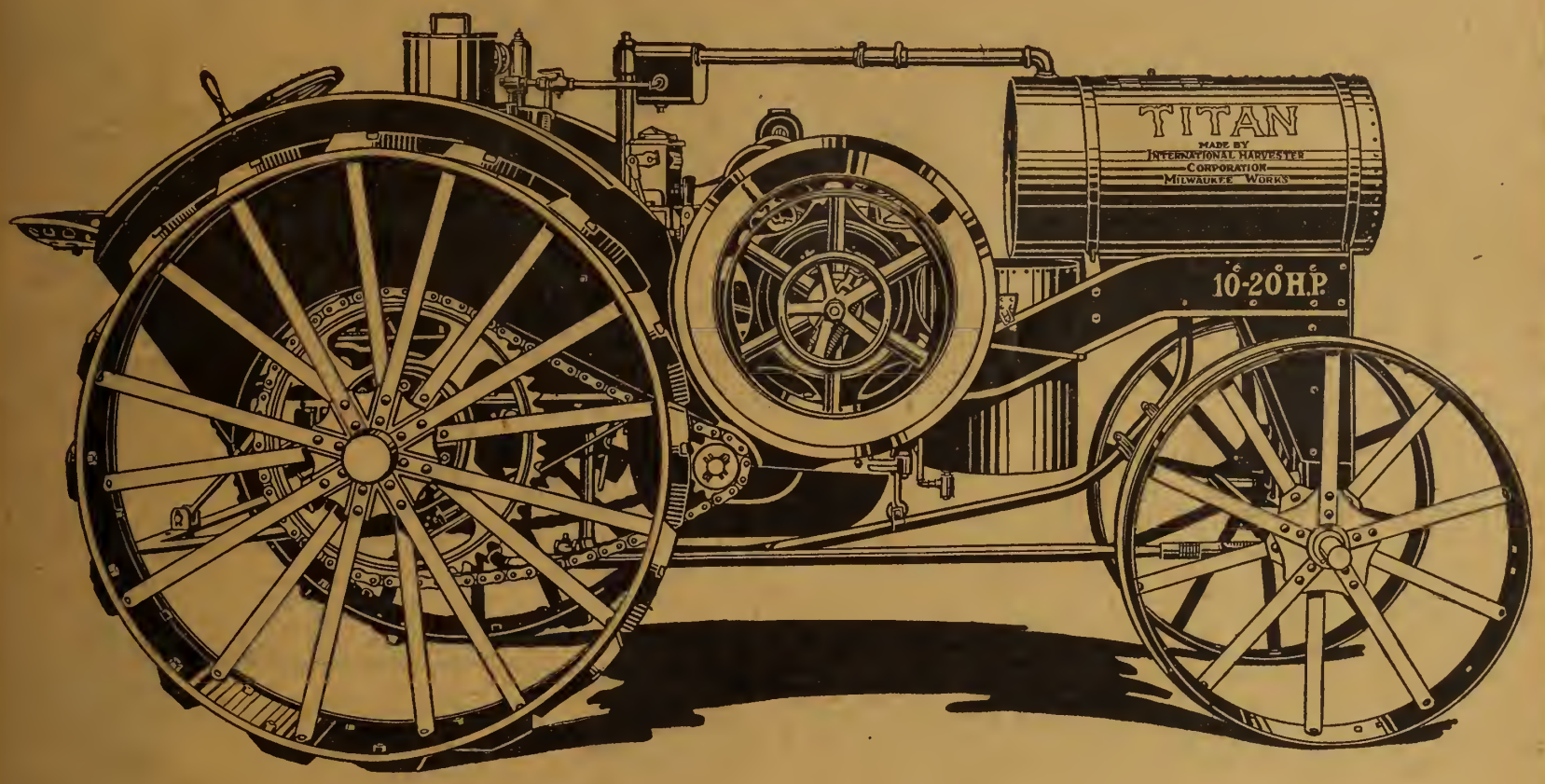

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DENVER **COLORADO**

Yellow vs. White Sweet Clover

WHY SAN LUIS VALLEY FAVORS THE YELLOW

GEORGE W. M. NUTTING

IN the San Luis Valley of Colorado, the case of Yellow Blossom Biennial Sweet Clover Vs. White Blossom Sweet Clover was tried years ago and a verdict rendered in favor of yellow. In some other parts of the country the case seems to be still pending without any definite decision having been rendered. As this case has been closed here a recital of the evidence presented may be of interest.

Sweet clover was introduced into the San Luis Valley a good many years ago, probably by mistake for alfalfa seed, since at that time it was regarded as an unmitigated evil and the man who would have seeded it intentionally would have run a pretty good chance of being mobbed by his neighbors. Apparently both the white blossom and the yellow blossom biennial were introduced at about the same time, as there was approximately the same acreage of each growing wild when it was first discovered here, about 10 years ago, that sweet clover had some value as a crop. At about that time the news reached us that in some sections of the country sweet clover had proved of value as a fertilizer, and also as a pasture and hay crop. It was growing wild over our lands, the fight to exterminate it having failed to do more than keep the acreage from increasing.

Our farmers came to the conclusion that if sweet clover was good for something in other places it might prove to be a blessing in disguise here also, hence they began to try to figure out some way to make use of a crop which thrived so remarkably in this section. As stated above there was at that time approximately an equal acreage of the yellow biennial and the white. As all the articles in farm journals favored the white, or rather concerned the white blossom exclusively, since the yellow biennial was not mentioned at all, apparently being left entirely out of consideration, attention was first turned to the use of the white.

It was soon found, however, that at this altitude, 7,500 feet above sea level, with the short growing seasons consequent on the high altitude, the white blossom would not mature a seed crop of any quantity. Only enough seed would mature before the killing frosts in fall to keep a partial stand coming on where the plants were left unmolested during the growing season. On the other hand it was discovered that the yellow blossom biennial variety matured from two to four weeks earlier than the white blossom, thus having a safe margin for full maturity before fall frosts. Item No. 1 in the evidence presented in favor of yellow.

But still our farmers could find no authority for giving the yellow biennial variety any consideration. Whether this was due to the absence of knowledge of the yellow biennial in sections of the country familiar to agricultural writers, or to some other cause, was not known. But the fact remained that here we had the two varieties, one of which, the white, had been proved in the respect above mentioned at least, not equal to the yellow biennial. In spite of the fact that no authority could be found for its use, our farmers turned to the yellow biennial as the variety best suited to the conditions with which they had to contend.

Two Cuttings of Hay

The first determined effort to use sweet clover in this section was made in the summer of 1910, at which time one of our ranchers, much to the surprise of his neighbors, harvested an 80-acre field of yellow blossom biennial sweet clover for hay, getting two cuttings and putting the hay in the stack with the same care he would have used in harvesting a crop of alfalfa. He was told that his stock would not eat it but his faith was sufficient to induce him to go ahead with his harvest. And, wonder of wonders, he found that his stock did eat it and thrived on it. Other farmers followed suit from time to time. They found that the yellow biennial sweet clover, when cut at the proper season, made a hay almost equal to alfalfa in quality. They also found that the yellow biennial was of a finer growth both of stalk and stem, than the white blossom with less waste as a consequence. In fact, there is very little difference in the growth of yellow blossom biennial sweet clover and alfalfa when the former is cut at the proper season for best quality of hay. On hte other hand even when cut for hay the stems and stalks of the white blossom are coarse. Item No. 2 in the evidence presented in favor of yellow.

Our farmers were told that subsequent growths of sweet clover after cutting came from the lateral shoots on the main stalk, and not from a crown as in alfalfa, and that if the main stalk of sweet clover were cut off below these lateral shoots there would be no subsequent growth and that it was therefore necessary to leave a stubble six or eight inches high in order to get another growth after cutting. This left a mean stubble to contend with, which interfered with later cuttings. Our farmers soon found that the information in regard to leaving a high stubble was true enough as concerning the white blossom, but they also found that the yellow blossom biennial was of a lower branching habit than the white, that is, the lateral shoots came out on the main stalk of the plant much nearer the ground and that the yellow could therefore be cut much closer to the ground than the white without any damage to later growths. In fact, our farmers cut the yellow practically as close as they do alfalfa. Item No. 3 in the evidence presented in favor of yellow.

Can Be Closely Pastured

For the same reason that yellow blossom biennial sweet clover can be cut closer to the ground than the white, it was also found that it could be pastured closer without damage to the plants, as it is practically impossible for stock to eat the plants close enough to the ground to destroy them. Also on account of the finer growth of the yellow blossom biennial it was found that it affords better pasture for stock than the coarser white. Items 4 and 5 in the evidence presented in favor of yellow.

When the first crop of seed from the yellow blossom biennial was harvested and offered for sale it was found that the demand was mostly for the seed of the white blossom variety. This was probably due to the fact that the yellow blossom biennial variety was not generally known over the country and yellow biennial was doubtless considered the same as yellow annual, the latter being a variety of small value except for use for bees and with a consequently limited demand. It looked for a time as if in this respect at least, the yellow biennial was at a decided disadvantage as compared with the white.

However, owing to climatic conditions in this section, above mentioned, under which the white blossom would not mature a seed crop our farmers could not successfully grow the white seed. Hence they began a campaign of education to show growers in other parts of the country what they considered to be the points of advantage in the yellow biennial. A ready market was soon developed for the seed of the yellow biennial at practically the same prices offered for the white. In another year or two there will probably be no difference whatever in price unless the yellow biennial brings the higher price.

As a fertilizing crop, both through its root system and as a green crop to turn under our farmers can find no difference in value between the yellow biennial and the white.

The evidence presented in favor of yellow and against white in this section was so overwhelming that the verdict is final. There are still a few fields in which the white blossom variety grows straggling from year to year, volunteer, but not a pound of the white blossom seed is sown in this part of the state. On the other hand hundreds of acres are seeded to the yellow blossom biennial variety each year.

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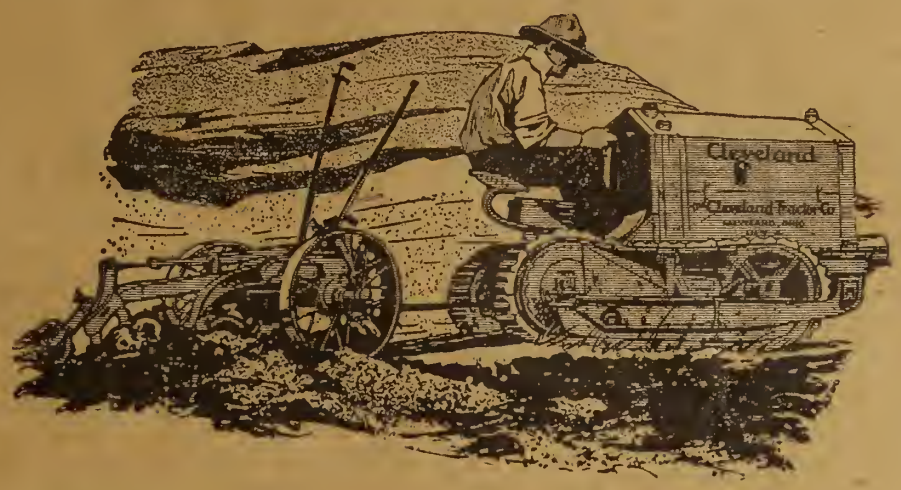

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The Era of Mechanical Farming

An attempt has been made in the present issue of Western Farm Life to set forth every phrase of farm tractor development as applied to the farms and ranches of Colorado, Wyoming, New Mexico, Utah and Idaho. Looking at the territory on a topographical map, or through the eyes of the tourist and pleasure seeker, the uninformed easterner might conclude that we have limited possibilities for agricultural development. The reverse is true. No other group of states in the Union offers a wider field for automotive farming. We have more arable land still undeveloped, and the larger part of this offers no obstacles to motor implements; farms are in larger units than in the states eastward, because land is still comparatively low priced; development of this land having just begun, naturally the owners are adopting the most modern and economical methods of farming.

One third of the area of Colorado is a level plain, without rocks, trees, stumps or swamps to hinder the plow. On such lands the cropping program is limited only by the farmer's capital. If he wants more land it is easy to expand; if he has idle acres, mechanical horse power offers the quickest method of getting them under the plow. There are similar plains areas, but not so extensive, in the other intermountain states. There are great valleys between mountain ranges on which tractors are practicable. Lately in the irrigated sections tractors have been used with success, some of them on farms producing sugar beets, which, it was long thought, would be the last crop that could be grown with the aid of mechanical instead of animal horse power.

The war has given the tractor an impetus that would not have come for a decade under peace conditions. From all sides there was pressure on the farmer to increase production. He could not immediately increase the supply of horses, but he found a tractor available for every kind of farming, and almost every farming operation hitherto performed with horses.

This does not mean that automotive implements will supplant horses altogether. In fact, the number of farms where all horse labor has been discontinued are still few. These exceptions may be studied to emphasize the fact that tractors are now being built to do many things for which mechanical power was only a dream ten years ago.

The fact that stands out and that cannot be ignored, no matter how conservatively inclined we may be, is that mechanical power is soon to control farming and animal power to be used as supplementary and reserve power. This development is logical and in accord with the general advancement of civilization. It means simply this: Man will not remain a slave to the soil any longer than he is forced to do. With mechanical power he can control his farm and the farm will not run him. This is what agriculture is coming to, and it is not different from the change that has come over other industries in the transition from hand labor to machinery in the last hundred years. The farmer has forsaken the sickle and adapted himself to the reaper, the mower and the binder just as rapidly as the inventor and the manufacturer gave him the new tools to work with. He is getting off his feet and onto the seat of a riding plow as quickly as money will let him. He dropped the red wheeled buggy like a hot potato as soon as the automobile appeared. And now he can hardly wait till his tractor arrives. The era of mechanical farming is upon us.

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Shut Out Japanese Beans

An effort is being made to secure national legislation which will prevent the importation of Oriental beans. During the war restrictions were let down because of the world's food needs. Result was that Japanese beans were brought into this country, forcing down the price of American grown product. Growers and jobbers of Western grown beans are behind the movement for proper protective legislation.

Competition of Japanese beans grown with coolie labor, has caused a tremendous loss to the bean growers of the United States. Pinto beans are one of the chief cash crops on Eastern Colorado farms, and our farmers, in response to requests from the national government, in 1917 and 1918, increased their planting of pintos many times above the normal acreage. Shiploads of cheap Japanese beans reaching the Pacific coast demoralized the market and this, together with the signing of the armistice, left our farmers with more than half their 1918 crop on hand. The result is that the acreage in 1919 will be very short. Pintos are a good food product, and the industry should be encouraged, because the dryland farmer who grows most of our pintos, needs just such a drouth resistant cash crop to help him keep even with the game. He cannot afford to grow beans at a loss and this is what he must do if Japanese competition is allowed to continue.

There is another side to the matter that our national legislators must consider, if the plea of a square deal for the grower does not arouse them to the necessity for action to protect the industry: Beans are a leguminous plant, gathering nitrogen from the air and storing it in the soil, and improving the tilth of the land through the cultivation necessary in growing the crop. They are absolutely necessary in the crop rotation on semi-arid lands that are not irrigated. Next to manure, they are the most important, in fact, almost the only fertilizing crop for the dry land farmer. We have in Colorado alone more than 20,000,000 acres of dry farming land, the fertility of which must be preserved and built up, if this western country is to sustain a permanent population. The throttling of the bean growing industry on such lands, through oriental competition, is a matter of national concern. If we do not foster and protect our agriculture, the nation cannot survive. It is hard enough to bring these lands under profitable cultivation in the struggle against naturally adverse conditions, without subjecting our farmers to the pressure of competition from the yellow race, who subsist on a few cents a day, under conditions of squalor and poverty that ar abhorrent to the American. The situation demands prompt action.

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Bureaucratic Government

Reorganization of the Office of Farm Management, one of the important bureaus of the United States Department of Agriculture, is now in progress, with Prof. H. C. Taylor of Wisconsin, an eminent economist, in charge. At a conference held last month in Washington for the purpose of discussing an outline of work for the bureau, many interesting suggestions were made by men prominent in agriculture. Several of the conferees stressed the matter of investigating the social side of rural life, regarding which Benjamin C. Marsh, representing the Farmer's National Council, commented that if farmers had a good income they would probably be able to settle social questions for themselves. Which is quite true.

If the Office of Farm Management can tell us where, when, how and why the farmer is doing business at a profit, or a loss, it will be fulfilling its function. It will be up to the farmer to apply the information to his individual or community problem, whether his be a winning or a losing game. Either way, the result will be apparent on the social side and the remedy, in case of loss, or intelligent direction in case of profit, will come of the farmer's own initiative.

There is no present fear of the Office of Farm Management going beyond its functions. There are other bureaus down at Washington, however, which are guilty of the error of bureaucracy and it is for their benefit that this comment is made. The Department of Agriculture, like the Department of Labor and other executive branches of the government, was created by Congress for the public benefit and is supported by general taxation. The tendency in some quarters has been to interfere with the individual liberty of the citizen, under the guise, always, of benefitting the public. Long service under the bureau plan sometimes developes this habit of mind and often a useful government servant becomes an arrogant bureaucrat. This has been exemplified time and again in the administration of our public land and our forestry laws and, especially since the war, in carrying out so-called health regulations through a bureau of the Department of Labor.

Conferences have become a habit with the Department of Agriculture and other departments lately. The outside viewpoint is usually interesting and often helpful. So while it is the fashion to confer, and consider, and digest ideas and suggestions for betterment of administration, would it not be wise to direct a careful inquiry into the evils of bureaucracy, which have crept into many bureaus that come in contact with the public, but which seem to be wholly governed within themselves? Even the cabinet officers in charge have confessed to be without practical authority to correct abuses of administration which are possible, and all too common, under the bureaucratic system. Here is a worth while job for a congressional committee composed of men who have a clear conception of the fundamentals of democracy.

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Reduce Rate on Drain Tile

An effort is being made to induce the Director General of railroads to restore rates on farm clay drain tile in effect previous to June 25th, 1918. The rate advances made during the war on drain tile for farm use were due to the existing emergency; and all products and commodities not absolutely essential for war purposes suffered by a similar handicap. Now that the emergency is over, there is no reason for exacting a prohibitive rate on drain tile so badly needed in farming districts all over the country for the improvement of wet lands.

The Atchison Topeka & Santa Fe Railroad recently made a reduction of rate on 2,000 cars of clay tile for the Pecos Valley, New Mexico, hauling the tile at less than cost of transportation. The result is that thousands of acres of land in that valley, now water logged, will be reclaimed. Many other sections are in a similar position, but drainage is prevented because of the prohibitive rate on tile. It is to be hoped that the Director General of Railroads will realize the necessity for restoration of the pre-war rate.

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There will be available for the use of the Extension Service of the Agricultural College this year about $150,000. Of this, local authorities will contribute about $80,000. It is expected the federal funds for the work will be increased by the incoming congress. A continuation of the emergency work begun during the war was provided for in one of the bills that failed to pass because of the filibuster at the close of the last session. Through the Farm Bureau, the county agent, and the Boys and Girls Club work, the results have been infinitely greater than they were a few years ago and the great increase in farm and livestock production are due in no small part to the activities in these lines.

The Branding Iron

Applied by Elias M. Ammons

The Colorado Agricultural College, co-operating with counties and communities over the state, is making a more vigorous campaign than ever before for the destruction of the prairie dog pest. It is not generally understood that these little animals destroy hundreds of thousands of acres of grass. They rarely every inhabit any but good pasture ground. Their nature is very generally misunderstood, because of the name given them. They are vegetarian. If undisturbed, they will destroy fields of grain and young crops of corn. The Agricultural College has, for a number of years, been making experiments as to the best way of getting rid of these little animals and the experts in charge of the work seem now to have a poison which is, over the most of the state certain in its results. This is being sent out at its actual cost and no doubt, within the next few years the prairie dog nuisance will be abated. The only section of the state in which the remedy has not been efficacious is in the southwest portion. For some reason or other, results in that neighborhood have not been entirely satisfactory. The only explanation so far offered, is that by Senator George West, who says, that the San Juan basin is so rich that even prairie dogs cannot be tempted with sweetened grain.

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Secretary of War Baker is urging military training as a part of the program of physical development for students in our state educational institutions. He proposes, of course, to subordinate the military work to the academic and vocational. If it is proper to teach our boys and girls to be useful citizens and induce them through thrift to acquire wealth and build beautiful homes and towns and cities, and a greater civilization, is it not after all just as advisable that the boys should be taught to protect them? It is hoped we may never be engaged in war again, but the greatest conflict ever known in the world was precipitated out of a clear sky and our being involved in it even at the eleventh hour was wholly unexpected. Our armies made a wonderful record, but what a terrible toll of life and property and misery would have been the result had not the greatest navy in the world and the armies of three great nations stood between us and the enemy while we made preparation which had been wholly neglected until we entered the war.

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The greatest advance that has come to this country in an educational way is vocational education. The impetus given to industrialism through the coming of the agricultural college a half a century ago and the technical training which has resulted in all lines of industry will be widened immeasurably by carrying vocational work in practically all of the schools of the country. Specialization is demanded everywhere and the field of education has grown so wide that no one can hope to cover it all. In the future the object of institutions will be to do some one thing better than anybody else can do it; in that policy will lie success for every ambitious young man and woman.

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The Indians about Ignacio are reported to have sold their cattle with the intention of engaging in the sheep business. The sheep districts in the Southwest have a very warm climate and while horseback riding goes with the cattle business the wise Ute has found out that an umbrella is furnished to every sheep herder.

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The high price of hay the past winter has resulted in farmers retaining much alfalfa they had expected to plow up and put into other crops. Native and other hay crops will probably also be increased so that the coming winter the country will be much better prepared for livestock feeding than was the case last fall.

Adams county, Idaho, has been without silos, but fifteen or twenty are to be erected this summer.

Comment by Farmer Putnam

OUR MISSOURI FRIEND APOLOGIZES TO THE HORSE MEN AND BOOSTS TRACTORS

HOW am I ever goin' to look Wayne Dinsmore and Howard Jay in the face ag'in after writin' a article on tractors, which the editor sez I got to write! That's what a feller gits when he writes fur them farm papers; one day he has to boost hosses, the next time tractors; the next time it's Shorthorns and the next time it's Herefords. Then ag'in he has to say that Holsteins is the finest dairy cows what is, and the next issue he sez, they is nuthin' better fur the farmer and ranchmen then Jerseys. Every time I write somethin' about Holsteins who should I meet but Mr. Clenehan and he sez: "Well, Farmer Putnam, I see you've furgot that they is any Jerseys." And when I give the Jerseys a nice boost why up comes a Holstein man and sez: "What's the matter Farmer Putnam, goin' back on the Black and White?"

It's a regular dog's life this writin' game; I wisht I'd never quit farmin'. I was a-tellin' Josephine about it the other evenin' and she sez: "Don't let it worry you Tom; you're makin' money easier then you ever made it and with even less work then you ever done on the farm; so I wouldn't kick. You just set down, take your pencil and scribble. Nobody pays no attention to what you're sayin' anyhow; they read your letters just to find out how much foolisher you air each time then the time before. Don't git it in your head that I'm proud of your literary work, but I put up with it because we need the money."

I reckon most of you folks will see the point and not git sore about me changin' my advice so often; I got to do it to git the money. I hope Prof. Clark won't think hard of me fur boostin' tractors and I hope Henry Ford, Mr. Avery, Mr. Case, Mr. Moline and them other big guns in the tractor game won't think hard of me fur apologizin' to the hoss men. I'm no tractor owner—yet, but if some of them factories wants to send a good demonstration machine down to the ranch in Arapahoe county—you know I've moved down from Stove Prairie—why the gate'll be open.

Speakin' of hosses, we got to have good ones or none at all, that's why I want to say a word about the new stallion law, which Prof. Clark helped push through the legislature. This will do away with scrub stallions. Believe me friends, good drafters is the only kind that'll be tolerated now at all, because them tractors that I been investigatin' on our farms has got the pullin' power. They does the work.

Now that hoss feed is higher'n kerosene, it don't pay to feed scrubs and plugs. Maybe us old fellers don't like to see Dobbin git a back seat, but the world is movin' right ahead, whether we like it or not, and if we don't git out of the way of the procession why some big 30-60 is goin' to run over us. Maybe Doc Glover was right when he said we might have to eat hoss meat. That's one big advantage the hoss has got over the tractor; you kin eat a hoss to keep from starvin', but no old busted tractor will feed you because you cain't digest junk. Another advantage that hosses, if they is mares, has got is that they bring us colts. You cain't do that with a tractor; they won't reproduce.

Outside of them two things why the tractor has got the best of the argyment. You kin work a tractor day and night as long as you keep feedin' it lubricatin' oil and fuel. A hoss is too much like a man; it has to have three squares a day and plenty of rest at night, or it cain't deliver power.

Still, I reckon what makes tractors so popular is not so much their pullin' power, but the fact that they run on wheels without somethin' to pull 'em or pusb em. Farmers is gittin' so they don't use their legs much and I reckon the day will come when feet and legs will disappear from the men from disuse, and then the ladies will have to do all the kickin'.

A farmer just hates to walk, even out to the barn to do the chores. We has our feed carriers to run the stuff in to the cattle in the mangers, pushes the manure out in metal baskets on a overhead trolley, ride on the implements in breakin' ground, harrowin', drillin', mowin' and reapin', hop into our Henry to go off to town and now the hosses is gittin' too slow fur us and we want to make crops and haul 'em to market by tractors and trucks. What's this old world comin' to anyhow? Is man tryin' to git away from all honest labor?

Well, I say, let her come. Of course a feller is more apt to git into mischief when he's idle, but most of the farmers kin stand to do a little devilment after bein' a slave to their work fur so many years. Of course it don't allus mean that we got no work to do after we git a tractor, fur if anybody is ever bizzy it's the farmer whose tractor breaks down in the middle of a big job of plowin', when every hour counts.

It don't matter much what you and me thinks about tractors and other of them things run by motors, whether it makes us sore or not to see hosses gittin' less on the farms, and gas engines more; we got to take it as it comes. I git kind-a dizzy when I think back over the forty years or so I been more or less farmin' and figger on what's all happened durin' that time. I kin recolleck when I was a youngster back in Missouri we didn't have much exceptin' hand labor, some of the darkies stayin' with us after the slaves was free, and hirin' out to us by the month to hoe corn. Later when I got to shiftin' fur myself, I was proud as a peacock of my first one-hoss walkin plow, and when I got a sulky I thought they wasn't no more inventions to come that would make farmin' easier, but they kept comin', and now nothin' surprises me. It'll git so after a while that us farmers'll set at a switchboard in the parlor and press buttons to start things to goin' at daylight, or call off the night crew.

I have to laff at some of them bankers that's got it in their heads to warn the farmers ag'in buyin' tractors. Of course nobody ought to rush in and buy a machine when he cain't afford it, or when his place is better run by hosses. Don't send the mares to the discard if they're doin' good work fur you, but if you need a tractor, and your farm is the kind that kin use it to make more crops by cuttin' down the cost and labor, why go ahead and buy it. If you do well with it the banker is the first man to feel the effect. It's just like everything else—it kin be overdone. Lots of us has bought autos that was too expensive at the start, but I'd like to see how many farmers that got cars ever went back to buggy ridin'.

One thing we got to remember; don't buy a tractor if you're goin' to use it fur nothin' but to put in grain to sell offen the farm. This was all right durin' the war, when we had to raise wheat to help win, but that excuse has done served its usefulness. Tractors will plow fur corn and cane and help make silage by runnin' the cutter. And if you-all are thinkin' of buyin' one why come to the Denver show and see 'em at work. Of course they're all keyed up to do their best. Do you suppose they're goin' to show off which one kin git out of fix the quickest? No; tractor buyin' is a good deal like hoss tradin'; the feller that's doin the sellin' has got a wife and babies to support and if he has to lie a little why it's fur the benefit of his family. They make you think that all the big inventions fur tractor parts

Turn to page 37

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CHAPTER XXI.

THE INVASION OF THE NARRIS

Joel had made his case, it seemed, and had no more to say. He was gone through the corn before Randolph had recovered from the shock of the man's amazing transformation. Randolph stood, considering all that had been revealed to him in the experience of these past few days. How much of it must be revealed to, how much kept hidden from, for his own welfare and peace, that old man in the weathered gray mansion on the hillside yonder? He turned to face that way. Juliet Moore was hastening down the dust-white road.

If he had followed his heart he would have leaped to meet her like an eagle winging from his rock. She came like incense into that place to purge away the foul shadows which lingered after Joel Langworthy. Randolph went forward with a hushed sense of holiness over him, as one who approaches a shrine.

She saw the story of his suffering in his hollow face. A little way from him she stopped, her cheeks paling, fear settling in her eyes. She lifted her hands with a tender illustration of sympathy; he heard her moan in such deep sorrow as only comes from the sacred places of the heart.

He hurried to her to relieve her sympathetic suffering, holding out his hand.

"I'm sorry that I caused you so much trouble and anxiety, Miss Moore," he said.

"Are you—are you—safe?" she asked, looking up with that in her eyes which would have paid him for even a greater peril.

He took both of her hands, with no doubt any more, and no question of his right, and folded them to his breast with a convulsion in his throat as if he swallowed tears.

"I was as the dead, but you have brought me life," he said.

"I didn't wait a minute—I came as soon as Mr. Atchison told me—I ran."

"He didn't tell you where I've been?"

"Only that you had come back. But I saw in his eyes that something terrible had happened to you—he couldn't hide it, and he hurried away."

"Sit here," he said, bringing camp-stools into the shade of the tent, "and I'll tell you, Juliet."

He spoke to her endearingly; he quieted her grief and soothed her fears.

"Does your grandfather know that I—that I'm—here again?"

Juliet shook her hair in her pretty way of girlishness. "He doesn't know; he was away at dawn to see the river and hasn't come back."

"Hugh and I concluded that it would be best for nobody to know it but you and your grandfather, for we believed that Langworthy would run away if he learned I'd escaped his trap."

"The wretched scoundrel!"

"But there's no need in concealing it now, Langworthy knows; he was here just a few minutes before you came."

"Here—you saw him? What excuse—what defense—"

He told her, without reservation, of Langworthy's accusations against Moore. She agreed at once that it would be best concealed from her grandfather, not alone because of the trouble and danger that an attempt to prosecute Joel would throw the old man in, but of graver consideration the certainty that Moore would take the law into his own hands.

"He'd hunt him down and shoot him—he'd never give him time to bring his horrible, wicked accusations!" she said.

"I believe he'd do it," Randolph agreed.

"We'll have to leave it to time and his own devices to tangle him," he said.

"Grandpere has not been the same since they built the levee—he has brooded so and become so silent and grim."

"The levee? What levee, Juliet? Why?"

"I forgot, it was after you—after that. The river was threatening to bring grandpere's old prophesy true—they were afraid it would come back to him."

"Joel did it," he nodded; "there would be nobody else."

"He directed it, but, of course, nobody could rightly blame him for that."

Randolph sat turning the news in his mind as if it had stunned him. He looked up the old track of the river to the Narris head, where the strong wall of tree-tops stood green and secure.

"So it was threatening to come back to him?" he said speculatively, as one speaking in the shadow of a graver thought.

"They say the danger is past, the crest of the flood is here, the weather bureau reports. But, oh"—whispering, clinging to him fearfully—"what if it had broken in while you—while you—were down there?"

Below them, on past the old store and wharf, a dwelling could be seen here and there, submerged to the eaves in corn; the brown of a haystack, the soft yellow of stubble fields. Cattle grazed in the half-wild brushwood meadows.

"It is such an innocent scene to cover the cause of so long a sorrow!" she said.

"Perhaps it is like me—keeping the best till the last, Juliet."

She turned to him quickly, his secret half-guessed, as betrayed by her lively eyes. "The best till the last, Jonathan?"

"I hope it will prove the best, Juliet. We have found the safe!"

"Oh, the safe—the treasure!"

"It revealed itself rather while I was—down below. The sand settled around it and left a corner bare—Hugh saw it first."

"Did you— Was it—" she whispered, rising to tiptoe, her hands on his shoulders. Her face had grown white, and the greatness of anxiety was in her eyes.

"No, we couldn't open it, Juliet. Hugh's gone to Richfield for dynamite. But I don't care—I don't care one little old sigh—whether there's a cent in it or not—not now"

"But I care whether the treasure's there, Jonathan—for your own brave, hopeful sake, I care."

"I wish Mr. Atchison would hurry!" she said.

"He'll be back before noon, and when he comes we'll make a regular ceremony of opening the safe. There may not be anything in it, Juliet; I haven't set my hopes very high."

"I wouldn't leave it—I wouldn't leave it a minute;" she said. "That—that man—that demon with the hideous treasure of dead man's bones—would be so jealous of your discovery if he knew!"

"He knows; he was here looking at the safe when he saw me."

"Then he'd blow it up, or do something to keep you from having it, if you turned your back a minute. Watch it; don't take any chances, Jonathan. Oh, you must not lose it now, after all you've gone through to find it!"

"I'll not take any chances with him," he said. "I'll stick right here till Hugh comes back. When he passes, come down with him, and bring your grandfather, if he's home by then. We're going to get into that safe this morning."

Randolph felt himself as hungry, when Juliet had left him, as if he had taken no nourishment since his rescue. He prepared himself a meal, and rose from it with new courage, laughing at

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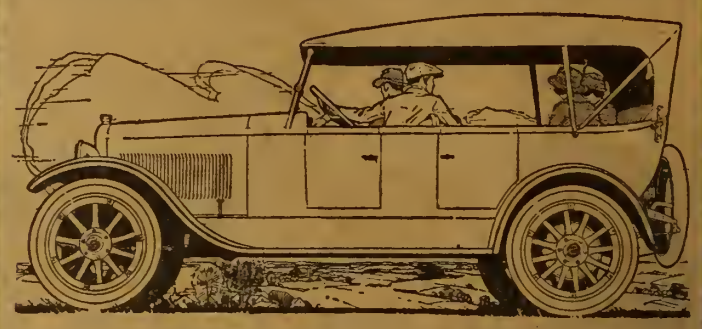

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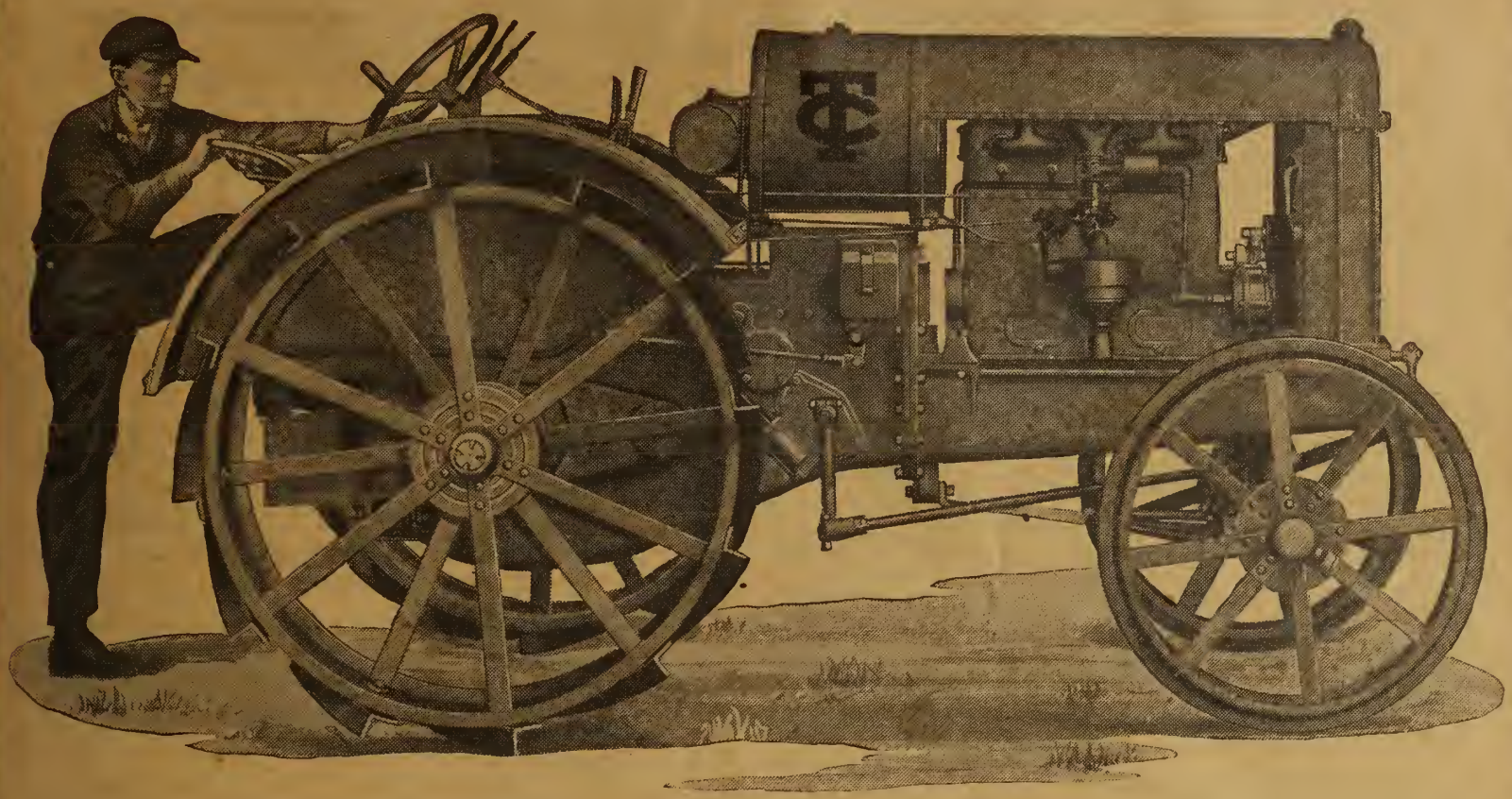
As to Horse Power Rating

All existing horse power ratings are ambiguous for the reason that it is necessary to know the thoughts of the manufacturer who gives his rating. It is a general supposition that a tractor loses one-half of its belt horse power transmitting the power to the drawbar, so that if a tractor is a 20 H. P. Belt it will only be a 10 H. P. on the drawbar. Should a manufacturer, through good design, be able to deliver 75% of his H. P. at the drawbar, then that tractor would naturally be a 15-20. Should he rate it as a 15-20 considerable complication would result for the reason that the average farmer considers the present type rating standard and expects a tractor to have either twice as much power on the belt as on the drawbar or one-half as much power on the drawbar as on the belt. Again, drawbar horse power is a term for which there is no standard form for determining. The speed is one of the most important factors. A tractor that will develop 1500 lbs. drawbar pull will show 8 H. P. at 2 miles an hour, 12 H. P. at 3 miles and 16 H. P. at 4 miles an hour.



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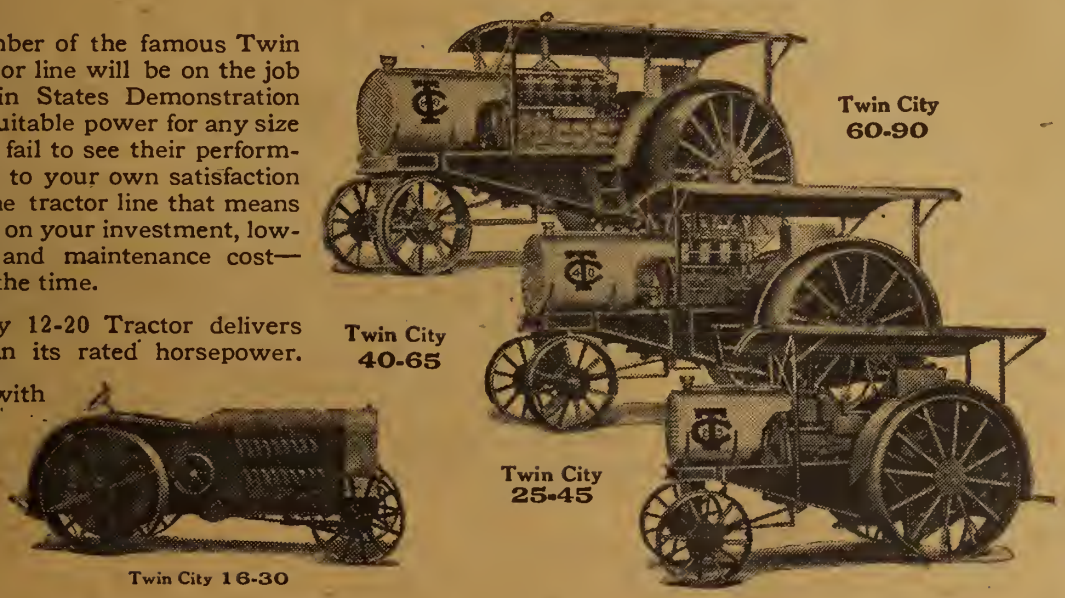

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TWIN CITY

12-20 Kerosene Tractor with 16-valve engine

Steamboat Gold

Continued from page 12

his past fear of a fantom danger. The treasure was there; his long dream was coming to a happy end.

Past eleven. Hugh might come the next minute, and it might be an hour. He would have time to go down and take another look at the safe and feed his imagination at the old fire and speculate over what it might hold for him, with it there before him where he could reach and put his hand on it at last.

His legs trembled on the ladder in his eagerness to reach it. It was as if he had not found it before, as if the labor of the morning had only been the entangled striving in a dream.

So it was there, the far-leading treasure, at last—to be brought up presently and spread glittering in the sun. Cold under his hand was the proof; the sands had kept it secure, as they had hidden the guilty mystery of Joel Langworthy's victims' bones.

The sound of a foot scraping on the boards around the hoist made him leap and turn. The dead battering against the casing of his excavation could not have given him a sharper wrench of sudden alarm. The fright passed out of him electrically. Hugh had come, of course.

"Is that you, Hugh?" he shouted up the shaft.

No answer. The sound of lumber being disturbed came down to him, and again he called Hugh's name. Nobody answered. He clambered out of the little beveling hole at the bottom of the shaft and started to mount the ladder.

This was a pieced and crude contrivance which had been extended from time to time as the pit grew deeper. He looked up as he climbed, a sense of danger so heavy over him that it seemed a clogging weight. Bits of earth were falling, loosed by the unseen feet at the top, and now a heavy blow on the protruding timbers of the ladder started the upper section from the wall.

"Get away from there; leave that ladder alone!" he shouted, mounting fast.

There was but one thought of who was trying to imprison him in that pit of his own making—Joel Langworthy, skulking out of the corn with some new diabolism in his shrunken soul! Remembering that he carried his revolver, he leaned back arm's length from the ladder and fired, although he could not see anything but the heavy plank that was being used to spring the timbers as it plunged in quick blows.

Something came over the edge of the pit, clattering down the ladder as it fell. He flattened himself against the timbers; a heavy piece of scantling struck his arm, almost breaking his hold.

For a moment he clung uncertainly, his arm numb from the blow. Then up again, as fast as rage could drive him. His hands were on the section between him and the top when the unseen person, having freed it from the timbers to which it was but loosely nailed, laid hold of it, wrenched it free at the bottom, and drew it out of the shaft.

Randolph stood with hands on the top rung of the broken ladder, yelling commands and threats. Nobody answered him, even with a taunt. The windlass spanned the shaft twelve feet above him, its rope far our of his reach. The planking of the cofferdam was closely joined to keep out seepage; there was not a crevice in it that would give him a finger hold.

The only possible way of getting out before Hugh came and hoisted him from that humiliating situation would be to climb one of the six-by-eight perpendicular timbers of the casing. As these presented but three sides, and no knee-room against the boards, he knew that such a feat was impossible without claws.

What Langworthy could hope to gain by making a prisoner of him in this way was not plain. At the best he could keep him there no longer than Hugh came—or Juliet. It seemed a vindictive little trick—a last bit of devilment which Joel, seeing it possible to interpose, could not resist. He had drawn up the ladder and run off like a cowardly boy.

He looked up, his tongue suddenly dry in his mouth. A little cascade of water had broken over the top of the cofferdam. It was falling with a musical sharp splash on the wet earth below; it struck his hands where they clung to the ladder; it lashed a cool spray into his face.

He shouted for help, conscious of his voice alone through the physical effort of producing it, leaning out the length of his arms to keep his head clear of the descending flood. It was a hopeless cry—terrible with the visions of that cruel end

The water was not far below his feet—spray of its breaking stifled and blinded him. Death was pressing close—the gloom of it was thick in that roaring pot. Randolph struggled and lifted his face to look again on that last hope—the little gleam of glad blue sky, like a man giving farewell out of his grave!

Something was dangling there, swinging, snatched now by the eager waters now within reach of his clutching hand. The hook of the bucket—the rope of the hoist.

He held it in both hands and swung clear of the ladder—life flooding back to him like a surge of fire. There was a fight to be made now; again he was a man. He could not see the windlass, or who was there, for the water was pouring over him, but he felt the upward jerk of the rope that told him he was being drawn out through the pounding, inrushing stream.

Juliet, her wild hair flying, her feet braced against the sucking current which struck her half-way to her knees. He knew that it was Juliet before his head cleared the curb, and he saw her straining at the windlass to drag him up to life.

It was a struggle to get out of the down-dragging water that had almost filled the pit, and swirled in it, and pulled at his limbs to tear him away from her hands. How he accomplished it Randolph could not have told. There were two pictures only of that crowded moment remaining to him afterward out of all the overstrained emotions. One that of the dangling hook, dim before his eyes in the mist of the cataract; the other of Juliet as she turned with outstretched arm, her wet clothing pressed against her body like the garments of some heroic bronze pointing up the river.

The river was sweeping down the Narris—a wall of water thirty feet high, whirling uprooted trees like straws under a winnowing rake. The gigantic wave stood above them like a muddy horizon, the roar of a tornado in its coming; an awful thing, sublime in its wild terror and all-obliterating might.

That charging wave seemed not more than a thousand feet away—fully a fifth that distance separated them from the high-lying shore where the tent stood almost taunting in its untroubled security, white in the sun. Randolph caught her hand and shouted to her to run. Together they went splashing through the lake that had formed in the sunken ground above the wreck.

The river was to be satisfied that day with taking from hi mthe treasure of the Morning Star. Its running shore-wave caught them as they staggered to high ground, flung them down and trampled them, he holding her in his arms and fighting it in a struggle so fierce that it seemed his breast must burst. His mettle tried so, the river released him, and he drew her upon the shore among the marshaled ranks of corn.

They stood there on that old-new shore, still dumb with terror of the thing that they had defeated, clinging to life, precious life, so timid and weak in their hearts that moment and so inestimably dear.

In full head the river was driving through the Narris, high above the old shore marks, for the years had filled its bed, and this sudden flood could not be contained within its former bounds. So it must run for a time until the swift current could ream the old passage clear.

The Missouri was digging its way through the Narris, a great, marauding, savage, cruel river; swirling a deep whirlpool over the shaft reaching down to the lost treasure of the Morning Star.

CHAPTER XXII.
THE CURSE IS LIFTED

Moss Gregg drove over during the afternoon. He said he felt that the curse had been lifted from that spot by the return of the river to the Narris, and a man might walk in it safe and happy from that day forward.

"I told you it was a marycle, John," he said, twisting his wise, prophetic beard.

"Yes, you did," Randolph confessed, feeling a reflection of the awe that this event struck to the soul of the old man.

"Moore was right about it; he was right to the dot. It's all come out like he said it would, 'way back before you was bornd"

"It was a remarkable prophesy—it seem now that it was almost inspired."

"It was inspired. No knowledge of man ever helped Moore to lay his course fifty years ahead as true as he done it, Jonathan. There's a purpose in it somewhere; it'll come to our understandin' in the end."

"It must be so captain."

"But she took your treasure right out of your hands—right out of 'em, Hugh tells me? It was right there in plain sight, and he had the dynamite to blow it open."

"Yes, the river took it."

"Well, anyhow I don't believe there was more than nine dollars in that blame old safeJalways did say so, and always will."

"It's a comfortable belief to have, captain, and I'm going to adopt it, too," Randolph said with a smile.

Not much of a smile, though, for

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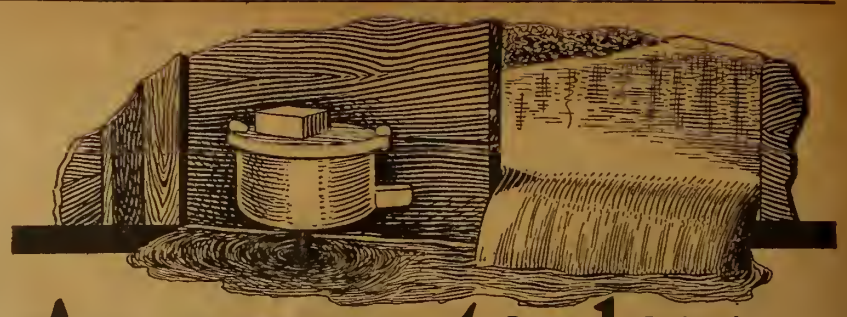

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[2]

Farmers Grading Roads Near Bennett

Tractor Doing Road Work

Farmers in the vicinity of Bennett and Strasburg, Colo., have undertaken road grading with tractors as the motive power. The illustration here shown indicates how this power is used to handle two road scrapers at once. The work is being done under direction of the Arapahoe County Farm Bureau. The Strasburg community was the first to take up road improvement, the farmers plowing and grading several miles of road south of town. Most of this work was done with tractors. All the farmers living along the road willingly did their share.

The people south of Bennett next took it up, co-operating with the county commissioners in furnishing labor and power on the roads. One of the big jobs undertaken and successfully carried out was the cutting down of Renner hill, making a great improvement in the grade. The farmers agreed to grade 12 miles of road running south from Bennett to the line of Elbert county. This work was finished about the first of May, all adobe holes having been filled in and the road put in first class condition. Tractors made it possible to handle the job quickly, with very slight interruption of regular spring work. County Agent Walter Groom, in commenting on the road work, said: "By showing their willingness to help themselves the farmers are able to get better roads and to get better co-operation from the county commissioners in road improvement. This is the result of organized Farm Bureau effort."

When the farmer's wife went "to the store" in 1918 she paid 178 per cent more for sheeting than she did in 1914, 176 per cent for brooms, 257 per cent for calico, 121 per cent for dinner plates, 150 per cent for dish pans, 49 per cent for fruit jars, 94 per cent for kitchen chairs, 77 per cent for lamps, 210 per cent for muslin, 108 per cent for stoves, and 99 per cent more for wooden wash tubs.

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ALLIS-CHALMERS GENERAL PURPOSE TRACTOR $795

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This remarkable Tractor, at less than $1,000, places within the reach of every farmer the full benefits of modern progress in agricultural equipment.

Only Allis-Chalmers manufacturing facilities and Tractor experience could build such a tractor and market it at the price of $795.00—F. O. B. Milwaukee. It is a real, dependable Tractor of all-'round utility, thoroughly efficient in every operation. With it you can do practically all the work on your farm—cultivating, discing, dragging, drilling, mowing, raking, planting, listing, harvesting, plowing, and belt work. With an Allis-Chalmers General Purpose Tractor on your farm you are sure of bigger production, less labor expense, and therefore bigger profits. It will actually add to the investment value of your farm, by increasing its earning capacity.

Where More Power Is Needed

Allis-Chalmers 10-18 H. P. Tractor

Where more power is required, the 10-18 cannot be excelled for efficiency and economy. It uses either kerosene or gasoline, and has a long record of good work in all parts of this country and abroad.

Allis-Chalmers 18-30 H. P. Tractor

A still more powerful machine. Uses either kerosene or gasoline.

Maximum Power With Light Weight

Maximum power with light weight is what every tractor designer has been seeking, and the Allis-Chalmers engineers have solved the problem. The machine is rated at 6 h. p. on the drawbar, and 12 h. p. on the belt. It weighs only 2300 pounds—heavy enough to secure good traction and to handle heavier work, yet light enough to work readily on soft or plowed ground.

The secret of its pulling power is in the fact that there are only two wheels, that both are drivers—and that the entire weight rests on them. The drive is of a special design, which has proved remarkably efficient, with a very low cost for upkeep.

Ideal for Cultivating Corn

The extra high clearance—25 inches—makes the machine a perfect power plant for cultivating corn.

One man operates both tractor and implement and the implement is hitched directly to the tractor, giving the operator perfect control.

With very little effort it can be attached to practically any horse-drawn implement of standard make, instead of having to buy an expensive engine plow, engine disc harrow, etc.

The tractor can be backed, with the implement attached, more easily than you can back with horses.

The engine is of the four-cylinder vertical design, $3\frac{1}{8}$x$4\frac{1}{2}$. The combination force feed and splash system insures perfect lubrication.

Allis-Chalmers Mfg. Co.

Milwaukee, Wisconsin

H. W. MOORE & Co. Distributors

18th and Wazee Sts. Denver, Colo.

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Fill out this coupon and mail it for full illustrated information and specifications of the Allis-Chalmers Tractors.

H. W. Moore & Co., 18th and Wazee Sts., Denver, Colo.

Without obligating me in any way, please send me your Bulletin No. 1303HH and full information regarding the Allis-Chalmers Tractor checked in square.

General Purpose Tractor

10-18 .....

18-30 .....

Name .....

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Town .....State.....

Sale of North Park Herefords

J. H. DICKENS' CATTLE BROUGHT GOOD FIGURES

The fourth annual sale of J. H. Dickens' North Park Herefords, which this year for the first time was held at Longmont, in the big sale pavilion at the fair grounds, brought many buyers from all over the range country of Colorado and Wyoming, with quite a number from the breeding farms of the irrigated districts and a few from the cornbelt. It was a two day affair, the offerings including 83 bulls and 150 cows and heifers. The clean-up of over $62,000 worth of cattle was completed early in the afternoon of the second day, Col. P. M. Gross, of Kansas City, having sustained his reputation for putting them through the ring in rapid-fire fashion.

Among the choice offerings of the sale was Repeater 29th, a son of the famous old Repeater of Harris & Son's breeding. This bull sired many of the calves in the sale, his offspring show-Repeaters are noted. He sold for $1,000 to Fred Schick of Greeley, who takes him to his ranch near Keenesburg along with a fine lot of cows and heifers bought at the sale, as a foundation for a new herd of purebreds.

Interest was keen in the sale of Repeater 29th, because of the great record made at the recent Harris sale in Missouri, at which four of the brothers of this bull sold for a total of $100,000.

Top figure of the sale was $1,025, paid by William Tibbles of Boulder, Wyo., for Prince Willard, a striking young individual out of the S. H. Velie herd at Kansas City. Mr. Tibbles, like Fred Schick, was one of the heaviest buyers at the sale.

A complete list of sales follows:

BULLS

Repeater 29th 451582, Fred Schick, Greeley, Colo., $1,000.
Aaron Mischief 525623, L. J. Stuart, Lexington, Neb., $450.
Parsifal Mildred 424898, E. L. Montgomery, Longmont, Colo., $500.
Jubilant 702519, C. V. Owens, Greeley, Colo., $275.
Formidable 707793, M. W. Slate & Son, Gunnison, Colo., $235.
Jockey 682841, M. W. Slate & Son, $250.
Jacob 682834, W. J. Rowe, Greeley, Colo., $300.
Forensic 707792, M. W. Slate & Son, $250.
James 702511, A. J. Campbell, Greeley, Colo., $265.
Firebrand 707788, Brooks Land & Cattle Co., Hardin, Colo., $315.
Fervent 707787, W. J. Rowe, $300.
January 691620, C. V. Owens, $275.
Jolly 682842, Wm. Tibbles, Boulder, Wyo., $240.
Real Perfect 2nd 674615, Murphy Land & Cattle Co., Spicer, Colo., $330.
Dvorak 643717, H. B. Means, Saguache, Colo., $500.
Chester 12th 636888, Murphy Land & Cattle Co., $425.
March On 618230, C. V. Owens, $300.
Missouri Lad 618231, Slate & Son, $235.
Beau Ross 15th 616967, Charles Pace, Longfont, $335.
Beau R. Roderick 616969, Charles Pace, $265.
Beau Ross 22nd 648719, Wm. Tibbles, $390.
Beau Ross 25th 648721, Charles Pace, $325.
Beau Ross 28th 648722, Murphy Land & Cattle Co., $330.
Twin Lad 1st 680700, Murphy Land & Cattle Co., $380.
Wilton Brummel 675595, William Kettle, Westcliffe, Colo., $280.
Beau Ideal 119th 776554, C. V. Owens, $300.
Beau Ideal 130th 776556, Wm. Tibbles, $255.
Apollo 590006, Slate & Son, $310.
Star Perfection 2nd 659832, Charles Pace, $260.
Imperial 7th 642735, Wm. Tibbles, $260.
Prince Willard 687886, Wm. Tibbles, $1,025.
Bocaldo 21st 687875, Wm. Tibbles, $250.
Endios 661396, Charles Pace, $280.
Dean Handsome 674534, Charles Pace, $450.
Horace Gleed 38th 781533, Murphy Land & Cattle Co., $260.
Horace Gleed 31st 680655, Murphy Land & Cattle Co., $440.
Onward Prince 8th 781535, Murphy Land & Cattle Co., $300.
Onward Prince 9th 781536, Murphy Land & Cattle Co., $410.
Onward Prince 10th 781537, Murphy Land & Cattle Co., $425.
Dan 673150, N. E. Lewis, Longmont, $250.
Peregrin 761092, Charles Yates, Boulder, Colo., $175.
Petrus 761094, William Tibbles, $130.
Phineas 761096, H. B. Means, $165.
Quentin 761099, H. B. Means, $155.
Randall 761100, William Tibbles, $140.
Raymond 761102, William Tibbles, $155.
Regnault 761104, William Tibbles, $150.
Ricardo 761106, Charles Pace, $210.
Roaul 761101, H. B. Means, $150.
Sansao 761110, William Tibbles, $155.
Sebastian 761111, George Kistler, Loveland, $160.
Lawrence 761053, William Tibbles, $180.
Thaddeus 761118, Charles Pace, $170.
Theodorus 761119, H. B. Means, $150.
Thomas 761121, Charles Pace, $165.
William 761134, H. B. Means, $150.
Titus 761122, L. Eberhardt, Louisville, Colo., $170.
Vincent 761128, William Tibbles, $155.
Walter 761132, W. J. Rowe, $155.
Wilfred 761133, Geo. Kistler, Loveland., $175.
Lambert 761050, Geo. Kistler, $160.
Lazaro 761055, Slate & Son, $150.
Leander 761056, C. G. King, Loveland, Colo., $210.
Lebbens 761057, William Tibbles, $150.
Leonardo 761058, Charles Pace, $180.
Leonidas 761059, Walter Woodley, Mead, Colo., $155.
Leopold 761060, C. H. Gilbertson, Fort Morgan, $470.
Lewis 761062, William Tibbles, $150.
Llewellyn 761063, W. L. Bashor, Jr., Lyons, Colo., $170.
Lucas 761064, W. Woodley, $155.
Madoc 761067, W. J. Rowe, Greeley, Colo., $155.
Marcellus 761068, Slate & Son, $170.
Marmaduke 761070, William Tibbles, $135.
Matthew 761073, William Tibbles, $180.
Maxmilian 761075, William Tibbles, $130.
Miles 761077, William Tibbles, $140.
Morgan 761079, Slate & Son, $155.
Nathan 761081, William Tibbles, $140.
Nicholas 761083, Slate & Son, $170.
Norman 761085, H. B. Means.
Oliver 761086, George Kistler, $200.

COWS

Value 2d 388659, M. McCaslin, Hygiene, Colo., $235.
Nordica 320436, William Tibbles, $245.
Fancy 2d 387412, Fred Schick, Greeley, $390.
Josephine 238762, Williams Bros., Walden, Colo., $300.
Rosette 3d 388654, George Kistler.
Polly 238783, William Tibgles, $380.
Agnes 238735, M. McCaslin, $210.
Emelia 270145, Williams Bros., $435.
Gretna 702507, L. Eberhardt, Louisville, Colo., $160.
Gauntlet 691606, L. Eberhardt, $160.
Bloomer, 3d 417758, James Ross, Fort Collins, $300.
Bossie 270149, James Andrews, Fort Collins, $400.
Graustark 691613, M. McCaslin, $155.
Gaberdine 691600, L. Eberhardt, $160.
Zada 270176, Fred Schick, $260.
Galveston 691602, M. McCaslin, $155.
Graceful 702504, M. McCaslin, $155.
Galley 702498, M. McCaslin, $155.
Girlie 712937, L. Eberhardt, $160.
Glennie 270158, Fred Schick, $410.
Birdie 270152, L. J. Stuart, Lexington, Nebr., $205.
Jess 270161, Brooks Land & Cattle Co., Hardin, Colo., $225.
Maggie 270164, William Tibbles, $400.
Mossy 270165, Williams Bros., $600.
Winnie 270175, Fred Schick, $280.
Auntie 305521, L. J. Stuart, $205.
Minuet 320435, L. J. Stuart, $150.
Madeline 312998, Fred Schick, $100.
Elenor 2d 387410, James Ross, $300.
Valentine 388658, M. McCaslin, $260.
Lot 123, heifer calf, Charles Pace, $100.
Fay 342399, Fred Schick, $555.
Thelma 342421, William Tibbles, $245.
Angeline 342389, C. C. Stobey, Fort Collins, $300.
Mame 342411, William Tabor, Lyons, Colo., $270.
Clella 324985, William Tibbles, $500.
Bertha 342390, James Andrews, $305.
Rosaline 3d 388652, Fred Schick, $425.
Opal 342414, Fred Schick, $475.
Hannah 342402, L. J. Stuart, $215.
Sarah 342417, C. C. Stobey, $300.
Leona 342406, William Tibbles, $525.
Frankie 342400, Scott Longstreth, Longmont, Colo., $225.
Vola 342422, L. J. Stuart, $215.
Zora 342425, James Andrews, $400.
Ester 320467, M. McCaslin, $250.
Cosette 320465, Williams Bros., $525.
Oreta 320469, William Tabor, Lyons, Colo., $270.
Chic 342393, G. W. Bertrem, Fort Collins, Colo., $500.
Glowworm 434369, Fred Schick, $300.
Myra, 387247, M. McCaslin, $300.
Abigail 387241, Fred Schick, $335.
Eudocia 381238, Williams Bros., $260.
Daphne 381235, A. J. Campbell, Greeley, $165.
Cleopatra 402697, M. McCaslin, $400.
Margaret 402702, Fred Schick, $305.
Willcamina 402711, William Kettle & Son, Westcliffe, Colo., $270.
Magda 431826, A. J. Campbell, $310.
Maude 402703, William Tibbles, $335.
Evangeline 402699, Fred Schick, $260.
Aal 402663, James Ross, $300.
Aaby 402660, A. J. Campbell, $250.
Miss Lowe, 388648, M. McCaslin, $235.
Jenny $325796, William Tibbles, $250.
Angeline 487573, M. McCaslin, $260.
Mildred 402704, A. J. Campbell, $250.
Trinket 431838, William Tibbles, $350.
Lottie 503657, M. McCaslin, $260.
Eula 431808, Fred Schick, $425.
Dainty 431800, A. F. Plumb, Greeley, Colo., $230.
Emerald 432241, Fred Schick, $280.
Empress Mary 431807, James Andrews, $305.
Lola 431822, William Tibbles, $400.
Lois 355067, Fred Schick, $440.
Almeda 432239, James Andrews, $350.
Lady Ellston 434374, Fred Schick, $305.
Yellow Rose 431839, M. McCaslin, $250.
Bess 270150, Brooks Land & Cattle Co., $295.
Greek Lady 431813, A. J. Campbell, $200.
Pink Lady 431831, Fred Schick, $450.
Diamond 431801, Brown, $315.
Juanita 432243, Brooks Land & Cattle Co., $585.
Truant 432249, James Ross, $300.
Amy 487570, A. J. Campbell, $310.
Beauty 431794, Fred Schick, $460.
Aar 402669, Fred Schick, $400.
Firefly 431810, L. J. Stuart, $150.
Queen Fisher 434382, Fred Schick, $440.
Duchess 431804, James Andrews, $450.
Ogarita 444873, Fred Schick, $300.
Jewel 434372, M. McCaslin, $235.
Queen of Ranch 434383, A. J. Campbell, $250.
Oceanic 431830, Williams Bros., $260.
Joan of Arc 431819, Fred Schick, $280.
Niana 431828, James Andrews, $450.
Nina 431829, Fred Schick, $725.
Anticipation 432240, James Andrews, $350.
Aarau 402670, Fred Schick, $285.
Red Rose 431834, J. A. Andrews, $370.
Mercedes 434378, Fred Schick, $375.
Lady Mason 431821, Brooks Land & Cattle Co., $315.
Heroine 265991, M. McCaslin, $210.
Butterfly 431797, Brooks, Land & Cattle Co., $305.
Linnie 2d 387414, Fred Schick, $285.
Iodalic 304762, M. McCaslin, $260.
Empress 431806, Fred Schick, $300.
Hallie 531254, Fred Schick, $260.
Noneen 531263, Williams Bros., $600.
Eastern 531220, A. J. Campbell, $310.
Annette 487571, Brooks Land & Cattle Co., $305.
Alvina 487561, Fred Schick, $460.
Ebolus 536867, A. F. Plumb, $230.
Agnes 487549, Fred Schick, $280.
Dela 531215, Fred Schick, $305.
Whitey 531274, N. E. Lewis, Iongmont, Colo., $245.
Ada 487543, Brooks Land & Cattle Co., $235.
Ravian 531266, A. F. Plumb, $400.
Evelyn 531249, Brooks Land & Cattle Co., $305.
Ernestine 531247, N. E. Lewis, $245.
3 heifers, $135 each, L. J. Stuart, $405.
Adoline 487547, Brooks Land & Cattle Co., $235.
Cosette C. 531214, Brooks Land & Cattle Co., $295.
Adela 487545, Brooks Land & Cattle Co., $225.
Augusta 487583, Fred Schick, $430.
Antonia 487578, A. J. Campbell, $125.
Amarilla 487564, A. J. Campbell, $250.
Almeda 487555, Scott Longstreth, $235.
Gussie 531253, Fred Schick, $280.
Cow, Fred Schick, $200.
Harmony 637522, Scott Longstreth, $260.
Histronic 637536, Scott Longstreth, $260.
Myrtle 402705, A. J. Campbell, $175.

Avery Threshers Beat Government Record

Canvas tests, made by the Government during the past season, again prove Avery "Yellow-Fellows" the *Champion Grain-Saving Threshers* of them all.

The Food Administration Grain Corporation, under the authorization of the Government last summer, made 408 canvas tests throughout the Northwest. After carefully adjusting all separators the average saved was 99 62-100 per cent.

The average percentage of grain saved by Avery Threshers in 27 actual field tests, threshing on canvas in a similar way, **was 99 91-100 per cent**—a record that has never been equalled by any other make of tractor.

Avery Separators beat the Government record by *over one-quarter of one per cent.*

Avery I. X. L. Separating Device, located back of the cylinder. Its fingers hunt around for the last kernel and get it. The greatest grain-saving feature ever added to a separator.

Think What This Means in Saving High Priced Grain

We back Avery Separators with the strongest definite grain-saving guarantee given with any machine—guarantee printed right in the order blank.

Write for the Avery Catalog

and find out more about the many exclusive and protected features in Avery Grain-Saver Threshers. Also learn agout the six sizes of Avery Kerosene Tractors.

See the Avery Tractors at the National Tractors Demonstration at Denver, June 9th to 14th.

Tractors.

AVERY COMPANY
4131 Iowa Street PEORIA, ILLINOS

AVERY
Motor Farming, Threshing and Road Building Machinery

There are five sizes of Avery Tractors—one design—standardized

WELL DRILLING MACHINES
PURE WATER Pure Water is Essential for the family and the live stock. This can be best secured by drilling. "American" Well Drilling Machines are made in styles and sizes suitable for almost any locality. A source of profit either as a regular business or side line on a reasonable investment.

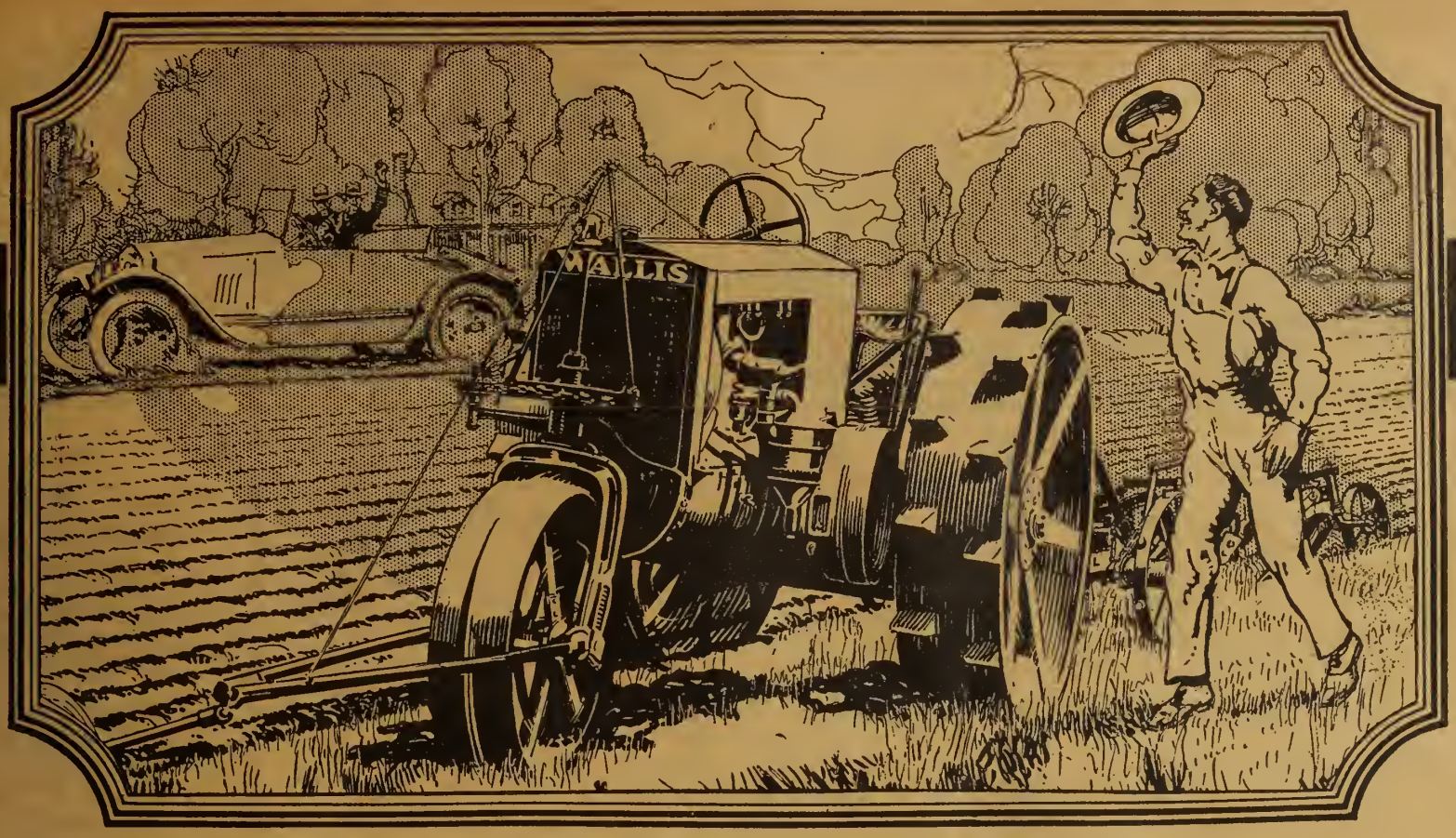
Catalog on request.
Dept. 27, The American Well Works
General Office & Works: Aurora, Illinois

A Good Hitch is Important in Tractor Operation

Hitch is Highly Important

The hitch is highly important in the successful operation of the implement drawn. Particularly does this apply to plows. The greater the offset or cross-distance between the line of draft of the plow and the true line of draft of the tractor, the more difficult to keep the plow in its proper alignment so as to preserve the proper width of furrow. In many cases the hitch is so arranged that the line of draft is a compromise. If the plow be favored, the tractor may be hard to steer. If the tractor is favored, it may be difficult or impossible to keep the plow in the furrow. This is especially true of the disk plow. In extra wide tractors the condition is aggravated. The impossible is often expected in a hitch. The basic mechanical principles can best be presented by actual demonstration.

The Avery Company has just issued an excellent booklet of 48 pages showing tractor drawbars and hitches for all sizes of various implements handled by tractors. The title is "The Avery Hitch Book." It was compiled by Mr. J. B. Bartholomew, President of the company.



See "AMERICA'S FOREMOST TRACTOR"

WALLIS

AT THE DENVER TRACTOR DEMONSTRATION

JUNE 9-14

The Wallis is a triumph of tractor designing. It includes features that every farmer wants. It is far in advance of others.

It plows an acre an hour at lowest cost. This is because of light weight, excess power, freedom from expensive delays and repairs. It harrows, plants, cuts hay and grain, threshes, pumps, saws wood, and does most of the heavy work of the farm.

It delivers more power than others at the drawbar. Its wonderful saving of time means more work done, bigger acreage under crop, less cost for labor.

It has "U" shape boiler-plate frame, cut steel gears, enclosed rear-axle drive, valve-in-head 4-cylinder motor. All working parts run in bath of oil.

Burns either kerosene, gasoline or distillate. Has air-cleaner and strainer, and finest oiling and cooling system.

Performance is proof! Come see the Wallis—"America's Foremost Tractor," and J. I. Case Power Farming Implements.

SEE ALSO THE CELERBATED CASE POWER FARMING IMPLEMENTS

Case Implements and the Wallis Tractor make an unbeatable combination. We will show and demonstrate Case Plows, Harrows and Listers. These celebrated implements are known the world around. Their use enables the farmer to take full advantage of the present high prices. **Now** is the time to do it.

REG. U.S. PAT. OFF.

J. I. CASE PLOW WORKS

Sales Agents for Wallis Tractors

RACINE, WISCONSIN, U. S. A.

A Government Tractor Survey

ENABLES FARMERS TO INCREASE ACREAGE

ARNOLD P. YERKES

Winter Use For the Tractor in Wood Sawing

THE introduction of any improved farm machine generally reduces the man labor required for any farm operation, and thus permits one man to accomplish more work and so farm more land than with the older methods. This holds true regarding tractors of sizes which will accomplish more work per day than can be done with horses. Because of the local conditions and the type of farming followed, farms in the Dakotas have always been of comparatively large size, yet 44 per cent of the farmers who bought tractors increased the acreage which they were farming, the average increase being 139 acres. Though the adoption of tractors in any locality has invariably resulted in a marked increase in the size of farms, in the corn belt and other farming communities where the average size of farms was considerably less than in the Dakotas, the percentage of tractor owners who increased their acreage has usually been about 33 per cent, and the additional acres farmed would average slightly less than 100. The higher percentage of farmers in the Dakotas who increased their farm acreage, as well as the considerable amount of additional land farmed, is particularly interesting.

This increase in the size of farms is a logical result of the adoption of a labor-saving machine. Farm management studies repeatedly have demonstrated the fact that a great many farms are not large enough to furnish economical employment for the equipment which they posses. That is, the various implements are capable of doing the work on a larger acreage within the time which the seasons allow, and the purchase or renting of additional land often will increase the gross receipts considerably without materially increasing the operating expenses.

With the tractor, as with any other farm machine, it is important that a suitable size should be selected for a given acreage. Because of the larger acreages to be plowed in the Dakotas, the small two-plow tractors have never proved popular in these states. The records obtained show that by far the largest number of machines purchased during the last two or three seasons have been the three-plow outfits, with a considerably greater number of the larger than of the smaller machines.

How Small a Farm Can Afford a Tractor?

The question as to the smallest farm on which a tractor may be expected to prove profitable is often asked and has been much discussed. This obviously depends upon a number of factors, and particularly the type of farming followed. Certainly no more reliable opinion on this point for farmers in any locality could be obtained than the average of the estimates of a large number of tractor owners in that neighborhood. In the opinion of Dakota farmers the minimum number of acres on which the 2-, 3-, or 4-plow outfits may be expected to prove profitable are 185, 225, and 314 acres, respectively. Attention is called especially to the fact that these figures represent the smallest size of farm for which these tractors should be purchased, in the opinion of men who have had experience with them, and not the size on which they can be used most profitably. A farmer who is contemplating the purchase of a tractor and whose farm is smaller than the acreage above given, should consider carefully before acting contrary to the opinions of experienced men.

While a tractor is less efficient on a small farm, because of the smaller fields and a correspondingly greater loss of time in turning, the large percentage of the area of fields to be finished up with horses when plowing, etc., these points are not so important as the fact that the small farm is usually thrown out of balance, from an economic standpoint, by the investment of a disproportionate amount of capital in power which can be used fewer days than would be the case with the same machine on a larger farm. The overhead charges per unit of work done, therefore, are much higher on the small farm. The obvious course for the small farmer who has already invested in a tractor and wishes to make the best use of it is to acquire more land in order to utilize the tractor more efficiently, which, as mentioned elsewhere, is the course followed by a large percentage of tractor purchasers. The minimum size of farms on which tractors of these sizes are recommended for Dakota conditions are considerably larger than the acreages recommended for the same-sized tractors in other sections of the country, owing doubtless to the different type of farming followed. * * * *

Tractor Must Fit the Job

To obtain the fullest degree of satisfaction, it is necessary that the proper size of tractor be bought. A tractor which is not powerful enough for the work required of it will prove more or less unsatisfactory, of course, and to exchange it for a larger one entails an expense which would be unnecessary if the right size were obtained at first. On the other hand, an outfit which is much too large may be too clumsy or expensive in operation to make it economical for a great deal of work on which a tractor of the proper size could be used with satisfaction and economy.

In purchasing an outfit care should be used to obtain one with ample power for the heaviest work which will be required of it. This may be either field work or belt work; probably it will be the latter more often than the former. Frequently the work of a tractor in driving a grain separator or ensilage cutter requires more power than would be necessary for doing the plowing in good seasons, and in such cases the tractor bought should be powerful enough to handle the belt work properly. On the other hand, the belt work required of the tractor may not demand a great deal of power, while the amount of plowing to be done within a limited season is considerable. In such cases the tractor should be capable of pulling enough plows to do the work within the time available.

There are cases in which only a small amount of belt work is required, and most of the field work will be done with horses, the tractor being wanted merely to make extra power available in rush seasons, or to relieve the horses during hot spells. In such cases the small 2-plow outfits frequently have proved most satisfactory. Such an outfit has the advantage of not necessitating a large investment, and on this account is sometimes recommended by experienced men as a good size to buy at first in order to gain experience in the use and care of tractors.

If it is desired to use the tractor for custom work on neighboring farms, or for road work, an outfit with sufficient power to handle such work satisfactorily should be chosen.

As a general rule it is better to err through buying an outfit with too much power rather than too little, but this should not be interpreted as recommending the purchase of the largest sizes. It refers rather to the apparently too common practice of getting a 2-plow outfit to do work which should

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The Fordson Dealer's Service Pledge

We realize that satisfactory. economical tractor operation depends on two factors. First, the strength, durability and economy of the tractor itself. Second, on being able to immediately secure parts and service work when occasion requires so that the tractor may be kept in operation every working day in the year.

We believe that it is just as much the duty of every Fordson distributor and dealer to keep parts and service instantly available wherever a Fordson is sold as it is for the Fordson Company to put good materials and workmanship into the tractor itself.

We want to make the pledge to every Fordson buyer that we will, by keeping complete stocks of parts and expert mechanics close at hand, help him in every way possible to get the best work and the most work out of his tractor and to avoid delays and lost time.

Fordson durable, dependable quality backed by such service as this is an unbeatable combination.

VOLLMER BROTHERS
Colorado Springs
MOUNTAIN STATES TRACTOR COMPANY
Denver
Fordson Distributors
Colorado, Wyoming and New Mexico

The LAUSON Wins

OFFICIAL REPORT
Pacific Northwest Tractor Demonstration
WALLA WALLA, WASHINGTON

Date 4-24 1919
Public Demonstration Began 1 PM Finished 4 PM
TRACTOR DATA
Name of Exhibitor John Lauson Mfg. Co.
Make of Tractor Lauson Size 15-25
Fuel Used Kerosene Baume Test 40
Name of Operator John Monraine
PLOW DATA
Make of Plow Oliver No. Bottoms 3
Size 14" Type Tractor Gang
FIELD DATA
Topography of Field Very hilly
Grade—Up Furrow 30-25-32% Side Grade 30-35-% Down Furrow 8%
Kind of Soil Volcanic ash Condition: Dry ___ Moist X Wet ___
Depth Plowing 7-5-7-7
Field Observer Kenneth Melvold

Most Remarkable and Sensational Showing Ever Made by a Wheel Type Tractor.

Carries Off First Honors Over 30 Other Tractors at Walla Walla, Washington, Demonstration on a 35 Per Cent Grade and a 43 Per Cent Side Hill.

The performance of the Lauson was probably the most remarkable and sensational demonstration ever made by a wheel type tractor. Other wheel type tractors were forced to drop out on account of the heavy grades and angle of side hill. Of all the wheel type tractors the LAUSON was the only one to negotiate the extreme grades.

Official Report Tells the Story

The LAUSON pulled three 14-inch bottoms to an average depth of 7 inches without a stop or delay of any kind for repairs or adjustment. It operated throughout the demonstration on kerosene.

Again this proves that the LAUSON has surplus power, greater stamina, more efficiency at the drawbar, better distribution of weight, greater ease of handling.

In short, it proves that the LAUSON is the PATTERN TRACTOR of the industry.

Watch for the Lauson

at the National Tractor Demonstration at Denver June 9 to 14. The Lauson 15-25 will be represented at this tractor meeting and can be depended on to give a sensational performance of tractor efficiency. Don't fail to see the Lauson and have our demonstrators explain why the Lauson wins.

THE JOHN LAUSON MFG. COMPANY
1139 Monroe Street, New Holstein, Wis.

The G O Tractor comes to the Denver Demonstration with 8 Years of Experience Behind It

THE FARMER who comes to the Denver Tractor Demonstration without a pretty *definite idea* of what he is looking for is likely to become confused.

He is going to see tractors with big wheels and little wheels—tractors with drive on the front wheels and tractors with drive on all four.

The tractor industry is young and many new ideas are being tried out.

There is nothing experimental or unfinished about the G O Tractor.

When you go to the G O exhibit you will see a tractor which has *proven its utility* through years of experience—which hundreds of other farmers have found well adapted to their needs.

It is built on sound engineering principles by some of the best workmen in America.

It was the first successful tractor to enclose the gears in *dust-proof casings*, adding years to its life.

Its control is so simple that a boy of fourteen can run it as easily as the huskiest man.

Every part is *accessible*. The farmer can make his own adjustments right on the ground.

The G O Tractor will turn handily, plow in corners or next to the fence, just like your team. It plows in *any soil* without strain to the motor—gives six speeds, forward and reverse.

Gasoline or distillate may be used, but most farmers prefer kerosene.

Its light weight saves power for hauling and does not pack down the soil.

The Herbert Toogood Machinery Company, 1731 Wazee Street, Denver, Col., the G O Tractor dealers, will have charge of the demonstration, June 9th to 14th.

They will be glad to show you how farmers all over the country during the past eight years have been getting practical, economical service out of the G O Tractor.

This is much better than salesmen's talk.

GENERAL ORDNANCE CO.—*Tractor Division*

All Inquiries pertaining to Tractors and other products except ordnance should be addressed to Dept. 33.

Executive and Eastern Sales Office: 2 West 43rd Street, New York

Eastern Factory:
Derby, Conn.

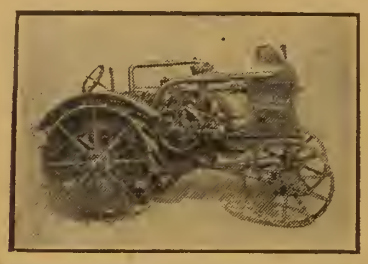
Western Sales Office and Factory:
Cedar Rapids, Ia.

Tractor Directory for the Mountain States Show

DESCRIPTION WILL HELP FARMERS WHO FOLLOW THE MACHINES

FARMERS who attend the Mountain States National Tractor Demonstration at Denver, June 9 to 14, should carry this copy of Western Farm Life with them. On this and the following pages will be found a directory of tractors showing one style of each of the makes to take part at the big demonstration. Most of the manufacturers will have several styles on the ground, but the illustrations here given show principally the medium and small sizes. Brief specifications are given of each machine showing the drawbar and belt rating, the kind of fuel used and other important details. These specifications were furnished by the manufacturers and they are reliable.

Farmers who expect to follow the tractors at their work will find this directory of great help in picking the particular type of machine which they wish to examine carefully. There will be so many different makes and types and sizes on the field that those interested in watching the machines work may wish to select in advance particular types which they think will best suit their farming conditions. Factory experts will be on hand with each plowing outfit to answer questions and there will also be on the grounds the experts from various agricultural colleges, who will be there for observation and to help farmers with advice and suggestions.



Advance-Rumely Thresher Co., 12-20 Tractor

Traction wheels: 4 wheels, two drive wheels in rear: 51 ln. diameter. **No. of plows recommended:** three 14-in.; Length 132 in.; **Width:** 64 in.; **Height:** 75 in.; **Motor** own; 2 cylinder 6x8 horizontal cast en bloc; 560 r.p.m. **Lubrication:** force feed and splash. **Carburetor:** Secor-Higgins, special type, burning kerosene and distlllate. **Ignition System:** Bosch with lmpulse starter. **Cooling System:** oil circulated by centrifugal pump and air circulated by engine exhaust. **Bearings:** Hyatt roller ln transmission and rear axel. **Transmission:** spur gear; 2 speeds forward and 1 reverse; speeds 2.1 to 3.26 m.p.h. **Final Drive:** spur gear and plnion open.

Allis-Chalmers Co., 6-12 Tractor

Traction wheels: two wheels with two traction members, 48x6. **No. of Plows Recommended:** one 16-ln. **Weight:** 2300 lbs. **Width:** 54 in. **Clearance:** 25 in. **Motor:** Le Roie 3½x4½; 4 cylinder cast en bloc. **Lubrication:** splash. **Carburetor:** Kingston double. **Ignition:** high tension magneto. **Cooling System:** own; radiator fin and tube water and fan. **Bearings:** own make ln transmission. **Transmission:** own. **Range of Speed:** miles per hour 1½ to 2.8. **Final Drive:** Bull gear. **Belt Pulley:** 10x5½.

Appleton Manufacturing Co. 12-20 Tractor

Traction Wheels: four wheel type wlth two drive members in rear, 54x12. **No. of Plows Recommended:** three 14-in. **Length:** 152 in. **Width:** 67½ in. **Height:** 61 in. **Weight:** 4900 lbs. **Turning Radius:** 10 ft. **Motor:** Buda 4 cylinder 4½ in. bore and 5½ in. stroke. **Speed:** 1000 r.p.m. **Lubrication:** splash and force feed. **Carburetor:** Schebler. **Ignition System:** Bosch. **Cooling System:** Centrifugal pump, Spirex radiator. **Bearings:** Hyat. **Transmission:** Sliding gear, 2 speeds forward and reverse. **Final Drive:** Internal gear. **Belt Pulley:** 12x 7½; 825 r. p. m.; 2600 feet per minute at normal engine speed.

Aultman & Taylor Co. 15-30 Tractor

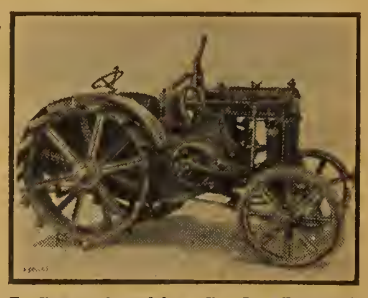
Traction Wheels: four wheel tractor with two traction members in rear 70x12. **No of Plows Recommended:** four 14-ln. **Length:** 176 ln. **Width:** 80 ln. **Height:** 104 in. **Weight:** 7500 lbs. **Turning Radius:** 12 feet. **Acres plowed in 10-hr. Day:** 10 to 12. **Motor:** 4 cylinder vertical 5x6½. **Normal Motor Speed:** 800 r.p.m.; can be run 900 r.p.m. with entire safety. **Lubrication:** automatlc splash system. **Carburetor:** Kingston. **Ignition:** Eismann, high tension magneto wlth impulse starter. **Bearings:** SKF ball bearings. **Transmission:** spur gear and bevel gear enclosed. **Final Drive:** spur gear, live axle. **Belt Pulley:** 20x8.

Avery Manufacturing Co., 12-25 Tractor

Traction Wheels: Four wheels, driving from two rear wheels, 56x20. **No. of Plows Recommended:** four 14-in. **Length:** 164 in. **Width:** 80 in. **Height:** 105 in. **Weight:** 7500 bs. **Turning Radius:** 14 ft. **Motor:** own, 6½x7, opposed, valve in head, 2 cylinders cast en bloc. **Lubrication:** pressure feed and splash. **Carburetor:** Kingston double. **Ignition System:** K-W high tenslon. **Cooling System:** Thermo-syphon. **Transmission:** spur gear, 1¾ to 2¾ m.p.h. forward; 1¾ m.p.h. reverse. **Final Drive:** double spur gear. **Belt Pulley:** 19½x7, 570 r.p.m.

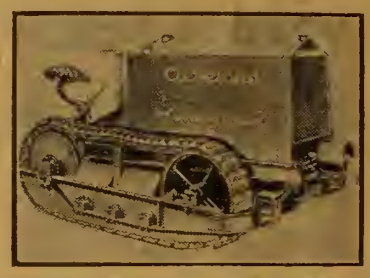
C. L. Best Gas Traction Co. 12-25 Tractor

Traction Wheels: two crawlers each 8½x36½. **No of Plows Recommended:** three or four 14-in. **Length** over all: 10 ft. 5 in. **Height:** 4 ft 7 in. to top of hood; 5 ft. 6in. to top of exhaust pipe. **Width** over all: 51 in. **Weight:** 5200 lbs. **Turning Radius:** 8 ft. **Acres Plowed** in 10-hr. day: 9 to 12. **Motor:** own; 4 cylinder 4 cycle, water cooled; cylinders cast separate, heads removable. **Lubrication:** splash system thruout. **Carburetor:** Ensign. **Ignition:** K-W magneto with impulse starter. **Cooling System:** water pump, fan and radiator. **Bearings:** Hyatt and Timken. **Transmission:** selective gears. **Speed:** 2 forward and 1 reverse. **Working Speed:** 2 and 3 miles per hour. **Final Drive:** Internal gear.



J. I. Case Threshing Co. 15-27 Tractor

Traction Wheels: four wheels with two drive wheels 52x12 in rear. **No. of Plows Recommended:** three or four 14-in. **Length:** 127 in. **Width:** 72 in. **Height:** 68 in. **Weight:** 5500 lbs. **Motor:** own; 4 cylinders valve-ln-head; head removable; bore 4½ in., stroke 8 in.; diameter of valve 7⅞ in.; cast en bloc. **Lubrication:** circular and splash aided by plunge pump. **Carburetor:** Kingston. **Ignition System:** K-W high tension magneto. **Cooling System:** Thermo-Syphon. **Bearings:** Hyatt roller bearings for rear axle, transmission and bull pinion shaft. **Transmission:** sliding gears, two speeds forward and reverse. **Tractor Speed:** low gear, 2½ miles per hour; high, 3½ mlles per hour. **Belt Pulley:** 16x6½; normal engine speed 900 r.p.m.



Cleveland Tractor Co., 12-20 Tractor

Traction Wheels: one crawler on each slde. **No. of Plows Recommended:** two 14-ln. **Length:** 96 in. **Width:** 50 in. **Height:** 52 in. **Weight:** 3175 lbs. **Turning Radius:** 6 ft. **Acres Plowed** in 10-hr. day: 8 to 10. **Motor:** Weidley; 3¾x5½, 4 cycle, 4 cylinders cast en bloc. **Lubrication:** force feed system. **Carburetor:** Kingston. **Ignition System:** Eisemann hlgh tension magneto. **Cooling System:** water pump, radiator and fan. **Bearings:** Hyatt roller on drive axle and bronze in transmission. **Transmission:** sliding gear, 1 to 3½ m.p.h. forward; 1 to 3½ m.p.h. reverse. **Final Drive:** internal gear and pinion. **Belt Pulley:** 8x6; 1250 r.p.m. and 2600 feet per minute at normal engine speed.

J. I. Case Plow Works, Wallis Cub Junior 13-25 Tractor

Traction Wheels: three wheel type wlth traction through two rear wheels, 48x12. **No. of Plows Recommended:** two and three 14-in. **Length:** 148 in. **Width:** 61 in. **Height:** 61½ in. **Weight** 3250 lbs. **Turning Radius:** 10 ft. **Acres Plowed** ln 10-hr. day, 10. **Motor:** own, 4¼x5¾, 4 cycle, 4 cylinders, cast en bloc with removable sleeves. **Lubrication:** posltive pump and splash system. **Carburetor:** Bennett, single bowl. **Ignition System:** K-W high tension magneto. **Cooling System:** Modine Spirex enclosed cellular type radiator. **Bearings:** Hyatt roller throughout. **Transmission:** selective gears, 2½ to 3½ m. p. h. forward, 2½ m. p. h. reverse. **Final Drive:** spur gear on two live rear axles. **Belt Pulley:** 18x5, 430 r. p. m. and 2030 feet per minute at normal engine speed.

Coleman Tractor Co., 16-30 Tractor

Traction Wheels: four wheels, two traction wheels, 44x10. **No. of Plows Recommended:** three 14-in. **Weight:** 5000 lbs. **Motor:** Climax, 5x6½ vertical, 4 cylinders. **Carburetor:** Stromberg. **Ignition System:** Dixie high tension magneto with impulse starter. **Cooling System:** Spirex radiator, pump and fan. **Bearings:** Timken and Hyatt. **Transmission:** forward, reverse and bevel operated by one lever. **Final Drive:** direct from engine thru worm and worm gear to rear axle; no intermedlate gears. **Belt Pulley:** 14 in. diameter and 7 in. face.

Dauch Manufacturing Co., 10-20 Tractor

Traction Wheels: four wheels; two traction wheels, 48x12, in rear. **No. of Plows Recommended:** Two 14-in. **Length:** 120 in. **Width:** 62 in. **Height:** 52 ln. **Weight:** 4080 lbs. **Turning Radius:** 8 ft. **Acres Plowed** in 10-hr. day: 5. **Motor:** Dauch; 4¼x5¼, L-head, 4 cylinders, cast en bloc. **Lubrication:** force feed and splash system. **Carburetor:** Kingston dual. **Ignition System:** Dixie high tension with impulse starter. **Cooling System:** circulating pump. **Bearings:** own; bronze on drive axle and ln speed change gears. **Transmission:** selective, 2 to 3 m.p.h. forward; 2¼ m.p.h. reverse. **Final Drive:** spur gear. **Belt Pulley:** 10x15; 800 r. p. m.

Deer & Co. 12-25 Tractor

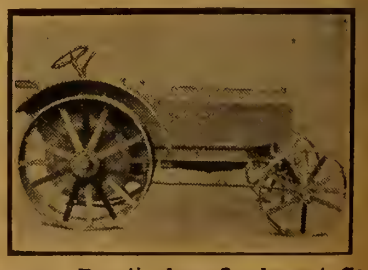
Traction Wheels: four wheels with two tractlon members, 52x12, in rear. **No. of Plows Recommended:** three 14-in. **Length:** 136 in. **Width:** 72 ln. **Height:** 66 in. **Turning Radius:** 12 ft. **Motor:** own, 6½x7; twin horlzontal, 2 cylinders, cast en bloc. **Lubrication:** force feed and splash system. **Carburetor:** Schebler. **Ignition System:** Dlxie high tension magneto. **Cooling System:** clrculating pump, Modlne radiator and fan. **Bearings:** Hyatt roller ln transmission and on drive axle. **Transmission:** sliding gear, 2¼ to 3 m.p.h. forward; 1¾ m.p.h. reverse. **Final Drive:** internal gears in drive wheels. **Belt Pulley:** 14x8; 750 r.p.m. and 2750 feet per minute at normal engine speed.

Eagle Manufacturing Co., 16-30 Tractor

Traction Wheels: four wheels, two rear, 52x12, affording traction. **No of Plows Recommended:** four 14-ln. **Length:** 141 in. **Width:** 70 in. **Heighth:** 78 in. **Weight:** 7100 lbs. **Turning Radius:** 14 5-6 ft. **Acres Plowed** in 10 hr. day: 11. **Motor:** Own; 8x8, valve-in-head, 2 cylinders, cast en bloc. **Lubrication:** Madison-Klpp force feed. **Carburetor:** Llnga kerosene vaporizer. **Ignition System:** Dixie high tension magneto with impulse starter. **Cooling System:** Perfex radiator, fan circulating pump. **Bearings:** Hyatt roller ln transmission and plain on drive axle. **Transmission:** Sliding gear, 2 to 3 m. p. h., forward 1¾ m. p. h. reverse. **Final Drive:** spur gear to both rear wheels. **Belt Pulley:** 24x10; 450 r. p. m. and 2825 feet per minute at normal engine speed.

Electrlo Wheel Company, 14-28 Tractor 14x28 Tractor

Traction Wheels: Four wheels, two traction wheels in rear; 48x12. **No of Plows Recommended:** three 14-in. **Length:** 125 in. **Width:** 66 ln. **Height:** 69 in. **Weight:** 5000 lbs. **Turning Radius:** 12 ft. **Acres Plowed** in 10 hr. day, 10. **Motor:** Own: 5x6 vertlcal, 4 cylinders, cast separately. **Lubrication:** constant level splash. **Carburetor:** Kingston automatic. **Ignition System:** Kingston high tension magneto with double impulse starter. **Cooling System:** Perfex radiator, fan, water pump. **Bearings:** Own babbit in transmlssion and roller on drive axle. **Transmission:** Selective sliding gear, 1.75 to 3 m. p. h. forward; 1.75 m. p. h. reverse. **Final Drive:** Enclosed and self-oiling spur gears. **Belt Pulley:** 12x7; 800 r. p. m. and 2514 feet per minute at normal engine speed.



Emerson-Brantingham Implement Co., 12-20 Tractor

Traction Wheels: four-wheel tractor, with two drives in rear, 60x12. **No of Plows Recommended:** three 14-in. **Length:**

164¼ in. **Width:** 81⅝ in. **Height:** 86 in. **Weight:** 6500 lbs. **Turning Radius:** 30 ft. **Acres Plowed** in 10 hr. day: 10. **Motor:** Own: 4¾x5, vertical, 4 cylinder, cast in pairs. **Lubrication:** splash. **Carburetor:** Bennett. **Ignition System:** K-W high tension magneto. **Lighting Equipment:** K-W. **Cooling System:** Perfex radiator. **Bearings:** Hyatt roller in transmission and on drive axle. **Transmission:** Sliding gear, 1.64 to 3.4 m. p. h. forward; 1.64 m. p. h. reverse. **Final Drive:** Gear. **Belt Pulley:** 12x8; 708 r. p. m. and 2225 feet per minute at normal engine speed.

Fageol Motors Co., 6-15 Tractor

Traction Wheels: four-wheel tractor with two driving wheels, 48 inches in diameter, in rear, with spokes extended. **No of Plows Recommended:** two 12 or 14-in. **Length:** 110 in. **Width:** 53 in. **Height** 42 in. **Weight:** 2750 lbs. **Motor:** Overland, 3⅜x5, vertical L-head, 4 cylinders, cast en bloc. **Lubrication:** Impulse pump and splash. **Carburetor:** Tillotson. **Ignition System:** Berling high tension magneto. **Cooling System:** Ten-gal. cast radiator and centrifugal pump. **Bearings:** Fafnir radial ball in transmission and Timken on drive axle. **Transmission:** one speed, 2½ to 2¾ m. p. h. forward; same reverse. **Final Drive:** live axle and expanding clutch, 25x4 inches. **Belt Pulley:** 6x5; 1000 r. p. m. and 1500 feet per minute at normal engine speed.

Fairbanks, Morse & Co., 10-20 Tractor

Traction Wheels: four-wheel type, with two drive members, 48x10 in rear. **No of Plows Recommended:** two 14-in. **Length:** 120 in. **Width:** 57 in. **Height:** 66 in. **Weight:** 3750 lbs. **Turning Radius:** 13 ft. **Motor:** 6x7 horizontal, 2 cylinders, cast en bloc. **Lubrication:** force feed system. **Carburetor:** Atomizer. **Ignition System:** Dixie high tension magneto. **Cooling System:** radiator and circulating pump. **Transmission:** sliding gear, 1½ to 2¼ m. p. h. forward. **Belt Pulley:** 18x6½, 600 r. p. m.

Four Drive Tractor Co., 20-30 Tractor

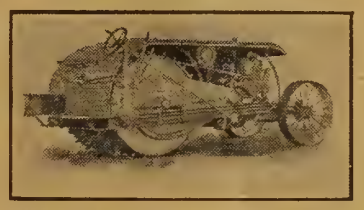
Traction Wheels: four wheels with four traction members, rear 42x12, front 36x12. **No of Plows Recommended:** four 14-in. **Length:** 130 in. **Width:** 69 in. **Height:** 75 in. **Turning Radius:** 7½ ft. **Motor:** Climax, 4-cylinder vertical, 5x6½, four speeds from 200 to 800 r. p. m. **Lubrication:** force feed through crank shaft. **Carburetor:** Byrne-Kingston. **Ignition System:** Dixie high tension impulse starter. **Cooling System:** Spirex. **Bearings:** Timken; Cotta three-speed forward and reverse transmission. **Belt Pulley:** 14x8.

General Motors Truck Co., 12-25 Tractor

Traction Wheels: three-wheel type, two rear; special sieve grip wheels affording traction. **No. of Plows Recommended:** three 14-in. **Length:** 160 in. **Width:** 64½ in. **Height:** 56 in. **Turning Radius:** 12½ ft. **Acres Plowed** in 10 hr. day, 10. **Motor:** GMC; 4¾x6; L-head, 4 cylinders cast en bloc. **Lubrication:** high pressure force feed on all bearings. **Carburetor:** Marvel, automatic jet. **Ignition System:** Eisemann, high tension, fixed spark magneto. **Starting** and **Lighting Equipment:** Remy optional. **Cooling System:** Centrifugal circulating pump. **Bearings:** Own make, plain in transmission and roller on drive axle. **Transmission:** Constant mesh gears and sliding clutch, 1½ to 2½ m. p. h. forward; 1½ to 3½ m. p. h. reverse. **Final Drive:** through patented roller pinion. **Belt Pulley:** 14 in.x8 in.; 700 r. p. m. and 2600 feet per minute at normal engine speed.

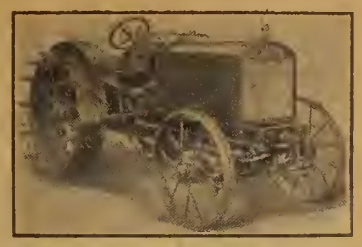
General Ordnance Co., 14-27 Tractor

Traction Wheels: four wheels, two drive wheels in rear 46x10. **No of Plows Recommended:** three 14-in. **Length:** 123 in. **Height:** 60 in. **Width** 68 in. **Weight:** 4200 lbs. **Turning Radius:** 13 ft. **Acres Plowed** in 10-hr. day, 10 to 12. **Motor:** Waukesha, 4½x5¾, vertical L-head, 4 cylinders, cast in pairs. **Lubrication:** force feed and splash system. **Carburetor:** Kingston kerosene. **Ignition System:** Dixie high tension magneto with impulse starter. **Starting** and **Lighting Equipment:** special. **Cooling System:** Perfex cellular radiator pump and fan. **Bearings:** SKF ball on speed change gears and plain on drive axle. **Transmission:** Friction 2 to 3½ m. p. h. forward, 2 to 3½ m. p. h. reverse. **Final Drive:** enclosed gears. **Belt Pulley:** 10x6; 600-1000 r. p. m.



The Gray Tractor Company, 18-36 Tractor

Traction Wheels: three-wheel tractor, with one rear drum wheel 54 in.x54 in., affording traction. **No of Plows Recommended:** four 14-in. **Length:** 168 in. **Width:** 81 in. **Height:** 62 in. **Weight:** 6200 lbs. **Motor:** Waukesha, 4¾x6¾; vertical L-head, 4 cylinders, cast in pairs. **Lubrication:** constant level splash and pump circulation. **Carburetor:** Bennett. **Ignition System:** K-W high tension magneto. **Starting** and **Lighting Equipment:** lighting equipment special. **Cooling System:** water, pump circulation and cellular radiator. **Bearings:** Hyatt roller in transmission and own on drive axle. **Transmission:** sliding gear, 2 to 2½ m. p. h. forward, 2 m. p. h. reverse. **Final Drive:** chain enclosed. **Belt Pulley:** 11 x8, 900 r. p. m. and 2600 feet per minute at normal engine speed.



Hession Tiller & Tractor Corp., 15-25 Tractor

Traction Wheels: four wheels, two traction wheels, 9x30. **No. of Plows Recommended:** three 14-in. **Length:** 136 in. **Width:** 30 in. **Height:** 67 in. **Weight:** 2500 lbs. **Motor:** four cylinder, cast en bloc, 4x6, 1000 r. p. m. **Lubrication:** splash system. **Carburetor:** Kingston. **Ignition:** Dixie. **Cooling System:** water, pump, fan and radiator. **Bearings:** Timken. **Transmission:** selective gear. **Belt Pulley:** 8x12. **Turning Radius:** 4½ feet.

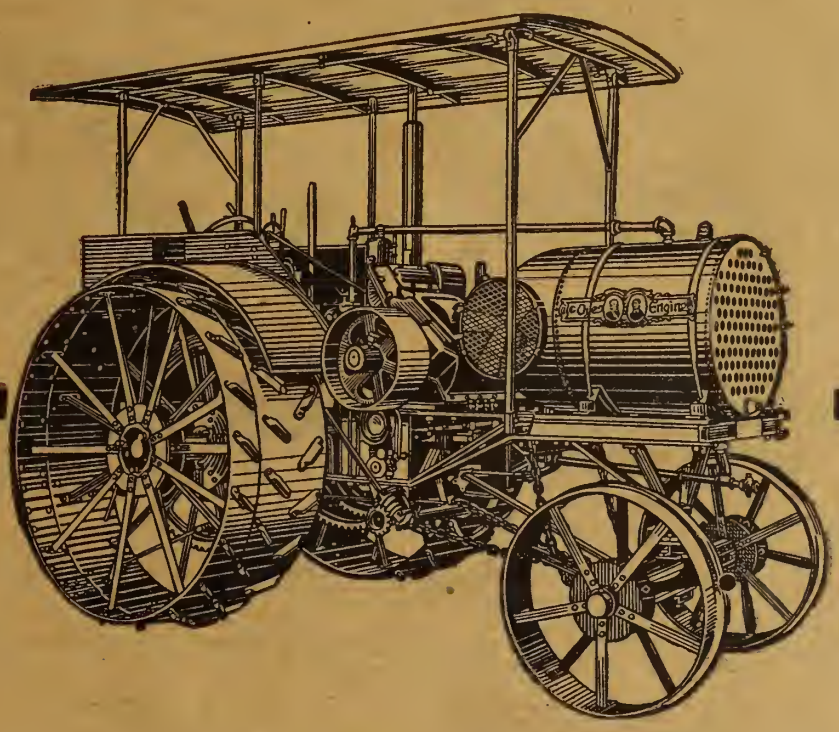
Henry Ford & Son, Inc., 11-22 Tractors

Traction Wheels: two steering wheels in front and two drive members 42x12, in rear. **No. of Plows Recommended:** two 14-in. **Length:** 102 in. **Width:** 63 in. **Height:** 55 in. **Weight:** 2700 lbs. **Turning Radius:** 21 ft. **Acres Plowed** in 10-hr. day, 10. **Motor:** own, 4x5, vertical, 4 cylinders, cast en bloc. **Lubrication:** splash system. **Carburetor:** Holley. **Ignition System:** magneto and vibrator. **Cooling System:** Thermo-syphon. **Bearings:** Gurney ball in transmission and Hyatt roller on drive axle. **Transmission:** spur gear, 1 to 8 m. p. h. forward, 2¾ m. p. h. reverse. **Final Drive:** worm. **Belt Pulley:** 9x6; 1000 r. p. m. and 2500 feet per minute at normal engine speed.

Hart Parr Tractor Co., 15-30 Tractor

Traction Wheels: four-wheel tractor,

Aultman-Taylor Better Tractors



See these Better Tractors in action at the National Tractor Demonstration, to be held near Denver June 9-14.

Built in three sizes: 15-30; 22-45 and 30-60.

A size to fit your power needs.

Ten years of unparalleled performance at every kind of field, belt and road work, have proved without an equal for economy and endurance.

The National Tractor Demonstration to be held in Denver, June 9-14, offers an excellent opportunity for the farmers of Colorado and other Mountain States to see in action a battery of Aultman-Taylor Tractors. These tractors and their wonderful achievements on thousands of farms are perhaps not so well known to the farmers of Colorado as they are to the farmers of the Middle West.

For ten years these Better Tractors, as they are called by many, have dealt farming costs of every nature such a smashing blow that even today, when many other tractor concerns are clamoring for business, we are not able to build enough of these better tractors to fill actual orders.

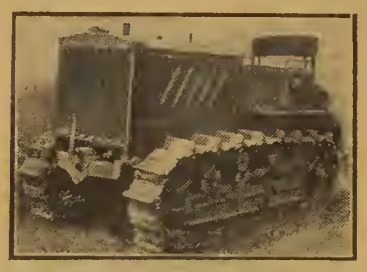
As you would logically suppose, the reason for the remarkable performance of these Better Tractors is found in the design and construction. While the design shows new developments indicating marked progress in tractor engineering, still there is a saneness and a simpleness in construction that one appreciates.

Aultman-Taylor Better Tractors are built and backed by one of the oldest and strongest organizations building high-grade power farming machinery. Look these tractors over at the Demonstration; see them in action; get acquainted with the men in charge. Catalog and full particulars on request.

The Aultman & Taylor Machinery Co., Mansfield, Ohio

Colorado Branch, 1634 Wazee Street, Denver. Wm. L. Dreier, Mgr.

with two drive members. 52x10 in rear. **No. of Plows Recommended:** three 14-in. **Length:** 138 in. **Width:** 75 in. **Height:** 60 in. **Weight:** 5000 lbs. **Turning Radius:** 13 ft. **Motor:** own, 6½x7; horizontal, 2 cylinders, cast twin. **Lubrication:** Madison-Kipp force feed lubricator. **Carburetor:** automatic dray shunt. **Ignition System:** high tension magneto with impulse starter. **Cooling System:** forced circulation with auto type radiator and fan. **Bearings:** Hyatt roller and SKF ball in transmission and own on drive axle. **Transmission:** spur gear, 2 to 3 m. p. h. forward, 1.5 m. p. h. reverse. **Final Drive:** cast internal gear. **Belt Pulley:** 14x8½, 750 r. p. m. **Belt Speed:** 2600 feet per minute at normal engine speed.



Holt Manufacturing Co., 25x40 Tractor

Traction Wheels: two crawler tracks. **Length:** 124 in. **Width:** 63 in. **Height:** 64 in. **Weight:** 9400 lbs. **Motor:** own, 4 cylinders, 4 cycle, cylinders cast in pairs, valves in removable cylinder heads, 4¾ bore, 6 in. stroke. **Lubrication:** pressure system. **Carburetor:** Kingston. **Ignition System:** high tension magneto impulse starter. **Cooling System:** fan radiator and centrifugal pump. **Bearings:** own, babbitt and bronze in transmission, and Hyatt roller and babbitt on drive axle. **Transmission:** spur gear 1½ to 3½ m. p. h. forward, 2⅛ m. p. h. reverse. **Final Drive:** gears enclosed in oil. **Belt Pulley:** 14x9, 625 r. p. m. and 2290 feet per minute at normal engine speed.

Huber Manufacturing Co., 12-25 Tractor

Traction Wheels: four wheels with two drive wheels in rear, 60x10. **No of Plows Recommended:** three 14-in. **Length:** 150 in. **Width:** 80½ in. **Height:** 69 in. **Weight:** 5000 lbs. **Motor:** Waukesha, 4 cylinders cast in pairs, 4¼x5¾. **Lubrication:** automatic splash. **Carburetor:** Kingston. **Ignition:** high tension impulse starter. **Cooling System:** Perfex radiator. **Bearings:** Hyatt roller and Gurney ball bearings. **Transmission:** cut steel gear heat treated, running in oil bath. **Belt Pulley:** 13x7, 900 r. p. m.

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You can have on *your* farm, just as thousands of others have—a flowing well of fresh, cool water for all purposes by simply installing the famous

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FULLER & JOHNSON Farm Pump Engine

This great pumping outfit, proved by ten years of service throughout the world, consists of engine and jack combined—sets on any well platform and connects directly to any windmill pump. Users everywhere endorse and recommend its use. Send for **Special Catalog No. 17A** — for full information.

Fuller & Johnson Mfg. Co.
Builders of Farm Engines
61 Wool St.,
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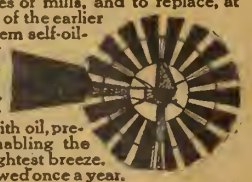
has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

Illinois Tractor Co., 18-36 Tractor

Traction Wheels: four, with two traction members 54x10. **No. of Plows Recommended:** four 14-in. **Length:** 142 in. **Width:** 72 in. **Height:** 60 in. **Weight:** 5000 lbs. **Turning Radius:** 6½ ft. **Motor:** Climax vertical type, 4 cylinder, cast pairs, 5 in. bore, 6½ in. stroke. **Lubrication:** circular force feed. **Carburetor:** Stromberg. **Ignition:** Dixie with impulse starter. **Cooling System:** Spirex radiator, centrifugal pump. **Bearings:** Hyatt roller bearings. **Transmission:** John B. Foot selective type. **Belt Pulley:** 14x8½, 600 r. p. m.

International Harvester Co., 10-20 Tractor

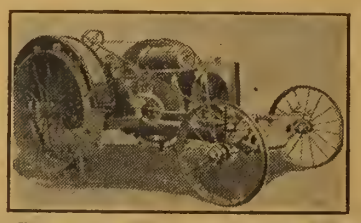
Traction Wheels: four wheels, with traction members in rear, 54x10. **No. of Plows Recommended:** three 14-in. **Length:** 147 in. **Width:** 60 in. **Height:** 66¾ in. **Weight:** 5710 lbs. **Turning Radius:** 28 ft. **Acres Plowed** in 10-hr. day, 10. **Motor:** own, 6½x8, horizontal, 2 cylinders, cast in pairs. **Lubrication:** force feed system. **Carburetor:** own. **Ignition System:** K-W high tension magneto. **Starting** and **Lighting Equipment:** own. **Cooling System:** Thermo-syphon system. **Transmission:** sliding gear, 1.85 to 2.5 m. p. h. forward, 2.5 m. p. h. reverse. **Final Drive:** chain. **Belt Pulley:** 20x8½, 500 r. p. m. and 2000 feet per minute at normal engine speed.

Interstate Tractor Co., 13-30 Tractor

Traction Wheels: four wheels, with two drive wheels, 60x10 in rear. **No. of Plows Recommended:** two to three 14-in. **Length:** 156 in. **Width:** 66 in. **Height:** 69 in. **Weight:** 4400 lbs. **Turning Radius:** 16 ft. **Motor:** Buda, 4¼x5½, vertical, 4 cylinders cast en bloc. **Lubrication:** splash system. **Carburetor:** Bennett. **Ignition System:** high tension magneto with impulse starter. **Cooling System:** Perfex radiator. **Bearings:** Hyatt roller throughout. **Transmission:** gears, 2 to 3 m. p. h. forward. **Final Drive:** open gears. **Belt Pulley:** 12x7, 590 r. p. m. and 1850 feet per minute at normal engine speed.

Joliet Oil Tractor Co., 12-20 Tractor

Traction Wheels: one crawler on each side, 52x10. **No. of Plows Recommended:** three and four 14-in. **Length:** 105 in. **Width:** 62 in. **Height:** 58 in. **Weight:** 4300 lbs. **Turning Radius:** 7½ ft. **Acres Plowed** in 10-hr. day, 10. **Motor:** Erd, 4x6, valve-in-head, four cylinders cast en bloc. **Lubrication:** force feed system. **Carburetor:** Bennett. **Ignition System:** Eisemann high tension magneto. **Cooling System:** Modine radiator and gear driven pump circulation. **Bearings:** Timken bearings throughout. **Transmission:** sliding gear, 2¼ to 4 m. p. h. forward, 2 m. p. h. reverse. **Final Drive:** enclosed gears running in oil. **Belt Pulley:** 12x8½, 725 r. p. m. and 2300 feet per minute at normal engine speed.



LaCrosse Tractor Co., 12-24 Tractor

Traction Wheels: four wheels, two in rear providing traction, 56x10. **No. of Plows Recommended:** three 14-in. **Length:** 142 in. **Width:** 82½ in. **Height:** 62 in. **Weight:** 3800 lbs. **Turning Radius:** 8½ ft. **Acres Plowed** in 10-hr. day, 10 to 11. **Motor** own, 5¾x7, horizontal, 2 cylinders, cast en bloc. **Lubrication:** Madison-Kipp mechanical oiler. **Carburetor:** special Kingston kerosene carburetor. **Ignition System:** Atwater-Kent

CUSHMAN

Light-Weight Farm Motors

Cushman Engines weigh only one-fourth as much as ordinary farm engines, but they are **balanced so carefully** and **governed so accurately** that they run much more steadily and quietly. They are also the **most durable farm engines** in the world, on account of improved design and better material and construction.

4 H. P. weighs only 190 lbs., being only 48 lbs. per horsepower. Besides doing all ordinary jobs, it may be attached to any grain binder, saving a team, and in a wet harvest saving the crop. Also it may be used on corn binders and potato diggers. Very easy to move around from job to job.

8 H. P. weighs only 320 lbs., being only 40 lbs. per horsepower. For all medium jobs. Also may be attached to hay presses, corn pickers, saw rigs, etc. 8 H. P. and larger Cushman Engines are all double cylinder.

15 H. P. weighs only 780 lbs., being only 52 lbs. per horsepower. For heavier farm jobs, such as 6-hole corn shellers, ensilage cutters, large feed grinders, small threshers, etc.

20 H. P. weighs only 1200 lbs., being only 60 lbs. per horsepower. For heavy duty jobs, such as shredders, shellers, grain separators, heavy sawing, etc.

Cushman Engines stand up under wear and tear and do not wear unevenly and lose compression. Every running part enclosed, free from dust and dirt and properly lubricated. Equipped with Throttling Governor, Carburetor, Friction Clutch Pulley and Water Circulating Pump. Ask for book on Light-Weight Engines.

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894 North 21st Street Lincoln, Nebraska

(283)

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Denver is the Highest Market **Most of the Time** and the Best Market **All the Time** for Western Cattle and Sheep.

Time and again cattle have sold on the Denver market for higher prices than the same cattle would bring same days at the Missouri River.

Why don't you market your cattle and sheep at Denver, where they will bring you greatest net returns?

While Your Horse Pulls One Way

friction pulls another way. To overcome friction, use Mica Axle Grease—it smoothes out the seams and pores in the axle that are the causes of energy eating rubbing.

Mica Axle Grease is made of the finest grease stock and powdered mica. Doesn't gum—doesn't stick—gives the axle that bright hard coating which helps easy going.

At most dealers in 1 and 3 lb. lithographed tins.

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1,000 Acres Irrigated Land

For Sale—1,000 acres fine irrigated land in Southern Colorado. About 400 acres broken; 80 acres alfalfa; good buildings, silo; near good town; railroad station on place; some range. Reasonable terms.

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Big Type Poland China
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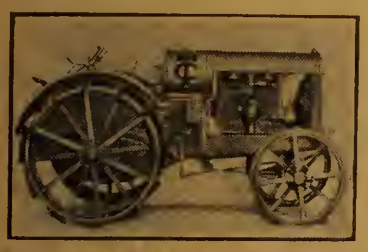
For new 1919 Book. Save $25 to $200 on Gasoline Engines, Manure Spreaders, Cream Separators and other Implements. Sold direct from factory. Our 300,000 satisfied customers prove merit of goods and direct selling system. Close shipping points. Mention implement interested in. Write today.

Wm. Galloway Co., Box 1827 Waterloo, Iowa

automatic spark retard and advance. **Cooling System:** circulating pump and Modine Spirex radiator. **Bearings:** Hyatt roller throughout. **Transmission:** sliding gear, 2½ m. p. h. forward, 2½ m. p. h. reverse. **Final Drive:** roller pinion, pack hardened steel rollers and pins. **Belt Pulley:** 11x6, 750 r. p. m. and 2100 feet per minute at normal engine speed.

John Lauson Mfg. Co., 15-25 Tractor

Traction Wheels: four-wheel type, with two traction members in rear, 54x12. **No. ofPlows Recommended:** three and four 14-in. **Length:** 136 in. **Width:** 74 in. **Weight:** 5800 lbs. **Turning Radius:** 20 ft. **Acres Plowed** in 10-hr. day, 10. **Motor:** Beaver, 4½x6 valve-in-head, 4 cylinders, cast en bloc. **Lubrication:** splash and force feed system. **Carburetor:** Kingston. **Ignition System:** Dixie high tension magneto. **Cooling System:** Perfex radiator, fan and pump. **Bearings:** Hyatt roller in transmission and on drive axle. **Transmission:** selective sliding gear, 2½ and 1¾ m. p. h. forward, 1¾ m. p. h. reverse. **Final Drive:** gears enclosed and running in oil. **Belt Pulley:** 18x8, 475 r. p. m. and 950 feet per minute at normal engine speed.

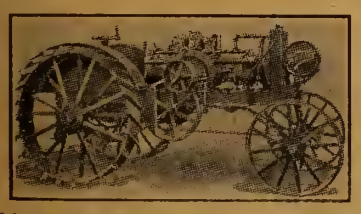


Minneapolis Steel & Machinery Co., 12-20 Tractor

Traction Wheels: four wheel tractor with two drive wheels in rear 50x12. **No. of Plows Recommended:** three 14-in. **Length:** 134 in. **Width:** 63 in. **Height:** 63½ in. **Weight:** 4000 lbs. **Turning Radius:** outside 25 ft. motor, own, 4¼ x6, 4 cylinders, cast en bloc, vertical. **Lubrication:** pressure feed. **Carburetor:** Holly. **Ignition:** Bosch impulse starter. **Cooling System:** Spirex radiator. **Bearings:** Hyatt and Bantam. **Transmission:** spur and bevel gear enclosed, 2.2 to 2.9 m. p. h. forward, 1.75 m. p. h. reverse. **Final Drive:** spur gear, enclosed in transmission case and rear axle. **Belt Pulley:** 16x6, 650 r. p. m. and 2700 feet per minute.

Moline Plow Co., 9-18 Tractor

Traction Wheels: two drive wheels, 52 x8. **No. of Plows Recommended:** two 14-in. **Length:** 131 in. **Width:** 54 in. **Height:** 70 in. **Weight:** 3260 lbs. **Turning Radius:** 10 ft. **Acres Plowed** in 10-hr. day, 9. **Motor:** own, 3½x5, valve-in-head, 4 cylinders, cast en bloc. **Lubrication:** forced stream of oil to crank shaft bearings through hollow drilled crankshaft. **Carburetor:** Holley automatic. **Ignition System:** Remy, distributor, generator, and Willard storage battery. **Starting and Lighting Equipment:** Remy starter, Bendix drive and Willard storage battery. **Cooling System:** Thermo-syphon, fan and Modine Spirex radiator. **Bearings:** Hyatt roller throughout. **Transmission:** spur and bevel gear, ¾ to 3½ m. p. h. forward, by varying motor speed. **Final Drive:** cut and hardened bull pinion on semi-steel internal gear—enclosed and greased. **Belt Pulley:** 9x6½, 1350 r. p. m. and 3180 feet per minute at normal engine speed.



Ohio Manufacturing Co., 9-18 Tractor

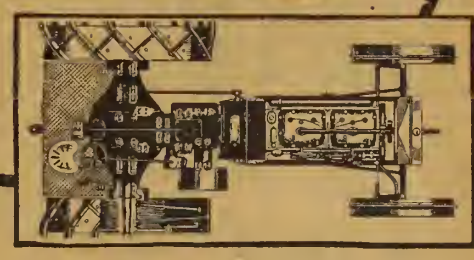
Traction Wheels: four wheels, driving from two rear wheels, 48x10. **No. of Plows Recommended:** two 14-in. **Length:** 123 in. **Width:** 56 in. **Height:** 58½ in. **Weight:** 3000 lbs. **Turning Radius:** 11 ft. **Acres Plowed** in 10-hr. day, 5 to 6. **Motor:** Gile, 5½x6½, opposed, two cylinders, cast separately. **Lubrication:** Madison-Kipp force feed system. **Carburetor:** Bennett. **Ignition System:** Dixie high tension magneto. **Cooling System:** circulating pump and radiator. **Bearings:** Timken roller in speed change gears and own roller on drive axle. **Transmission:** selective, 1½ to 4 m. p. h.

Turn to Page 28

Let Western Farm Life Service Bureau help you solve your farming problems.

ILLINOIS SUPER-DRIVE TRACTOR

Here Is The Master Drive 3-4 Plow Tractor of AMERICA



THE ILLINOIS SUPER-DRIVE TRACTOR Driving Principle delivers 20% more engine power to drawbar than any other Driving Principle in tractor use. This has a big meaning for you. It means that with the ILLINOIS in your field, you can pull four plows where ordinarily you could only pull three—that you can get your seed bed prepared and your harvesting done in far less time than it takes with most tractors.

But even more important than power efficiency is the entire elimination of tractor troubles that you get when you purchase an ILLINOIS.

The ILLINOIS SUPER-DRIVE TRACTOR is of Unit Construction. This eliminates excess weight and prevents bearings and mechanism from getting out of alignment.

It has sixteen spring cushions which absorb backlash, jars and shocks. This saves the tractor mechanism from damage and saves upkeep expense for ILLINOIS owners.

It has no open gears and no dirt or dust can work its way in and cause friction or wear. The ILLINOIS SUPER-DRIVE TRACTOR is built extra powerful and strong in every part without an excess pound of weight.

Its performance under all conditions has proved its sterling worth.

Compare this Master Drive Tractor point by point with all other tractors and you will be quickly convinced that the ILLINOIS is the tractor you have been waiting for.

Let us tell you all about its driving principle which delivers 20% more engine power to drawbar—how tooth strain on the driving pinion gears is eliminated—let us tell you about its live axle with driving spider and four sturdy V-shaped arms that deliver the power to rims of wheels and not to hubs and spokes—its powerful slow speed kerosene burning engine—the extra roomy comfortable platform — automobile steering device — Hyatt Roller Bearings — Thermostat — Motometer, etc.

Learn all about the TRACTOR with gigantic working power. Send coupon to-day.

See the Illinois Super-Drive Tractor at Mountain States Tractor Demonstration at Denver, June 9 to 14th inclusive.

The Illinois Tractor Company has established permanent branch service and distribution offices at Denver, Colorado, and Norton, Kansas, in charge of J. H. and D. M. Kershner. The interests of all users of Illinois Tractors in Western Kansas, State of Colorado and Western Nebraska will be looked after from the above two points.

Illinois Tractor Company
1141 Lincoln Street
Bloomington, Illinois : U. S. A.

Illinois Tractor Company,
1141 Lincoln Street, Bloomington, Illinois

Gentlemen—Without obligation to me, send your Free Folder —The Problem of Peace—that tells how to farm more profitably.

Number of acres in my farm.....Acres in corn .....

Number of acres improved.....

Level or rolling surface.....Acres in small grain.....

Character of soil..... .Acres in pasture.....

How many horses do you employ to handle your farm work?.....

Do you own a tractor?.....If so, what make.....

Name .....

Post Office.....

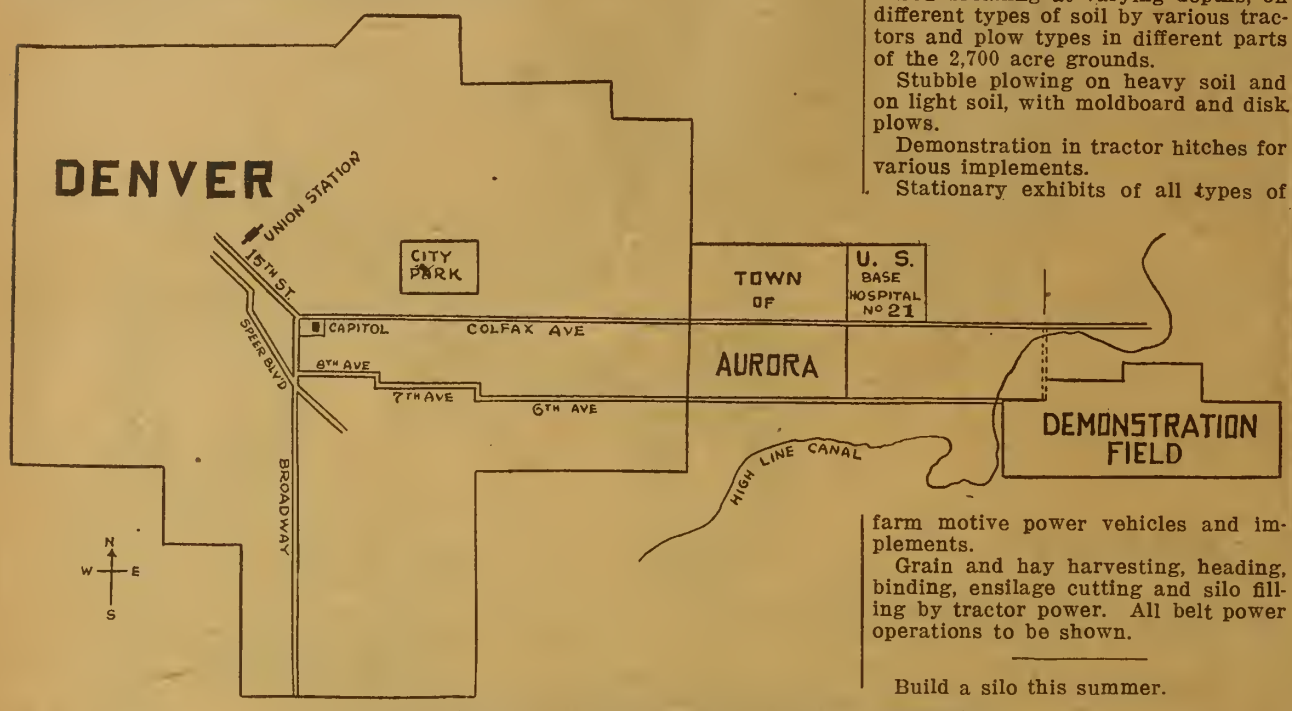
Township.....County.....State.....

Mail this Coupon to Illinois Tractor Company, Bloomington, Illinois, U. S. A.

Tractor Demonstration Field and General Program

FIVE HUNDRED ACRES A DAY TO BE TURNED BY THE PLOWS

The accompanying diagram shows the relative position of the field to be used by the Mountain States National Tractor Demonstration and the city of Denver, with connecting transportation lines and roads. Colfax avenue is to be used for out-going traffic and Sixth avenue returning. The Denver Tramway reaches the suburb of Aurora, where auto bus lines will make connections with street cars for the demonstration grounds. There will also be auto service directly from hotels in the heart of the city. Free licenses for auto service will be granted by the city for tractor week, 9th, this preparatory work will be at its best. Monday the 9th will be formal opening day, with proper ceremonies, assembling of material, engine trials and warming up in preparation for the first regular plowing barrage, which opens Tuesday morning at 9 o'clock. The general program for each day will be similar, except that different parts of the big fields will be brought under the plow. There will be something new every day, because of the differing conditions to be encountered and the variety of machines which the spectators will have a chance to watch.



How to Reach Grounds of Mountain States National Tractor Demonstration

General Daily Program

500 acres to be plowed each day on Tuesday, Wednesday and Thursday.

9 a. m. to 12 noon: Plowing demonstration; 100 tractors turning 300 bottoms. All styles and makes from 2-plow upward, shown under working conditions.

12 to 1 p. m.: Lunch hour.

1 to 4 p. m.: Plowing demonstration continued.

Harrowing, packing, rolling, disking, drilling and other seedbed operations following the plows.

Motor cultivators at work.

Sod breaking at varying depths, on different types of soil by various tractors and plow types in different parts of the 2,700 acre grounds.

Stubble plowing on heavy soil and on light soil, with moldboard and disk plows.

Demonstration in tractor hitches for various implements.

Stationary exhibits of all types of farm motive power vehicles and implements.

Grain and hay harvesting, heading, binding, ensilage cutting and silo filling by tractor power. All belt power operations to be shown.

Build a silo this summer.

thus insuring ample transportation for the crowds. A schedule of transportation rates has been fixed by the Tractor Transportation committee, and the rates will be enforced by the licensing authorities. Overcharges will be punished and each car in service will be compelled to carry an official rate card in plain view of passengers.

For the benefit of farmers and others from outside points a corner of the tractor demonstration grounds has been reserved as parking and camping space for auto tourists. This space will be free. It will be adequately policed night and day, so that cars may be left there under charge of the police at any time in perfect safety. Army tents will be provided for campers at nominal fees, this service being handled by discharged soldiers, who will get the benefit of the revenue. Farmers may bring their own trailer tents for camping on the grounds. There will be ample water supply, and fuel will be available.

In addition to the camping space on the demonstration grounds there will also be similar space in the parks of Denver, where such privileges are usually allowed tourists under municipal supervision, and without charge of any sort.

Preparations have been made for feeding the thousands of visitors every day during the demonstration. Immense mess tents will be erected on the grounds, where meals may be purchased at reasonable prices.

Farmers are urged to bring their families, as there will be plenty for the women and children to see in the stationary exhibits of electrically and gas driven farm and household devices, such as cream separators, churns, mangels, washing machines, dish washers and the like.

Those who come a week ahead will find something going on, while the tractors and other automotive machinery and the implements to be driven by them, are being unloaded and set up. Farmers will have ample opportunity for close inspection and asking questions of the service men who will be supervising the work. On Sunday and Monday, June 8th and

143 Herefords Bring $332,100

Numerals never before required in recording the results of an auction of Herefords are brought into play in summarizing the sale held by O. Harris & Sons, Harris, Mo., May 6 and 7. Forty-eight breeders from fifteen states and Canada paid $332,100 for 173 head, an average of $6,455, and 123 females sold for $203,000, an average of $1,327.

When Auctioneer Reppert opened the auction it was evident that he was confronted with the setting for a great sale. Never had a Harris sale attracted so many breeders; never had the Model Farms, in all their thirty years of breeding, been able to put so desirable a collection in one sale; and never had the Repeaters gained so high a degree of prestige as came through their clean-cut sweep of virtually all the bull honors at the leading shows of the past season. The bulls were sold first. Repeater's Model made a majestic entry, and soon fell to the ownership of J. R. Smith, Jr., Elk Valley Farm, Fayetteville, Tenn., at $35,000. He was followed by Young Gay Lad, bought by Frank Brown, Byron, Okla., at $5,700. Then came Repeater 191st, an outstanding attraction, a son of Repeater shown without defeat last year, as a senior bull calf. In the opinion of many, supported by his show record, an appraisal more nearly approaching the top of the auction would not have been out of order. Jos. J. Rezac & Sons, Tabor, S. D., were the purchasers at $26,000. A stable-mate, Repeater 194th, likewise son of Repeater, was one of the favorites, and was selected at $19,000 by Wm. Galloway, Waterloo, Ia., and Dr. Wilbert Shallenberger, Chicago, whose farm is near Rockford, Ill. Lot 12 was out of condition, and a substitute furnished another sensation. To make the bull offering still stronger, Repeater 134th, one of the young herd bulls in use, and unquestionably one of the top sons of Repeater, was sent into the ring. He was bought by O. G. Lee, Kansas City, at $20,000. It was Repeater's greatest day, his 7 sons in the sale realized $104,850, an average of $14,980.—Breeder's Gazette.

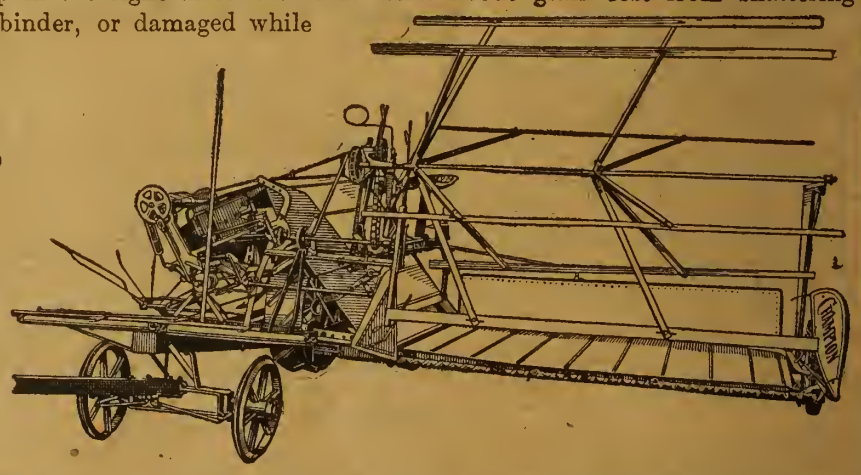
Camas county, Idaho, is going in for crop improvement, 5,000 pounds of good alfalfa seed and a ton of field pea seed having been ordered this spring, through the activities of the County Agent.

Stop the Loss of Grain Between Field and Thresher

To avoid loss of grain from shattering, many farmers have adopted grain-tight racks for hauling to stack or thresher—a step in the right direction. But what about grain lost from shattering while passing through the binder, or damaged while in the shock?

The "Champion" Binder

reduces this loss almost to the vanishing point by two of the most valuable improvements ever made in a harvesting machine, namely:



Force Feed Elevator that automatically adjusts itself to light or heavy grain in different fields, or in different parts of the same field. The flow of grain to the packers is continuous and so gentle that there is no shattering.

Relief Rake prevents trash from gathering on the inside end of the cutter bar. You don't have to leave your seat to remove it, or carry a stick for that purpose.

In operating most binders weeds catch on the inner corner of cutter bar and retard the butts of the grain; allowing the heads to be elevated first. Hence, instead of having a smooth bundle with heads all at one end, you have a **BUNCH** of grain. When such bundles are shocked, some of the grain heads are in contact withthe ground, causing them to sprout or rot.

The relief rake on the Champion keeps trash cleaned away, preventing grain being dragged through uncut. The kicking motion of the rake straightens the grain so it ascends the elevator in proper position.

If there is no Champion dealer near you, write

Founded 1825 **B F AVERY AND SONS** Incorporated 1877

LOUISVILLE, KENTUCKY

Western Potato Show Planned

GROWERS ARE URGED TO PREPARE FOR IT NOW

STUART L. SWEET

"Fairs and expositions are the time-keepers which mark the progress of states and notions. They record the state's advancement. They stimulate the energy, enterprise and intellect of the people, and quicken human genius. They go into the home. They broaden and brighten the daily life of the people. They open mighty storehouses of information to the student. A comparison of ideas and products is educational, and instructs the hand brain of man."

—President McKinley.

THE western Potato Show will be held in Denver during the week of January 17th to 24th, 1920. This is at the same time as the annual National Western Stock Show. The staging of this big exhibit has been undertaken by the Agricultural and Livestock Bureau of the Denver Civic and Commercial Association. The premium list and classification of exhibits is still in a tentative form, but approximately $1000 will be offered in prizes.

The need of such a show in the west is apparent to all those studying the production and marketing of potatoes from the intermountain states. The potato industry of Colorado alone brings to this state more than $5,000,000 annually. It is an industry which needs to be fostered and developed. The railroad reports furnished to the United States Bureau of Markets during the past two years show that there have been shipped an average of 12,000 cars of potatoes from Colorado to the consuming centers of middle-western and southern states. This heavy movement places Colorado first amonb the western potato shipping states. Idaho is second in the west, shipping annually some 7000 cars. A new competitor has entered the field this last year on a large scale. Nebraska shipped some 3600 cars into the same markets to which potatoes from Colorado and other western states are being shipped. In this connection, it is important to note that at the last session of the Nebraska legislature a law was passed providing for shipping point inspection service. This will do a great deal to establish and maintain careful grading for Nebraska's marketable potatoes.

In traveling through the principal potato producing sections of Colorado we find that each district is firmly convinced that their section produces the best potatoes grown in Colorado. The Agricultural and Livestock bureau of the Denver Civic and Commercial Association want to know which section really does produce the best potatoes, which section more fully meets the market requirements, and they want to know whether Colorado potatoes are the equal or superior to the potatoes grown in other states. The best way to determine this is to have a potato show with exhibits from these different sections and from other western states and thus ascertain the facts.

The plan of having a potato show in Denver during January of 1920 was presented to the Colorado Potato Growers' Association at their annual meeting. They were in favor of it and pledged their hearty co-operation in making the show a success.

Three years ago the people of Wisconsin started a potato show at Madison. It has been an annual affair since and the splendid results accomplished in the potato industry of that state are graphically represented in the number of cars marketed from Wisconsin during the past three years. The superior quality and better grade of the products shipped brought better returns to Wisconsin potato producers. Certified potato seed is now the rule in Wisconsin and not the exception. Producers who can meet the requirements for certified seed are commanding a premium for this high class seed stock. The records from the United States Bureau of Markets show that Wisconsin has shipped to date this year 19,433 cars from the 1918 crop. They shipped 13,815 cars from the 1917 crop, compared with 6,706 cars for the preceding year.

The classification of exhibits for the Western Potato Show includes exhibits which shall be judged as seed stock and marketing stock, and shall consist of a half bushel, or thirty pound display. There will also be premiums offered for the best exhibits from the producing districts of the intermountain states, and premiums offered for the best exhibit of seed stock and marketing stock from the principal producing sections of Colorado. An inter-state championship premium will be offered. a sweep-stake premium for the best Colorado inter-section championship, and for the best marketing and the best seed exhibits. The varieties on which premiums shall be offered include the following: Downings, Late Ohios, Rurals, Pearls, Russet Burbanks, Bliss Triumphs, Early Ohios, Brown Beauties, Red McClures, Peoples Russets, Peerless and Rose Seedlings.

Growers are urged to prepare for the show early in the planting season, so that they will have suitable stock to enter at the proper time next winter.

High Cost of Sinning

"Won't you buy me that hat?"

"No, my dear, it would be a sin to spend all that money on a hat."

"Well, the sin would be on my own head." —Cartoons Magazine.

A Government Tractor Survey

Continued from Page 18

properly be done with a 3-plow or 4-plow machine.

Cost of the Tractor Outfit

Though not the only consideration, points which a farmer must consider.

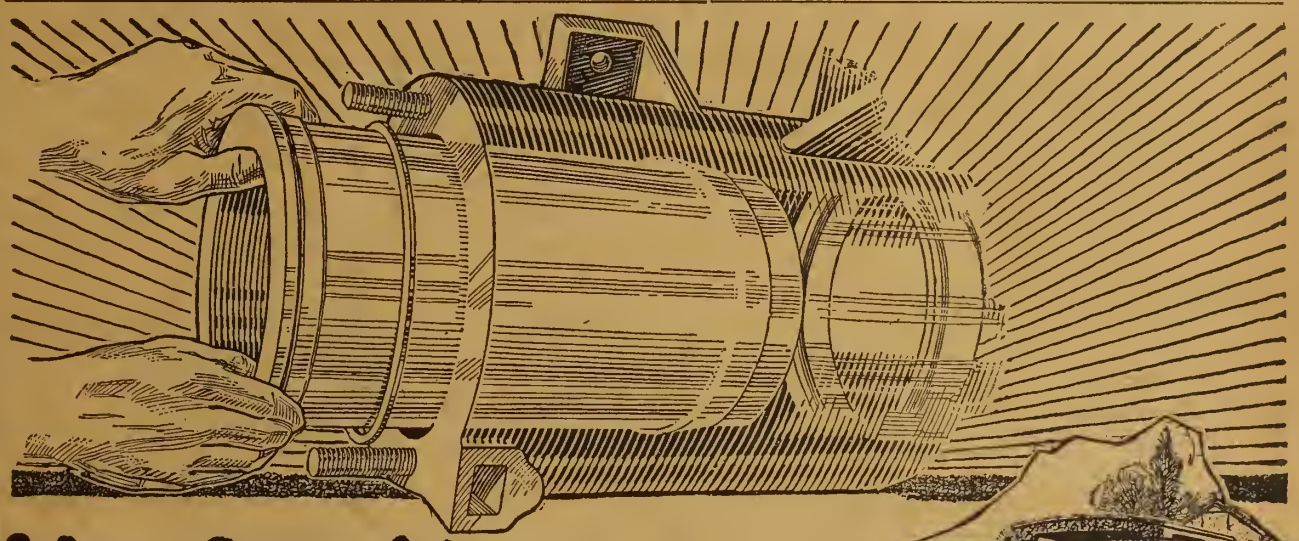
Hay Harvest With the Tractor Saves Time and Labor

The prices of the different makes of outfits vary considerably for machines of practically the same capacity, owing to differences in quality, sales systems, efficiency in manufacture, quantity produced, etc. It is a grave mistake to sacrifice quality for a saving in the first cost, since in no other farm machine do reliability and serviceability the cost of a tractor is one of the first count for more than in the tractor. On the other hand, it is poor management for a farmer to invest too large a part of his capital in power. The desirability is obvious of further standardization and quantity production of tractors, in order to reduce the first cost.

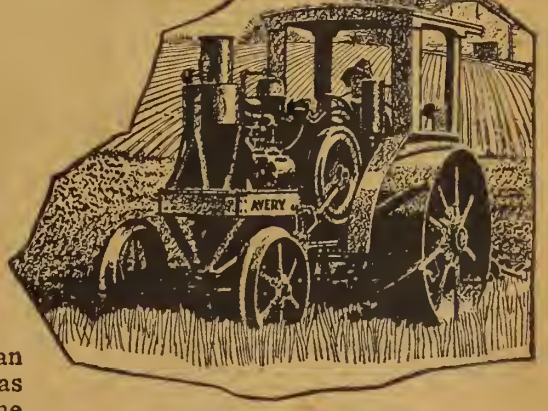
The price which a farmer can afford to pay for a tractor for use on his farm depends upon a number of factors, such as the amount and value of the work which the machine will perform annually, the value of the horses which it will displace, the value of the man labor saved, and the amount of increased returns which reasonably may be expected from its use.

Tractors Higher Priced

Prices for both tractors and the im-



You Can Always Make An Avery Tractor New Again



"THE tractor that never will die," is wnat you might call an Avery, because it can always be made to run as well as when new. Here is why: The inner cylinder wall, which gets the hardest wear of any part in a tractor motor, is quickly and easily renewable.

It is cast separately from the main cylinder. It can be readily taken out and replaced with a new one by yourself right at home or out in the field if necessary.

Being cast separately, we are able to make it out of harder material and more perfectly round. It wears longer which means more power and economy. You can remove the cylinder head and turn the cylinder wall part way round from time to time to equalize any wear that might take place. And you can clean off the scale which collects on the outside of the cylinder wall from the water and retards the cooling of the motor. Then after years of service you can take out the old cylinder wall, put in a new one and with new pistons and rings your motor will be as efficient as when new.

Avery Tractors Have Almost No Wear-Out to Them

All easily broken parts, such as fan, pumps, belts and chains, are eliminated. All main parts, such as motor shell, crankshaft, frame and wheels, will last indefinitely. All wearing parts, such as inner cylinder walls and gears, are extra long lived, but if they do wear can always be renewed.

Avery Tractors are successfully used in every State in the Union and 61 foreign countries.

Write For The New 1919 Avery Catalog

showing Avery Tractors built in sizes for every size farm, with the smallest size tractor selling for only $550.00 f. o. b. Peoria; the Avery Motor Cultivator, which cultivates corn, cotton, etc.; and the Avery Grain-Saving Thresbers and Plows for every size tractor. Also ask for FREE Avery Tractor Correspondence Course and "100 Questions and Answers to Tractor Troubles." See Avery samples at the nearest Avery dealer's.

Avery 5-10 H. P. Tractor, Model B

See the Avery Line of Tractors, Plows, Separators and Motor Cultivators at the Mountain States National Tractor Demonstration, to be held at Denver, Colorado, June 9th to 14th. AVERY MACHINERY CO., Denver, Colorado, Distributors for

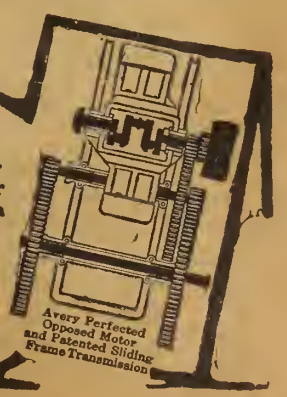
AVERY COMPANY, 4134 Iowa St., Peoria, Ill.

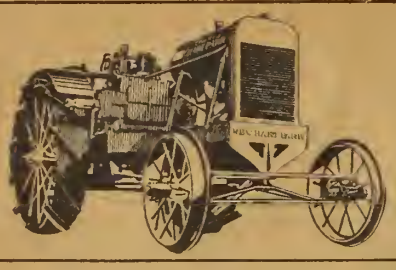
AVERY

Motor Farming, Threshing and Road Building Machinery

There's a Size Avery Tractor for Every Size Farm

Five Sizes—the Same Design. Standardized





See

The New Hart-Parr Pull Three 14-Inch Plows

At the Denver Demonstration June 9 to 12

USED BY

Those who want the most Tractor Value per dollar invested.

MADE BY

The Founders of the Tractor Industry and Builders of the First Successful Kerosene Tractors.

Liberal Terms

See the display of our full line of Threshing, Harvesting and Power Farm Machinery at our tent on the grounds.

The Independent Tractor & Farm Mchy. Co.

E. E. SCOTT, President

1817 Fifteenth Street
Denver, Colo.

Canary Repeater Herefords

Sired by

Repeater 63rd

FOR SALE—A carload of 1-year-old Bulls and a car of 1-year-old heifers.

Also a Few 2-Year-Old Bulls

J. D. Canary Denver, Colo.

720 Majestic Building

Hand Pull Lateral Gates

These gates prevent cutting the ditch banks in order to divert the water and put the water under complete control of the irrigator. They are durable, low initial cost, preserve ditches. May be attached to "Armco" iron pipe outlet conduit any desired length. No cement work required.

Write for our free 125 page catalog, which illustrates and prices these gates, as well as more than 65 other articles for the irrigator including the "Armco" flumes, ditch lining, pipes, culverts, tanks, troughs and grain bins.

THE R. HARDESTY MFG. CO.
1837 Market Street DENVER, COLO.

175

NATIVE YEARLING HEIFERS

Hereford & Shorthorn

From large Durham Cows and Hereford Bulls. All in fine condition.

H. Bert Cave Littleton, Colo.

Re-Finish Your Car Now

WITH PRO-TECT-O-LAC

Will not peel, check, or crack. Your car will dry and be ready for use in 24 hours. Instructions supplied free.

ECONOMY AUTO SUPPLY CO., Inc.

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CHEAPEST and BEST TRUCKS

Made out of old cars with IOWA truck attachments. All sizes in stock. State make of your car. Write for prices; catalog.

The Arms Truck Co. Denver

O. K. HAY PRESS

Two Men Can Operate

With 6 H-P Oil Engine

$540.00

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Satisfaction guaranteed or no sale. Write today for illustrated circular and full information. Address SCOTT HAY PRESS CO., 1325 Union Ave., KANSAS CITY, MO.

plements for use with them have been considerably increased during the last two years, owing to the advances in costs of both labor and materials required to produce them. At the present time (1919) the cost of the 2-plow tractors ranges from about $900 to $1,200; the 3-plow machines cost from about $1,100 to $1,800, and the 4-plow outfits from $1,600 to $2,400, the range in prices depending, of course, upon the factors above referred to. In practically all cases where a tractor is purchased it is necessary to buy some special equipment for use with it, or at any rate a special tractor gang plow. The prices on the latter implement at present are approximately $125, $175, and $250, respectively, for the 2-, 3-, and 4-bottom gangs. In all cases the prices vary considerably according to the make and quality of the machines.

As information was obtained from men who had used their machines at least one season, though in no case exceeding three seasons, the cost of the outfits, the reports on which were used in the preparation of this bulletin, averaged slightly lower than the prices above mentioned, as the machines had been bought before the rise in prices.

Life of the Tractor

The amount of service which a tractor will perform before it must be replaced is obviously an important factor in determining its value for farm work. Gas tractors have undergone so many changes in their process of development that it is impossible to obtain any really definite figures as to the amount of work a tractor of modern design reasonably may be expected to do before it must be replaced. Among the factors influencing the amount of service rendered by a given machine, by far the most important is the care it receives at the hands of the operator. The quality of the outfit, the kinds of work for which it is used, and the conditions under which it is operated all materiaHy affect its life.

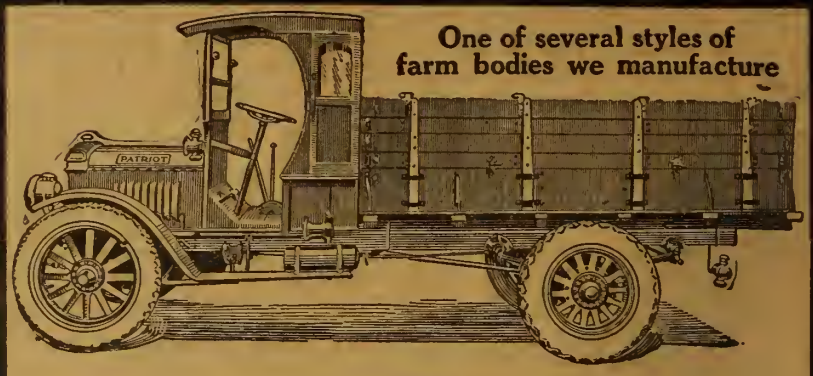
Nearly all tractors are used under conditions which are extremely severe for any kind of machine. They travel over rough and uneven ground, and are subjected to severe shocks both from obstructions in the path and from the load being pulled. A still more injurious condition is their exposure to an almost constant shower of dust and dirt, which, if the soil contains much gritty substance, attacks all gears and bearing surfaces, not only those on the exterior of the machine but also those inside the engine itself, unless an efficient filter is provided for the air intake to the carburetor. This excessive wear due to dust was a very serious matter with the earlier models of tractors, but great progress has been made during the last year or two in protecting the machines in this respect.

Users Give Estimates

It is obviously impossible to determine definitely the probable life of the latest model tractors, since none of them is worn out, but the nearest approximation to the actual figure would unquestionably be the average of the estimates given by a large number of men who had used them for a season or two. Tractor owners were asked for an opinion as to the number of years their own particular machines would give satisfactory service. As would naturally be expected, the average of the estimates of men who have found the tractor satisfactory and profitable was higher than of those who gave adverse reports on their machine. The average of the estimates of the first-mentioned class of owners was 9.4 and the latter 6.2 years. The fact should not be overlooked, however, that the percentage of favorable reports was considerably higher than the unfavorable, nearly 85 per cent of the owners reporting that their machines had proven profitable. The average of all estimates on the life of a tractor is almost 9 years. The average number of days these machines were used annually for both home and custom work was 51. These figures, therefore, would indicate a working life of approximately 450 days. It is not believed that a prospective purchaser of a tractor should expect for his outfit a longer life than nine seasons of 50 working days each, and he would be on the safe side if he counted on a somewhat shorter period of service when calculating the prob-

PATRIOT

One of several styles of farm bodies we manufacture



Farm Trucks

EVERY intelligent farmer already knows the saving and convenience of the truck—how it makes less horses necessary and saves feed—how it makes you master of weather and roads—how it brings larger and better markets within easy reach—how it adds at least $20 to the value of every acre you own by bringing your farm closer to the town or city, because the motor truck travels four miles while a team is traveling one.

Motor Trucks cut the cost of hauling grain from 33 cents per ton per mile to 15 cents per ton per mile, according to investigations by the United States Department of Agriculture. This is the reason wide-awake farmers are adopting the truck.

Patriot Trucks have won their reputation for endurance by service over country roads in the Middle West and Southwest—the worst roads in America during several months of the year.

They have made a great record in farm work throughout the Western States—the hardest kind of service to which a motor truck can be put, because of operation over all kinds of road and field conditions. **Ask for information as to what a Motor Truck will do for you. SENT FREE.**

HEBB MOTORS COMPANY

Manufacturers

1381 P St., LINCOLN, NEBR.

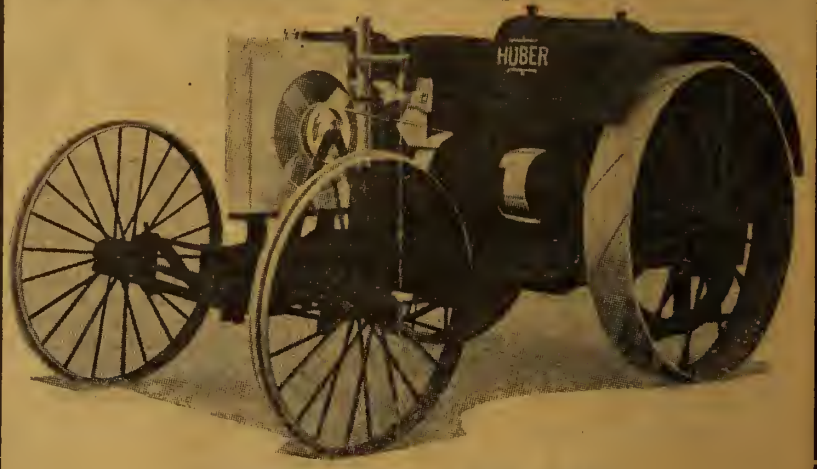
Built for Country Roads

Lincoln Model 1½ Tons

Washington Model 2½ Tons

Built for Country Loads

The Huber Light Four



The Efficient Unit of Farm Power

See It at the Denver Demonstration

The Huber Light Four is the ideal power unit because it is not only powerful enough to draw three bottoms but it is light enough to work on plowed ground without packing. Thus it enables you to disk, harrow, seed and to do similar operations on plowed ground.

The Huber Light Four is neither too heavy nor too light but just right. It will enable you to raise bigger crops with less labor; it will furnish you more power at a less cost and will permit you to farm more land at less expense.

The Light Four is rated 25 horse power on the belt and 12 horse power at the drawbar.

Be sure to see it at the Mountain States National Tractor Demonstration, Denver, June 9 to 14.

The Huber Mfg. Co., Marion, Ohio

C. W. KEITH, Distributor

1543 Wazee Street Denver, Colorado

able value of a tractor for his work. These figures, of course, are based upon the usual proportions of field and belt work. A tractor wears much faster and in more parts when used in the field than when used for belt power. Where a large percentage of the tractor's work will be at stationary operations, its life in days of service will be proportionately greater.

Days Used Annually

The tractors reported on the Dakota farms were used on an average about 50 days annually. The number of days a tractor can be used on any particular farm, of course, will depend upon a number of factors, such as the size of the tractor, the extent of the various operations for which the tractor can be used, and the soil conditions at the time these operations must be performed. While 50 days may appear low at first glance, it must be borne in mind that the seasons during which specific farm operations should be carried on are comparatively limited, and on farms where the work is done entirely by horses, 100 days' work annually for each work animal is about a fair average. Since the tractor, in proper sizes, increases the speed at which the various operations are accomplished, and a certain number of horses are almost invariably used for performing odd jobs for which the tractor is not practicable, it is obvious that 50 days work annually for a tractor on most farms is abuot all that can be expected unless a decided change is made in the farm organization so as to utilize the tractor more efficiently. —From Farmers' Bulletin No. 1035.

Do Tractors Pack the Soil?

Avery Company's answer:

Tractors do not injure the soil by packing it unless they are put on the ground when it is in a condition too wet to farm, which should never be done with a tractor, or a horse either for that matter. The best evidence that the writer can give is on his own farm where the soil is a clod loam that runs together and congeals very readily. I have tried every way possible while using the tractor to do something that would injure the soil, irrespective of crop results. I have taken fall plowing and disked it four times with a double disk, planted it to corn and raised 15 bushels more to the acre than that field had raised for over thirty years. I have put in oats in the spring when the ground was in a wet condition and have raised 85 bu. of oats to the acre, which was 35 bu. more per acre than that land had raised since I have known it, which dates back to 1882. The one great problem I have tried to solve by experiment on my own farm during the last four years was the one raised by this question and every result has proven that the tractor not only did not injure the soil but on the other hand the crops were improved very noticeably. I know of other cases, one in particular in North Dakota, where a heavy steam tractor was used for pulling drills and the wheat was 50 per cent better where the tracks of the engine were made, and decidedly noticeable throughout the entire season, and I want to say further if you want to see a garden bed made out of a field that was plowed by horses when the ground was too wet and which dried out and became very lumpy and cloddy, you go into that field with a tractor and double disk, harrow, and go over it about four times and you will be convinced that there is one place at least that the tractor can do farm work that would be impossible with horses.

International Harvester Company's answer:

Any slight packing of the soil caused by the tractors that travel on the unplowed land will be overcome by the plows and the subsequent disking and harrowing. Packing of the soil in the bottom of the harrow by the drive wheel is another matter, because the soil is packed at a place where subsequent disking and harrowing will not loosen it. A man weighing 170 pounds and wearing a No. 8 shoe creates a pressure of 14 pounds to the square inch on the surface where he steps. A horse weighing 1400 pounds and pulling a load will create a pressure of from 18 to 33 pounds, while a four-wheel tractor weighing 5000 pounds with the weight distributed one-third on the front wheels and twothirds on the rear wheels only creates a pressure of 10 pounds to the square inch. The angle or extension lugs used with tractors of this size for disking and harrowing, also help in distributing the pressure. This indicates that the so-called small tractor does not exert enough pressure on the soil to injure it. Now, on the other hand, the angle lugs used when the tractor is working on plowed land, help stir up the soil and break the clods. Of 110 owners of tractors in the northwest who were questioned as to whether their tractors cause injurious packing of the soil or not, 101 say the tractor does not seriously pack the soil. Twenty-two of this number claim that it is beneficial, only 9 claim to have noticed any injury to the crop resulting supposedly from packing of the soil. This proves that in a large majority of soils that are in condition to be worked with horses, the tractor causes no injury.

Cantaloupe Inspection Law

Among the laws passed by the last session of the Colorado Legislature was an act amending the law providing for inspection of cantaloupes. This new legislation makes it illegal to sell or place on sale any cantaloupes for human consumption which have not been inspected as to their condition and fitness for shipment. It empowers the food and drug commission of Colorado to appoint a state cantaloupe inspector with the necessary assistants. Crates are to be marked showing the address of grower or shipper; the number and variety of the cantaloupes, and certificates of inspection must be attached to the bill of lading for each car loaded within the state for shipment anywhere. An inspection tax will be levied and collected by the state inspector, amounting to 1c per crate, or $2.00 per carload, for all cantaloupes inspected. One half of this charge is to be paid by the shipper and the other half by the grower. The length of the crate is specified at 23½ inches, which is the minimum allowed by law. There is a fine of from $25 to $300 to be imposed upon any person or persons violating the act.

Tractor Owner Can Furnish His Own Power For Threshing

MOUNTAIN STATES NATIONAL TRACTOR DEMONSTRATION AT DENVER, JUNE 9-12, 1919

BE AT DENVER, June 9-12

You've read and heard about power farming; now here is your opportunity to actually see the advantages of power farming demonstrated—to actually see how its application to your farm will increase your crop production and your profits.

The Mountain States National Tractor Demonstration

WILL BE A WONDERFUL EXHIBITION OF

POWER FARMING

This interesting and educative demonstration is for you. It is being held that you may see and study the types of tractors and tractor implements about which you have read in your farm papers.

Be at Denver June 9-12: Take advantage of this great opportunity to see hundreds of power farming machines in operation—and select the outfit that best fits your farming requirements.

Look for Oliver Tractor Implements at Denver

Oliver offers to the agricultural world a complete line of power farming implements of proven efficiency and durability.
Notice, at Denver, the number of the best known tractors that are pulling Oliver tractor implements.
Oliver plows have made a record at every demonstration where they have been used.
The majority of the tractor makers use Oliver tractor implements at demonstrations and recommend them to their tractor users because experience and actual tests have shown them that the use of Oliver implements assures the best seed bed, and hence the best crops for their customers.
At Denver, Oliver plows will uphold the reputation they have made and sustained for over 60 years.
WATCH FOR OLIVER AT DENVER.

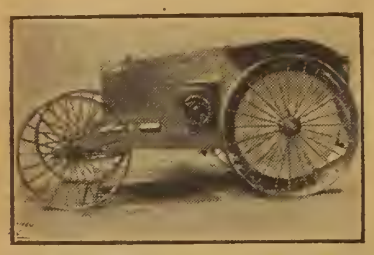
OLIVER CHILLED PLOW WORKS: DENVER-OMAHA-KANSAS CITY, MO.

HOME OFFICES AND FACTORY: SOUTH BEND, IND.

Tractor Show Directory

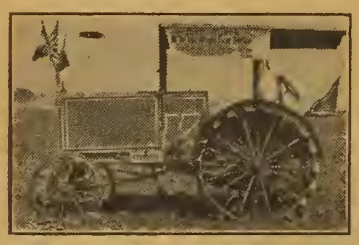
Continued from Page 23

forward, 3 m. p. h. reverse. **Final Drive:** chain. **Belt Pulley:** 11x6¾, 750-900 r. p. m. and 2100 feet per minute at normal engine speed.



Parrett Tractor Co., 12-25 Tractor

Traction Wheels: four wheel tractor with two rear drive wheels, 60x10. **No. of Plows Recommended:** three 14-in. **Length:** 146 in. **Width:** 72 in. **Height:** 67 in. **Weight:** 5200 lbs. **Turning Radius:** 15 ft. **Acres Plowed** in 10-hr. day, 8 to 10. **Motor:** Buda, 4¼x5½, 4 cylinder, cast en bloc. **Lubrication:** circulating force feed system. **Carburetor:** Kingston. **Ignition System:** high tension magneto. **Cooling System:** pump and radiator with fan. **Bearings:** SFK ball and Hyatt roller in transmission and plain on drive axle. **Transmission:** gears 2⅜ to 3¾ m. p. h. forward, 1.8 m. p. h. reverse. **Final Drive:** spur gears. **Belt Pulley:** 12x7, 875 r. p. m. and 3100 feet per minute at normal engine speed.



Port Huron Engine and Thresher Co., 12-25 Tractor

Traction Wheels: four wheels, two drive wheels in rear, 56x10. **No. of Plows Recommended:** three 14-in. **Length:** 156 in. **Width:** 75 in. **Height** 105 in. **Weight:** 5700 lbs. **Turning Radius:** 6 ft. **Motor:** Erd, 4x6, vertical, 4 cylinders cast en bloc. **Lubrication:** constant level splash system. **Carburetor:** Kingston single bowl. **Ignition System:** Kingston high tension magneto with impulse starter. **Cooling System:** Perfex radiator with forced circulation. **Bearings:** SKF ball in transmission and own babbitt on drive axle. **Transmission:** spur gear with friction drive, 1⅞ to 4 m. p. h. forward, 1⅞ to 4 m. p. h. reverse. **Final Drive:** enclosed spur gears running in oil. **Belt Pulley:** 14x8, 650 to 1050 r. p. m. and 2380 to 3900 feet per minute at normal engine speed.

Rock Island Plow Co., 12-20 Tractor

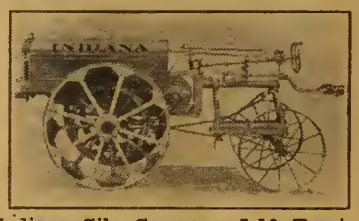
Traction Wheels: four wheels, two in rear, 57x10, as drive members. **No. of Plows Recommended:** three 14-in. **Length:** 144 in. **Width:** 74 in. **Height:** 96 in. **Weight:** 6000 lbs. **Turning Radius:** 25 ft. **Acres Plowed** in 10-hr. day, 10. **Motor:** Waukesha, 4½x6¾, L-head, 4 cylinders, cast in pairs. **Lubrication:** circulating splash system. **Carburetor:** Kingston. **Ignition System:** Dixie high tension magneto. **Cooling System:** water and centrifugal pump. **Bearings:** own make, babbitt throughout. **Transmission:** special friction, 1 to 4 m. p. h. forward, 1 to 4 m. p. h. reverse. **Final Drive:** gears. **Belt Pulley:** 14x8, 600 r. p. m. and 2200 feet per minute at normal engine speed.

Turner Manufacturing Co., 12-20 Tractor

Traction Wheels: four wheels, with two 54x10 in rear, giving traction. **No. of Plows Recommended:** two and three 14-in. **Length:** 128 in. **Width:** 68 in. **Height:** 60 in. **Weight:** 4200 lbs. **Turning Radius:** 12 ft. **Acres Plowed** in 10-hr. day, 10. **Motor:** Waukesha, 3¾x5¼, 4 cycle, 4 cylinders, cast en bloc. **Lubrication:** constant level splash system. **Carburetor:** Kingston. **Ignition System:** Dixie high tension magneto and impulse starter. **Cooling System:** Perfex radiator, pump and fan. **Bearings:** Hyatt roller in transmission and own roller on drive axle. **Transmission:** selective gears, 1¾ to 3½ m. p. h. forward, 1¾ m. p. h. reverse. **Final Drive:** sprocket and roller pinion. **Belt Pulley:** 14x8, 600 r. p. m. and 2100 feet per minute at normal engine speed.

Yuba Manufacturing Co., 12-20 Tractor

Traction Wheels: two crawlers in rear, one front wheel. **No. of Plows Recommended:** four 14-in. **Length:** 145 in. **Width:** 55 in. **Heighth** 55 in. **Weight:** 6500 lbs. **Turning Radius:** 9 feet. **Motor:** Waukesha, 4½x6¾, T-head, 4 cylinders, cast in pairs. **Lubrication:** splash system. **Carburetor:** Ensign. **Ignition System:** Bosch high tension magneto. **Starting** and **Lighting Equipment:** K-W lighting system. **Cooling System:** enclosed radiator, own make. **Bearings:** Hyatt roller in transmission. **Transmission:** sliding gear, 1½ to 4 m. p. h. forward. **Final Drive:** bull pinion in track. **Belt Pulley:** 12x6¾, 700 r. p. m.



Indiana Silo Company 5-10 Tractor

Traction wheels. Two wheels. Two drive wheels 12x50. **Number of plows**

WATCH FOR THE YELLOW CHASSIS

REPUBLIC TRUCKS

A Size for Every
Hauling Condition

Republic Trucks and R. & P. Tractors for Service

See Them at the Tractor Show

SWENSON AUTO CO.

COLO.—DISTRIBUTORS—WYO.

1960 Champa Street Main 1855

DENVER, COLO.

The Tractor to Buy

ARE you one of the many farmers who need more power to handle the farm work properly? Do you have to work with less help than you need?

If so, you need an International kerosene tractor. The size that gives you power for your heaviest load will handle all the work. Internationals use only as much fuel as the load requires. They are made to work with farm machines—the kind you are now using—and special hitches are provided for all kinds of field and road work. Their belt pulleys are large enough to prevent slippage, run at correct speed, and are set high enough to keep the belt off the ground. They all use kerosene or other low-grade fuels which means a big saving in operating expense.

The Company to Buy From

You know that we have supplied farmers with high-grade machines for nearly 88 years. You know that our tractors have furnished satisfactory farm power for more than 12 years. We have far too much at stake to market machines of any but the highest standards of quality. We expect to come back some day and sell you some other machines in the long list you see in this advertisement. In every sale we try to build for the future.

Tractor Service Whenever Needed

In line with this policy, we have developed a service organization which now consists of 89 branch houses and many thousands of loyal local dealers, wide awake and attentive to the needs of their customers. Service is a very essential part of any tractor sale. When you buy an International kerosene tractor you buy with it the assistance of an organization that brings a well stocked branch house or a live, local dealer within telephone call, fully equipped to keep your tractor working steadily.

International Tractor Sizes

International tractors, all using kerosene for fuel, are made in 8-16, 10-20, and 15-30 H. P. sizes. A line to the address below will bring you full information about all our tractors and about any other machines you mention in the list shown in this advertisement.

The Full Line of International Harvester Quality Machines

Grain Harvesting Machines
Binders Push Binders
Headers Rice Binders
Harvester-Threshers
Reapers Shockers
Threshers

Tillage Implements
Disk Harrows Cultivators
Tractor Harrows
Spring-Tooth Harrows
Peg-Tooth Harrows
Orchard Harrows

Planting & Seeding Machines
Corn Planters Corn Drills
Grain Drills
Broadcast Seeders
Alfalfa & Grass Seed Drills
Fertilizer & Lime Sowers

Haying Machines
Mowers Tedders
Side Delivery Rakes
Loaders (All Types)
Rakes
Combination Side Rakes and Tedders
Sweep Rakes Stackers
Combination Sweep Rakes and Stackers
Baling Presses
Bunchers

Belt Machines
Ensilage Cutters
Huskers and Shredders
Corn Shellers Threshers
Hay Presses
Stone Burr Mills

Belt Machines—Cont.
Cream Separators
Feed Grinders

Power Machines
Kerosene Engines
Gasoline Engines
Kerosene Tractors
Motor Trucks
Motor Cultivators

Corn Machines
Planters Drills
Cultivators
Motor Cultivators
Binders Pickers
Ensilage Cutters
Shellers
Huskers and Shredders

Dairy Equipment
Cream Separators (Hand)
Cream Separators (Belted)
Kerosene Engines
Gasoline Engines
Motor Trucks

Other Farm Equipment
Manure Spreaders
Straw Spreading Attach.
Farm Wagons
Farm Trucks
Stalk Cutters
Knife Grinders
Tractor Hitches
Binder Twine

International Harvester Company of America

(Incorporated)

Billings, Mont. Crawford, Neb. Denver, Colo. Helena, Mont.
Los Angeles, Cal. Portland, Ore. Salt Lake City, Utah
San Francisco, Cal. Spokane, Wash.

recommended one 16-inch. **Length** 128 inches; width 54 inches; heighth 62 inches, weight 1700. **Motor** Le Roi. L head, four cylinder, vertical, 3⅛x4½ inch. 700 to 1000 r.p.m. **Lubrication** circulation splash. **Carburetor** Kingston. **Ignition** Atwater Kent. **Cooling system,** Chandler Radiator, Thermo syphon. **Bearings,** roller in drive wheels. **Transmission** own. Inclosed gears. **Final drive** chain open. Pulley 7x6 inches. 1,000 r.p.m. belt, speed 1830 feet per minimum.

The Denver Farm Machine Company, 12-25 Tractor

Traction wheels. Three wheels. Drawn by two traction wheels in front, 11x40. **Number of plows recommended,** two 16-inch, two way plows. **Length,** 132 inches, width 72 inches; heighth 54 inches. **Turning radius** 10 feet. Motor, Wisconsin, 4½x6. Four cylinder, cast en bloc. **Lubrication,** pressure feed. **Carburetor,** Holly. **Ignition** system, Dixie. **Cooling system,** pump and radiator. **Transmission,** sliding spur gear. Two speeds forward, one reverse. High, 5¼ miles; low 3 miles; reverse 2½ miles.

Why We Need Tractors

General arguments advanced for tractor purchases by some of the standard makers are as follows:

A—: Doing work at the right time is of the greatest importance to the successful farmer. With a tractor he can not only plow deeper and cheaper, but he can wait until conditions are most favorable and then rush the work through faster because he has greater capacity. The average farmer without a tractor is like a factory without sufficient power to run it—it is underpowered. Power is the great requirement to the accomplishment of larger things. The farmer with a good powerful tractor can haul his plow; he can do his disking in preparing his seed bed in much shorter time; he can keep ahead of the season in the matter of seeding; he can do all his heavy work with the tractor, reducing the horses required to the minimum, doing away with the surplus horses by selling them.

B—: There is always a comparatively short time when conditions are the most favorable for the preparation of soil, crop planting and harvest. For that reason alone these operations must be carried on quickly in the shortest time possible. Any farmer cultivating more tillable land than he can handle himself with one team can use a tractor profitably. The tractor's utility increases, with the acreage. On farms of a size where hired help is a necessity, especially in the face of a farm help shortage, the tractor is now almost indispensable, providing the lay of the land is such that a tractor can work to advantage.

C—: The prime purpose of the purchase of a tractor by a farmer is an economic proposition:

(1) It will save man power.

(2) It will save animal power.

(3) By the saving of animal power, food will be saved for human consumption.

(4) The soil may be prepared more quickly and seasonable, resulting in the planting of crops at the most opportune time, which in turn will result in a greater crop yield than by planting out of season, which frequently will follow when dependence is had upon the man and animal power available without the use of tractors.

(5) The tractor not only may be used for plowing, disking, seeding, etc., but it is a valuable adjunct and a real necessity upon the average sized farm for belt power purposes, and may be used in that way to make the farmer largely independent and permit the use of the tractor during a great portion of the year.

D—: Because it is an economic necessity, i. e., one man and a tractor will replace several men and teams in farm work.

The tractor is the only logical way of meeting the present shortage of farm labor.

The tractor speeds up the farming operations and brings the farmer a larger margin of profit on his investment.

Tractor Pulling a V Style Steel Ditcher

Besides doing all the work that needs power in motion the tractor will run all the farmer's stationary machinery. The tractor is a portable power plant that can be made to run machinery wherever it is placed.

The tractor eats only when it works. No expense when lying idle.

E—: One of the strongest reasons why a farmer should buy a tractor is that tractors help in increasing production. Production is increased because the farmer is able to do various things with his tractor that he has not been able to do with animal power. For instance, the tractor enables him to plow deeper and to plow at a more seasonable time of the year.

The best job of plowing invariably requires the most power, while investigations show that the poorest job of plowing is done in sections that are supplied with the poorest and smallest amount of available power.

Animal power is very expensive, due to the high cost of feed and also the high cost of horses, as well as the scarcity of labor to care for and drive the horses. Horses must necessarily be used in small units and thus require more man power. Horses also lack the ability to meet the demand for power during rush seasons.

The use of a tractor helps to solve the labor problem.

The use of a tractor enables the farmer to get his work done on time.

The tractor gives the farmer a flexible power which enables him to handle the rush work of spring and of harvest time without difficulty.

The tractor does not require attention when idle.

The kerosene tractor will produce power at about one-third to one-fifth the cost of animal power.

The tractor supplies the needed belt power.

F.—The arguments and reasons why farmers should purchase a tractor are

How Miller Tires
Outran 21 Prominent Makes

NO more convincing proof of a tire's supremacy has ever been submitted than this heroic contest on 17 Packard 'Buses, going 78,000 miles a month. It was held by the Eldorado Stage Co., Los Angeles, Cal.—one of the largest users of tires in the world.

To them it meant a huge sum to establish which tire carries a heavy load lightly, and runs the farthest.

Twenty-two leading makes were tested on the Eldorado's seventeen 12-Passenger Packards. They travel an average of 153 miles daily—a combined distance of 936,000 miles a year. That's 37 times around the world.

Parlor Car Comfort

This is the "Service de Luxe" for which the Miller Tires competed and won. Their victory was based—not on exceptional mileage of a single casing—but on long distance uniformity, tire after tire.

Once the burro was the only transportation where today this grand fleet carries thousands of passengers between Los Angeles, Bakersfield and Taft—an enchanting trip made in parlor car comfort in an Eldorado stage on buoyant Miller Cord Tires.

Proof of Uniform Mileage

All Millers are uniform because their workmanship is uniform. The Eldorado tests have reaffirmed it.

You can get these championship tires—but only from the authorized dealer. If you don't know his name, please write us.

THE MILLER RUBBER COMPANY, Dept. F-86, AKRON, OHIO

Miller
GEARED-TO-THE ROAD
UNIFORM MILEAGE
Tires

Makers of Miller Red and Gray Inner Tubes—the Team-Mates of Uniform Tires
Also Miller Surgeons Grade Rubber Goods—for Homes as Well as Hospitals

To Dealers: Your territory may be open—write us.

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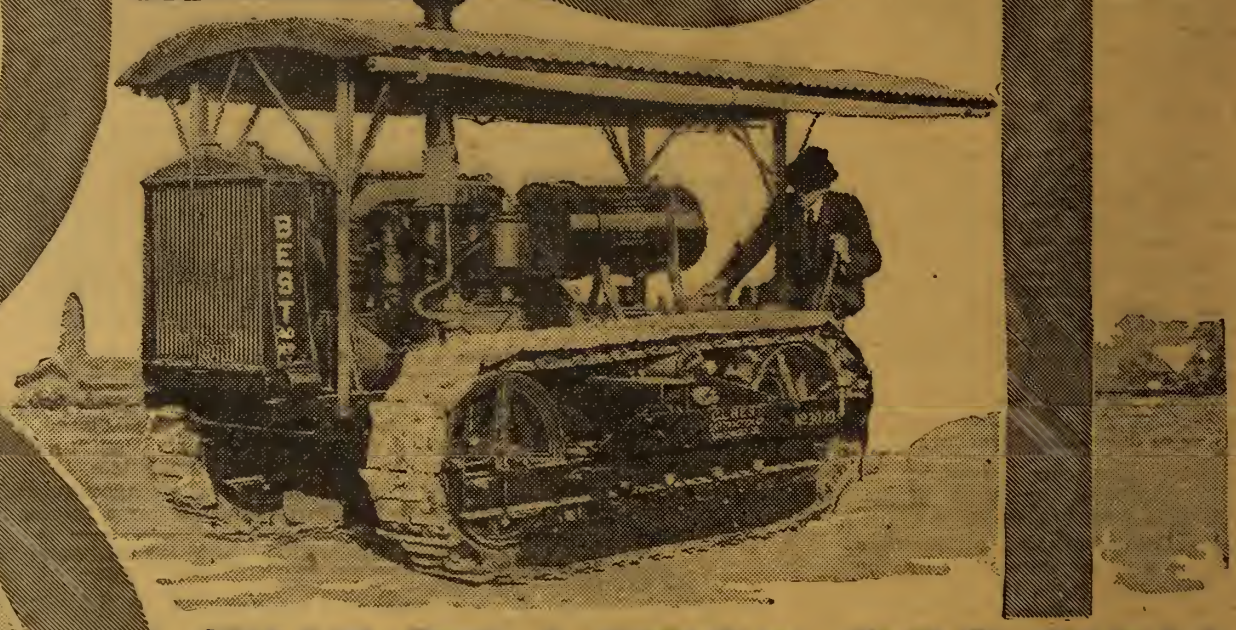
BEST



THE TRACTOR FOR YOU

Backed by Two Generations of Tractor Builders

An efficient, economical tractor that will run at a minimum expense of upkeep for a long period of time is the tractor to buy. "Best" Tracklayer Tractors have been in successful operation for many years—they are the descendants of the Daniel Best steam round-wheelers of the first generation.

SEE BEST TRACKLAYER TRACTORS IN ACTION

Plowing, Subsoiling, Harrowing, Discing, Leveling at the

National Tractor Demonstration
Denver, June 9 to 14, inc.

Learn all about the performance of Best Tractors.

Learn what Best Tractors are doing on big plantations and farms—in orchards—freighting—wherever a tractor can be used.

Learn why scores of big enterprises have standardized upon the Best.

Our representatives will give you many interesting details regarding construction, performance, and service.

THE NEW BEST "60" WILL BE ON EXHIBITION for the first time in the Rocky Mountain States.

N. B.: The "60" is an anti-friction bearing (37 Hyatts and Timkens) big power unit . Does the work of 35 horses—the most advanced and perfect tractor built.

MAKE OUR TENT YOUR HEADQUARTERS

H. W. MOORE & Co.

Eighteenth and Wazee Streets, Denver, Colorado

C. L. BEST GAS TRACTION CO., San Leandro, Calif.

too generally understood to make it necessary to go into a question of this sort at any great length. We would say that one of the prime reasons why it is important for a farmer to go into power farming and thus purchase a tractor and equipment is that by this method of farming the farmer himself is made a better business man and more efficient manager, and thus farming becomes better systematized and immediately more lucrative. One other general argument which might be advanced is that farming is made more attractive, and thus young men are kept on the farm because of the interest that is aroused by the use of up-to-date farm machinery. By this means the general standard of intelligence in rural communities is raised.

Specifically, we would list the following eight points which we believe are well taken:

(1.) To get the work done in a seasonable time.

(2.) To reduce the number of horses necessary for use on a farm.

(3.) To reduce the drudgery of farm work.

4.) Deep plowing and hence better seed bed.

(5.) By working long hours, plowing may be finished when ground conditions are the best and harvesting may be done before the grains become over-ripened.

(6.) The economies that result from power farming have been demonstrated.

(7.) Saving of man power on the farm by reducing the amount of hired help.

(8.) Greater prloduction.

G.—The tractor is an economical necessity. It will do the work more rapidly, for less money, than can be done with horses. It will enable the farmer to get his work done in proper season. With it he can increase his yield per man, at the same time operate his farm more economically than where horses are used.

H.—The strongest general arguments or facts as to why a farmer should buy a tractor are as follows:

(1.) By using a tractor a farmer can get his crops in at the proper time and in a much shorter time and with less labor difficulties than with the use of horses and men. This insures better crops.

(2.) A farmer can till the ground deeper and better and more thoroughly with one operation of the tractor than can be done with horses, thus again contributing to large crop yield.

(3.) His investment is considerably less in power farmiug equipment and he has not the worries incident to procuring labor, horses, feed, etc.

(4.) At the heignt of the season when the weather is hot and quick work is necessary, in order to save a crop or the like, a tractor may be worked 24 hours a day. This certainly is a tremendous advantage to farmers.

(5.) When plowing or other work is extremely hard and the weather is too hot to get much work out of horses, the tractor will go right along tilling deeper, faster and better.

(6.) Aside from these the farmer has at his command an ideal belt power suited for almost any sort of work. In other words, a tractor is a portable power unit supplying its own pull for traction work and for working itself to places where its belt power may be needed.

The Jersey breeders of Ada county, Idaho, have organized a Jersey Cattle Club, with 18 members, 15 of whom are owners of herds of purebred Jerseys. Arrangements were made at the meeting to buy a carload of registered cattle from Oregon at $200 a head.

Let Western Farm Life Service Bureau help you solve your farming problems.

Tractor Facts from Bulletin

The important thing for the prospective purchaser of a tractor to know is what the men who have used tractors have found to be their principal advantages and disadvantages in actual practice. Tractor owners whose reports have been used in preparing this bulletin were asked the questions: "What do you find to be the principal advantages of a tractor for farm work?" and, "What are the principal disadvantages?" A summary of these questions showed that the following points were most emphasized:

Works more rapidly.—The greatest advantage of the tractor lies in its ability to perform the work in a shorter time than when horses are employed. This point was mentioned by about 50 per cent of the owners. In New York by far the greater part of the plowing is ordinarily done with walking plows. Even the 2-plow tractor, therefore, results in a considerable increase in the rate of plowing.

Saves man labor.—The saving in man labor was next in importance, as would naturally be expected, as this is the logical result of using a machine which will permit one man to do work faster than with the outfits previously used.

Does better work.—The ability to do better work in plowing and preparing the soil is placed third. While economy, power available for belt work, and work in hot weather were given about the same emphasis, they were mentioned by only a small percentage of the tractor owners. In regions where considerable plowing must be done in hot weather, the last mentioned advantage is of marked importance, which illustrates how the value of the tractor varies according to local conditions.

Packs moist soil.—On the comparatively heavy soil in New York packing will frequently be injurious in low spots when most of the field is fit to work, and there is considerable likelihood of the tractor miring in such places.

Inefficient operators.—Next to this feature is the difficulty of obtaining an efficient operator. This is by no means confined to New York or the East, but is generally true wherever tractors are used.

Breakdowns.—Delays from breakdowns came third in importance, but this is often due to inefficient operation.

Unsatisfactory on rough land.—Unsatisfactory work on hilly and rough land, especially in stony fields, is frequently mentioned. The presence of these features on a farm should therefore be given careful consideration before buying a tractor.

Unsuitable for small fields.—Expense in operation was occasionally mentioned, while unsatisfactory operation in small and irregular fields was referred to in a few cases. Such difficulties, however, can usually be overcome by the rearrangement of fields, removal of fences, and following a proper system of laying out the lands for plowing under these conditions.

Lack of power was mentioned by a few men, but this can scarcely be classed as a disadvantage of the tractor, as it is usually the result of error in choosing a machine too small for the work required of it. This point is important, and is more fully covered under the next heading.

Among the more important facts disclosed by a study of the use of the tractor for farm work are those relating to the increase in the acreage which can be farmed by one man when a tractor is used in connection with horses over that farmed with horses alone. Eighty-four per cent of these New York tractor owners say that the tractor has proved a profitable investment to them. Of this number a little over one-third, after purchasing the machine, increased the acreage they were farming. On the other hand, of the men who found the tractor unprofitable, only one-tenth increased their acreage after purchase of the tractor.

This comparatively high percentage of the entire number of tractor owners who have enlarged their farms is significant, for whereas there has been a tendency for the size of general farms to increase in recent years owing to the influence of improved farm equipment, this increase in general is not nearly so pronounced as on farms where tractors are used.

A Four Plow Outfit On Irrigated Land

An important point in this connection is the fact that it is exceedingly difficult to keep a gas tractor in such condition that it will develop a high percentage of its rated power at all times, since wear in different parts, imperfect adjustment, etc., may greatly reduce the amount of power it will develop. Hence, a machine which will develop adequate power to meet requirements when new and in perfect order, may prove very unsatisfactory for both field and belt work after having been used a short time.

Another point is that soil conditions in the eastern part of the United States are such as to require considerably more power to do the work of plowing than in most of the middle west and western sections. This difference is so great that many machines which pull three plows in sections where plowing is comparatively easy, can pull only two plows under eastern conditions.—Farmer's Bulletin 1004.

"Why does the giraffe have such a long neck?" asked the teacher.

"Because its head is so far away from its body," hopefully answers the boy.—Exchange.

Big Money Boring Wells

One Man One Team

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

LISLE MFG. COMPANY
Box 743 Clarinda, Iowa

What OilPull Oil Cooling Means

Oil cooling is an exclusive OilPull feature—a feature that is of the greatest value to the OilPull owner. In designing the OilPull line of tractors to be cooled by oil instead of water, Advance-Rumely engineers have absolutely eliminated all possibilities of cooling troubles.

To fully appreciate the full advantages of the OilPull oil cooling system, let us make some comparisons. You are familiar with the troubles and dangers of water cooling—now learn the advantages of oil cooling.

Oil does not evaporate—there is no boiling in the hottest weather—the OilPull oil cooling system goes indefinitely without refilling.

Water evaporates quickly and requires frequent replacement.

Oil does not freeze in the coldest weather—there is no need of ever draining the OilPull radiator.

Water freezes in cold weather—the radiator must be drained daily or broken parts result.

Oil does not deposit scale or sediment—the OilPull circulating system is always open.

Water boils easily, produces sediment and clogs up the radiator and circulating system.

Oil does not rust the system, parts—it is a preservative of metal—the OilPull cooling system is self-lubricating.

Water rusts the circulating system parts—the metal quickly deteriorates.

The OilPull oil cooling system automatically keeps the motor at the right temperature at all loads—warm for low loads—increasingly cooler from half load up to full load. The harder the OilPull works—the cooler it runs.

Water cooled tractors get hotter as the load increases.

The OilPull oil cooling system eliminates a cooling fan—no lost power—no belt troubles.

Cooling fans consume power and are a source of constant annoyance and trouble.

But oil cooling is only one of the special *proved* advantages of the OilPull tractor. We have a 48-page catalog devoted exclusively to the OilPull—its design, construction and operation.

The Rumely OilPull can now be had in four sizes—12-20, 16-30, 20-40 and 30-60 H. P.—all standard in design and construction—each a guaranteed oil burning, oil cooled outfit.

Where shall we send your copy of the OilPull catalog?

ADVANCE-RUMELY THRESHER CO., Inc.

La Porte, Indiana

Kansas City, Mo. Portland, Ore.

BACKED BY WRITTEN GUARANTEE

ADVANCE-RUMELY

The Full Line of Rumley Oilpull Tractors Will Be Shown

at the **Denver Tractor Demonstration, June 9-14**

A Lesson for Potato Growers

MAY BE LEARNED FROM THE SKOOKUM APPLE

ALVIN T. STEINEL

(Reprinted by Permission from The Potato Magazine)

STOPPING in front of a fruit store in Denver I asked the son of Sicily who stood there awaiting patronage:

"How do you sell these Delicious apples?"

"Three for a quarter," quoth he.

"Give me three pounds," I said.

"Three pounds! Three apples for a quarter, not three pounds. How many you want now?"

Of course, I wanted only a quarter's worth—three apples, big and greenish red, and as delicious as the varietal name implies. While he put them in a sack I said: "Why are they so high?"

He answered with a shrug and showed me a bill from the commission house. The box containing 56 apples, every one perfect and each wrapped in soft paper with the familiar Skookum trademark imprinted, had cost my Sicilian friend $4, which means a little over 7 cents for each apple. He was selling them at a profit of 1 cent each, which is not excessive as profits and profiteering go these days.

I consulted a United States Bureau of Markets report and found that the trackside price of these apples in the state of Washington was in line with what this dealer had paid, consequently it was a safe conclusion that the grower who markets through the Cashmere Fruit Growers' Union, under the official brand and sanction of the Northwestern Fruit Exchange, had received a fair price for the apples, plus individual paper wrapping, plus box, picking, handling, grading, selection and many other pluses that go into cost of producing a high grade article of food.

Now I am not an advocate of velvet wrapped potatoes shipped in jewel boxes to multimillionaire clubs for individual baked service. I am for plenty of potatoes for everybody. But I maintain that there is a lesson for potato growers in the Skookum apple incident. I am just a plain everyday editor with a healthy appetite and a slim editorial purse, yet attractive apples at two bits for three got my coin and will get it time and again. If my wife lets me do the marketing I will pay a premium for anything attractive that goes on my table. And how often have I not longed and hungered in vain for the nice, even run, smooth skin, hand sized tubers free from spot or blemish, the kind that bakes and eats with the shell on!

Sometimes I can get it, because I happen, by the grace of God for which I am grateful, to live in the Rocky Mountains. Sometimes I cannot get it. Sometimes potatoes are so cheap and plentiful that I feel like a thief when I go home with a sack of them on my shoulder, hanging my head in shame when I think of the sacrifice the grower made in producing them. Again they are scarce and high and I am filled with anger at the profiteering grower, the highbinding handler and the thieving retailer, so angry that my potato appetite vanishes and I eat bread.

I can remember when the apple situation was much like that, but the apple grower, poor fellow, could not chop down his trees and refuse to produce because the previous season had shown overproduction and loss. No doubt many a grower felt like using the axe, but more often than not he wanted to use it on the boomer who sold him the thousand-dollar-an-acre orchard. He could not sacrifice his trees, so he had to solve the problem in another way, and he is doing it the Skookum way, and I, the Ultimate Consumer, am gladly helping the game along by paying the price to which the grower is entitled for a first-class product.

We all eat apples these days because we know they are free from worms, they are not suffering from skin disease, they are good-looking, and they have flavor. We do not eat them for their food value principally, but more for their looks and palatability.

We eat potatoes because we must have them in the diet, but we are eating them under protest. No other article of food reaches the kitchen in less attractive shape. How much of a bread-eating nation would we be if the loaves came to us in unappetizing fashion?

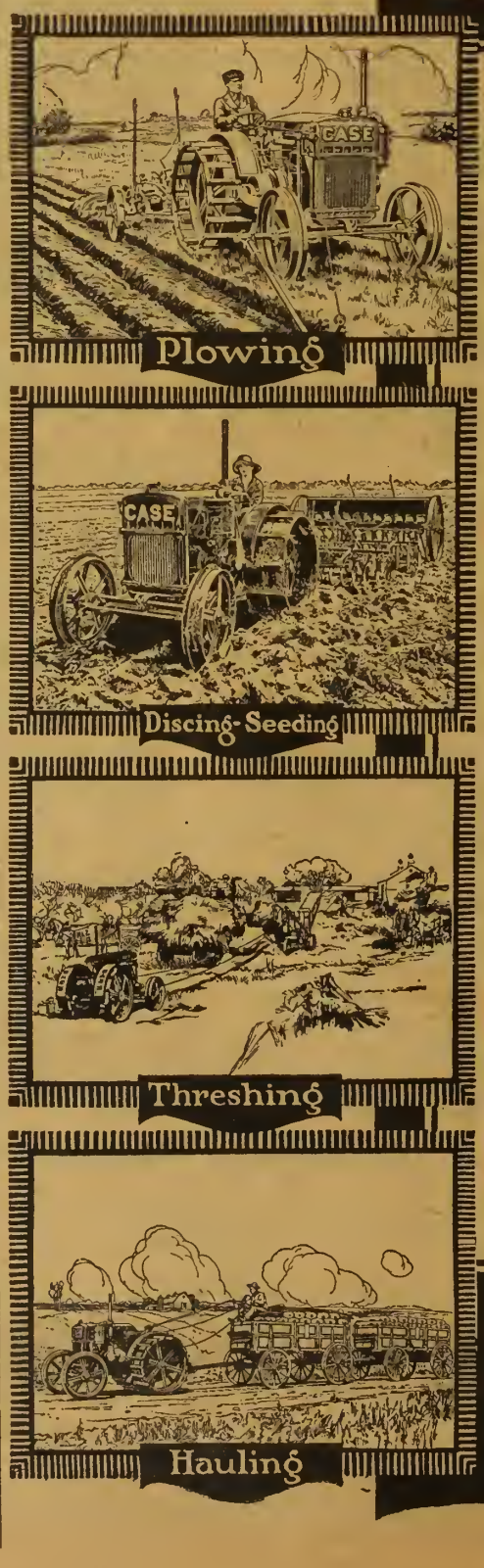
What is the remedy? How can the consumption of potatoes be increased? We have all heard and read and discussed the question. Grading, utilization of cull stock in manufacture of starch and alcohol, dehydration of a portion of the crop, feeding potatoes; potato flour-making; there is no secret about the ways in which the surplus may be consumed, but we have done nothing, or practically nothing, to educate the consumer to a higher standard of demand. To his notion the potato is just a lowly spud, a mere vegetable root, born and reared in a burrow, dug up out of the dirt with its environment clinging to it, housed in a dugout, dumped into a black kettle, steamed and stewed to starchiness and eaten as roughage.

The grower has done nothing to make the consumer think otherwise. In fact, the grower, too often, has about the same conception of the potato. He thinks of it in dollars and cents and of his market as Podunk or Oshkosh. He must first revise his own conception of the potato and learn to think of it in its proper relationship to the feeding of the world before he can expect the consumer to become interested. The man who is just growing potatoes because "last season" was a short year with high prices, whether he knows it or not, is an enemy of the industry instead of a friend. We must have more of the spirit of the annual breeder among the growers of potatoes; more of that interest in growing things that looks back of the seed into the history of the plant and forward from the harvest to the worlds' table. With all of its absorbingly romantic story and its great antiquity, the wheat plant does not present a more interesting or profitable study than does the potato. When we get to Peru with that study we enter the realm of the speculative, and we have in that South American country of wonders, relics of antiquity that take agriculture back perhaps as far as any monuments of the past yet unearthed in Europe or Asia. And the potato goes back with us into these dim ages of antiquarian research.

Whoever has watched the plant grow and develop knows its idiosyncracies; it has individuality and falls into as many types and characters as the human species. It is full of surprises. Adaptable to a wide variety of climatic influences, it is yet choice in its selection of a suitable environment, rewarding a good soil-home and favorable weather with a bountiful fruitage and withholding from the careless or unfortunate grower its gifts in punishment of neglect. It is one of the most responsive and intelligent of all plants when kindly treated and morose and sullen when ignorance is at the plow handles.

The apple was immortalized by an allegorical account of the creation. It has been widely advertised ever since that account first was handed down on papyrus in the synagogues of the Hebrews. But all of the free advertising the apple got did not lift it from the class of rapped to that of wrapped fruits until modern methods of culture, packing and publicity were applied. What the potato, a much superior article of food, needs most, is publicity of the kind that will make the consumer want it in the best shape and condition that the grower can put it on the market. To educate the consumer up to the point where in potato buying he will look carelessly at a dime or a quarter, just as I did in buying Skookum apples, is a matter of a few years' intensive work by the Potato Association of America. But this association cannot accomplish the task without the full backing of the good growers in every district on this continent.

SEE CASE TRACTORS PERFORM AT THE DENVER DEMONSTRATION, JUNE 9-14



Why a Case Tractor Is More Profitable

THE number of working days for an advanced tractor like the Case 10-18 is rapidly increasing. Men thought of tractors principally for plowing twenty-six years ago, when we first began to build motor tractors.

In later years, with the introduction of our smaller sizes, men were satisfied with a maximum of 30 days' use per year.

But war-time conditions have brought about changes not only in the mechanical development of tractors, but in their adaptation for multiplied uses.

More Ways to Use Your Tractor

Our latest and best small tractor, the 10-18, is purposely designed for maximum use. It is adaptable for all kinds of work. It represents years of study in the field, dozens of extensive investigations.

The Case 10-18 is small and compact. It weighs little more than a team of horses. Its length is 102 inches, width 56 inches and height 54½ inches. It turns in a 22-foot circle, and can get around easily. It goes through a small gate or door and easily shares the road with other vehicles.

While rated at 10 horsepower on the drawbar, it develops nearly 14. While rated at 18 on the belt, it develops up to 24. This reserve power makes it ever ready for an emergency.

There are dozens of improvements in this Case 10-18. For instance, it has a one-piece main frame, with a four-cylinder engine mounted crosswise. This frame construction affords a dust-proof housing for the rear axle, bull pinion shaft, transmission and the bearings for these parts. It also provides a base for the motor.

This type of construction brings rigidity. It minimizes vibration and prevents disalignment of gears, which are all cut steel and fully enclosed. Thus we multiply strength, reduce weight and conserve power.

Another feature is its economical consumption of kerosene. It has a Case Sylphon Thermostat which controls the cooling system and insures complete combustion of kerosene. And it prevents raw fuel from passing by the pistons and diluting oil in the crank case.

An improved air-washer delivers clean air to the carburetor. No grit nor dust gets into the cylinders to minimize their efficiency and shorten their life.

Our illustrated booklet describes all the advanced ideas in the new Case 10-18.

We will gladly send a copy free. Or it may be obtained of a Case Dealer.

J. I. Case Threshing Machine Co., Inc. Founded 1842
1973 Erie Street, Racine, Wis., U. S. A. (811)

CASE
KEROSENE TRACTORS

Steamboat Gold

Continued from page 14

cheer or mirth. Captain Gregg told Mystery afterward that it looked like it had been screwed out of him with his thumb in a vice.

"Yes, Arkansaw he poled right home and toid us you was back. So you was gittin' blood-poisonin' in that arm where you cut it on the saw, was you, and you had to rack out to Kansas City and have it burnt?"

That was the explanation of his absence that Randolph had agreed upon with Juilet and Hugh.

"I hurried to catch the two o'clock train that night, and left a note under the rope of the windiass."

"Yes, that's what Arkansaw said. Must 'a' blowed away."

"I suppose so."

The river had spread to a great breadth in the Narris, for an immense volume had been poured suddenly into an insufficient measure. Along the shore on the side of Moore's farm the water turned in slow, broad-sweeping eddies, or ran spreading and creeping into the low places with the timid hesitancy of a blind creature feeling its way.

Out in the old channel, beyond the spot where Randolph had sunk his shaft, it bore a different face. There it went hurrying, bearing with it the trophies which it had gathered on its way. As it spread in that slow, blind feeling on its new shores, it floated stacks of grain and hay, houses, stables, the miscellaneous possessions of farmsteads, moved them off quietly and gently, as with apologies for the reciamation that was so thoroughly effected, and marshaled them into the speeding procession of its greedy triumph.

A few were out with skiffs, trying to salvage something out of the general ruin. Randolph recognized Arkansaw among them by the masterly sweep of his long oars, the masterly control of his craft on that rioting mad river. He went rowing beside roofs, or gobbing submerged small dwellings, ready to risk his iife to save any whom misfortune might have overwhelmed and the flood carried away.

"I wonder if it took old Sam Langworthy's house?" said Gregg, stretching himself to see over the trees which still remained standing on the farther shore of the river.

"I don't know, but it's more than likely it's gone. The river is spread away back past the shore of the old lake."

"Look at her over there, John. Look how she's borin' down to that old boat! By Henry! Look at that—look at that!"

The oid man caught Randolph's arm, pointing with gesture of excitement.

"What is it, captain? I don't see—"

"Them barreis of whiskey, blast my melts, **them barrels of whiskey!** She's whoopin' 'em out of that hole like they was feathers. Don't you see 'em bobbin' around that whirlpool over there?"

As Randoiph watched all doubt dissoived. Now the black head of a barrel danced a moment in the solemn circie of the whirlpool, now the rounded side showed briefly, like some ungainly creature of the river coming out to revel in the joy of this devastation after a iong and sluggish sleep.

"It's going to heil! It's ail goin' plumb to heil!" lamented Gregg, stretching his impotent hand out toward the mocking waste that the Missouri was making of the cargo of the Morning Star.

"Let it go! What do we care?" said Randolph.

"Nations! If I could hitch a rope on one of them barrels!"

"You never couid land it, captain. There's no buoyancy in them—it's only the strong current that keeps them up a second or two."

"I'd resk it if I had a skift—"

The captain jumped as if pricked by an inspiration. Off up the river bank he went tearing through the corn, yelling across the troubled waters to Arkansaw, signaiing him with his hat. Arkansaw was in mid-river holding his skiff against the current like a hawk balancing to dart upon its prey. He was watching for a life in peril or property afloat that he might fasten on and tow ashore, but when he saw his father's frantic signal he threw his power into his oars and came speeding toward that bank.

Gregg started back to the point opposite the wreck, waving imperative orders for Arkansaw to put in with all haste.

"Come in and git me!" he yelled, making a trumpet of his hands.

Arkansaw was doing his best to make a landing where Randolph and Gregg waited, but from the point of his prow one might have thought his intention was to strike off for Omaha, or some up-river place.

Gregg was buckling and chewing at a rate never approached before in all his days. He began talking again to Randolph, and pointing toward the whirlpool where an unmistakable barrel rose now and then; turned and circled and sank. The oid man's excited behavior detracted Arkansaw from the delicate labor in his hands. A moment he ceased pulling, leaned on his oars and looked. Only a breath later, it seemed, he was struggling to tear his boat out of the indrawing suction of the great whirlpool.

Gregg said nothing, but Randolph heard him catch his breath with a gasp like a knife had been set in his back.

Stern first the whirlpool caught Arkansaw, jerked his boat in with rude and sudden triumph, spun it for a moment, the long oars beating it like frantic arms. Captain Gregg shouted, but with more of despair than encouragement in the sound. Randolph, beside him now at the river edge, saw him cover his eyes with his hand as the skiff reared prow upward and sank.

The oid man was thigh-deep in the river before Randolph could lay hold of him and drag him back to shore.

"He'li swim out. Watch for him—he'll make it!" he shouted as if he spoke to one deaf in the old man's ear.

Gregg did not speak, but Randolph felt his grip on his arm tighten as if his muscles set in their last rigor as he watched the whiriing debris in that pool of death. It seemed a long time—Randolph was holding his breath as if his own head was under water—before they saw Arkansaw, far down the river below the whiripool.

"He remembered—he remembered! He dived through it, dang his little hide!"

There was unmeasurable pride and tenderness in the old man's voice, and on his bearded face the tears were running down. Randolph let out a yell of relief, triumph, and encouragement, and Arkansaw threw up one long arm and waved it, to let them know that he was safe, and still a gentleman in spite of his misfortune. Then he came swimming, hand over hand, in long and strong strokes, swimming as if he fled from death and hell!

"No, I ain't stove in—I ain't even touched," he said. "But, gee-mo-nees, you orto 'a' seen the whiskey out there in that blame old swirl!"

"Whiskey?" said Randolph.

"Whiskey?" echoed the old man.

"Rivers of it—barrels of it bustin' all around me like eggs in a fire! Say, man! I swum in whiskey for a mile!"

"Damn whiskey!" said Gregg. "If I hadn't been so hot after it I wouldn't 'a' run you into that hell-hole of poppin' barrels!"

They stood again opposite the whirlpool, Gregg looking Arkansaw over with wondering and admiring eyes. There was a new softness in the old man's face; he kept his hand on his son's shoulder as if it needed the evidence of touch to assure his eyes that he had come out of the river safe and whole.

"You can have it, gentlemen," said Arkansaw thoughtfully. "You can go ahead and take it all. I'll never git the smell of that booze out of m' nose if I live a million years!"

After Gregg and Arkansaw were gone their way home, Randolph stood by the river, turning in his thoughts the young man's fortunate escape, together with many other things.

The bones of Langworthy's victims were scattered under the dark waters now, the evidence of his long delving and dark misdeeds destroyed. All his days the scoundrel might walk unchallenged now, purged of his crimes by the river that ran as foul as his own heart's blood.

And of the treasure, so nearly won through so much labor, through the waste of so many hopes? The river had taken it from him, as Caieb Moore had told him it would snatch it, and buried it deeper, beyond any further possibility of discovery. So ended that quest, so finished the romantic chapter of his youth.

Randolph has been searching the farm, the schoolmaster having gone in another direction, in an effort to locate Moore, whose unaccountable absence was causing Juliet great distress. She feared that he had been caught in the flood. By agreement the searchers were to meet at the camp, and there Randolph was waiting the schooimaster's return.

Gregg had been gone a long time, and the sun was aimost down to the corn-tops when Hugh arrived covered with burrs, his face scratched from forcing his way through brambies and thickets.

"Have you found him, Hugh?" Randolph asked as the master came to a stop at the tent, wiping his forehead on his sleeve to check the flow of blinding sweat.

"No, but I started the devil out of

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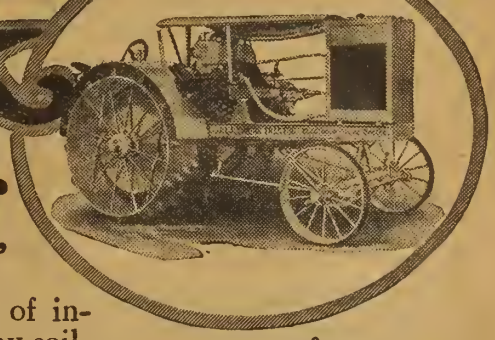

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his hole up there a little way, and almost ran him down!"

"Langworthy? Was he still sneaking around here?"

"Nested up there like a rabbit in the corn, waiting to sneak back to try some further devilment, I suppose."

"Or to take stock of what he already had done. Do you think the old man met him, Hugh?"

"God knows! If he did he's a dead man! I never saw so much hell in a human face as there was in that demon's when I started him out of his lair. I had a club in my hand. I struck him once—one good, fair blow. I might as well have struck water—he was so wild, so much a beast, he couldn't feel pain!"

"But he ran from you—he could feel fear."

"He ran. For some purpose that I cannot question the Almighty"—the schoolmaster lifted his hat in reverence—"delivered him out of my hand!"

"I hope the old man didn't meet him this morning, moody and melancholy as he was, with his fantastic grievance against Langworthy for building the levee. Why, look there, Hugh! Isn't that the window of the old store open?"

"I believe—yes, it is open. The old man's down there."

"Of course. We should have thought of that."

They hurried down to the old brown storehouse—the brown river in front of it, an unfaithful mistress come back to it to mock its battered age and the frailities of its decay.

The main building, standing on ground several feet higher than the wharf, to all appearances was safe and solid and good for any floods, either of water or fortune, that the years might bring. The main current of the river set in strong against that shore, bending over in a long sweep from the submerged site of Skiliet Lake, doubtless following precisely the track that it ran in half a hundred years before. Deep water was again before Caleb Moore's door; the largest steamer that the Missouri ever floated could have docked there beside what remained of his once famous wharf.

Now and then as the two men approached the building, walking close along the shore, the current sheared off a great piece of land—the plumed corn nodding stately farewell as it sank. It appeared that the Missouri was determined to take a heavy toll from Moore for coming back to him after all its fickle years.

Faint sounds of heavy articles being moved about came through the open window, dust arose out of it into the still air as if Moore had made a fire within those old walls out of the sad scroll of his gloomy life.

"He's there getting ready for the boats," said Hugh. "He told me he'd be ready when they came, God pity him!"

The door was closed and locked from the inside. A neat sheet of white paper was posted on its gray, cracked panel, this notice written in a clear, strong hand:

TO OUR PATRONS

Owing to an invoice of stock, this store will not be open for business until tomorrow morning.

CALEB MOORE, Prop'r.

There was a pang in Randolph's breast as he read it, as poignant as sorrow for the dead.

"The shock has broken him entirely," said he.

"Do you think we'd better see if we can persuade him to go home, John?"

"We're strangers—we're outside his life. I don't believe he'd take it very kindly if we called him out—I even doubt if he'd know us. He's gone back fifty years."

"He might remember when he saw you—you've been—"

"I doubt it, Hugh. I wouldn't like to disturb him—I think we'd better leave that to Juliet. I'll go and tell her where he is."

CHAPTER XXIII.
UNFRIENDLY VISITORS

Moore came to the door at Juliet's entreaty, but refused to open it. He appeared to be entirely rational on all points save that alone of his ancient storehouse and moldering stock. He seemed unaware of both fatigue and time, laboring there in the musty gloom among the things which must have fallen apart at his touch.

"Grandpére, you haven't had anything to eat since breakfast," she urged, the anxiety of her face in strange contrast with the gentle coaxing of her voice.

"There'll be time to think of that when I've straightened things out here a bit, child," he answered.

"Mr. Randolph is back," she called, lifting her voice, "all safe and sound. Wouldn't you like to see him?"

"Thank Heaven for his safe return!" came the fervent reply.

"You know the river, grandpére, has taken the—what he was searching for, it has taken everything!"

"It has taken much, child, but not everything," the old man replied with corrective chiding. "It has returned far more than it has taken—far more. I must turn to work now, Juliet; there is a consignment for St. Jo—"

His voice sank inaudible as the sound of his feet drew away. Juliet turned from the door, choking on her tears, groping out with her hands as if her sorrow had struck her blind.

Sunset came—night. Moore was still at work among his ancient wares, a dim lantern lighting him, so pale of beam that it must have been fed on a candle that had outlasted the waste of those ghostly years. They waited there on the crumbling shore—Juliet, Mystery, the schoolmaster, and Randolph—hoping that he would tire at length and come out for refreshment. Again and again Juliet went to the door or window and called him, but after the first impatient reply and command for her to leave him undisturbed, the old man paid no heed.

Presently the soft, thick gurgle of running water near their feet drew their eyes from the warehouse. Hugh lit the lantern, unwilling to trust the report to his ears. There, between them and the old building, the water ran, only a rivulet yet, but black from the main current and spreading every moment.

"It's cut across the neck up there," he said. "That used to be an island where the store stands, and it will be again in a little while."

"Grandpere, grandpere!" Juliet called, running distractedly toward the building, stopping only when her feet struck the water, "the river is rising; you must come out!"

"I'll go over and talk to him; maybe I can make him see his danger," Randolph proposed.

"Oh, look how fast it's rising!" said Juliet despairingly.

"I'll go with you," the schoolmaster offered. "We'll bring him out."

"By force, if we must," said Randolph, already knee-deep in the swift, hard-pulling little stream.

"There's somebody coming," said Mystery, her eyes big in the lantern light. "It sounds like a lot of men!"

Randolph and the schoolmaster stopped, moved by the same reluctance to leave the women alone.

"Stay with them," said Randolph.

The schoolmaster turned back to shore.

There came a hail from a little way up the bank.

"Randolph, Atchison! You' down there?"

"What's wanted—who it it?" Randolph called back.

The schoolmaster held the lantern up to look under its beams. Several men had halted a few rods back from the warehouse, some on horseback, some afoot. They came forward, silent and mysterious on the nature of their visit. At the rim of the lantern light they stopped. One on a horse detached himself and came a few yards nearer.

"We'd like to have a few words with you two gentlemen, if you please," he said. His politeness was strained; it seemed to disclose that they had come there on no social nor friendly purposes.

Randolph turned and came ashore.

"What do you want, Stapleton?" the schoolmaster asked, lifting the lantern again, flashing it in the horseman's face.

"We want to know what you two men know about dynamitin' the levee and lettin' the river through," the farmer replied.

"Oh, what a monstrous charge, Mr. Stapleton!" said Juliet, forgetful of her grandfather's danger.

Randolph was so astonished by the accusation that he could not answer it for a breath. Then he stepped forward as composedly as he could for the indignation that trembled over him.

"Gentlemen, this is a very serious charge," he said.

"We know it, Randolph," the spokesman of the committee replied.

"And it is as unjust as it is serious," Randolph went on. "I wasn't any nearer the levee today, nor for several days before, than right here, gentlemen, and I have proof of it. Mr. Atchison went to Richfield this morning; he can prove to your satisfaction that he wasn't within five miles of the levee when it broke."

"Yes; we know he went to Richfield, Randolph," somebody in the crowd said.

"We know what he went for," said another.

"Danamite—that's what he went for," called somebody in the background.

Turn to page 36

NISCO MANURE and STRAW Spreader

Straw Worth $8 a Ton---Don't Waste It

(All statements approved by Experiment Stations, Departments of Agriculture and progressive farmers).

Science and the experience of many up-to-date farmers prove that your straw stack contains tons of humus and much phosphorus, potash and nitrogen. At present prices, straw has a fertilizer value of $8.00 a ton—too valuable to burn or sell at a low figure.

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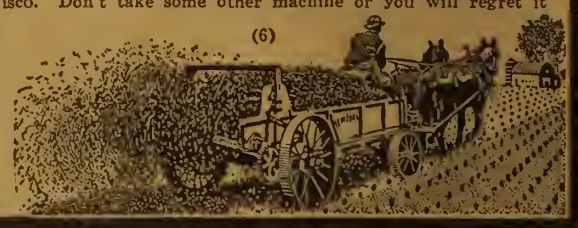
See your Nisco dealer and have him show you the advantages of both the Nisco and the straw attachment. Don't wait for him to call on you as he is short of help now. Insist on the Nisco. Don't take some other machine or you will regret it later on. Ask the dealer or write us for illustrated circular and book on manure. Act now and be prepared for the spring drive of 1919.



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Tractor and Deep Plowing

The depth of plowing is influenced by the use of the tractor. The depth plowed will be determined by the use of the plow, that is, the depth of the furrow that the plow will take and also the condition of the soil. It is possible with a tractor to plow any reasonable depth desired. In this connection, it is interesting to note that where farmers have the most animal power they do the deepest plowing. According to U. S. Monthly Crop Report, the ten states reporting a depth of plowing less than 5 inches on the average plowed only 4.3 inches. The weight of the average horse or mule in these states was 993 pounds. In the thirty-eight other states reporting a depth of 5 inches or more, the average depth was 6 inches and the average weight of the horses was 1222 pounds.

In other words, wherever the farmer has sufficient power, the tendency is for him to plow deeper. This is evidence enough that if the farmer has a tractor he will plow deeper than with horses. The following information does not bear directly on the depth of plowing, but it does bear on the time of plowing. The Kansas Experiment Station at Manhattan plowed for winter wheat on July 15th, and attained a yield of 38 bushels per acre. Land plowed the same depth, or 7 inches, on August 15th, yielded 27 bushels an acre, and the same depth of plowing on September 15th yielded only 15 bushels to the acre. It would have been practically impossible to have plowed that depth in those months with animal power.

The depth of plowing is determined by the depth that the plow itself is made to run. Most plows will run from eight to nine inches deep and are not calculated to run any deeper than that unless they are especially made for deep plowing. There are special deep plowing outfits made which will go anywhere from 10 to 20 inches deep. Of course the number of plows of this type that the tractor will pull depends entirely upon the size of the tractor. A tractor that will pull ten plows 7 inches deep will pull about five plows 13 or 14 inches deep. In sections where this extreme deep plowing is required a special plow is also required and the number of plows the tractor will pull is calculated to be about one-half what the tractor of the same size will pull under average conditions.

Binder twine cost the farmer 150 per cent more in 1918 than in 1914; barbed wire, 99 per cent; barrels for apples, 104 per cent; half-bushel baskets, 45 per cent; buggies, 57 per cent; double wagons, 71 per cent; harness, 66 per cent; horse blankets, 96 per cent; Paris green, 123 per cent; grain sacks, 182 per cent; nails, 87 per cent; wire fence, 92 per cent. These are averages for the United States.

If the County Agent doesn't know, ask Western Farm Life Service Bureau.

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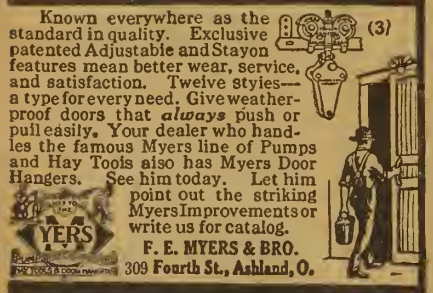

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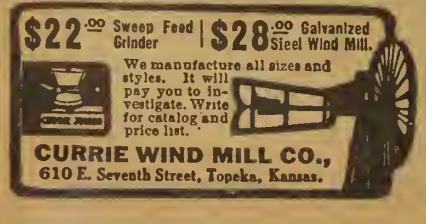

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Tractor Pulling Combine on Evans Farm, Adams County

Used for Many Purposes

The man who has succeeded with the gasoline or kerosene burning tractor is the one whose testimony is worth having. One of many eastern Colorado farmers responsible for large production of food and feed crops on tractor plowing is A. G. Wolfe of Yuma, who says:

"I am doing tractor farming and find many advantages in the use of tractors especially in this country. While there are disadvantages, the advantages outweigh them so much in the fact that the tractor does much better work of all kinds on the farm and at less expense than would the same amount of animal horse power.

"The tractor eats nothing during the winter months when idle and when in use, consumes more gas and oil than the same power in horses would require in feed. But the work done will compare more than favorably with horses, with less trouble. While the necessary repairs and up-keep amount to a considerable sum, without going into great detail, the tractor is the cheaper labor.

"We use ours for all kinds of labor: plowing, disking, drilling and road hauling; in fact, any kind of work that a horse can do. We are firmly of the notion that it is better power for all kinds of farm work than horses or mules. We pull two and three headers with tractors in the harvest season, and with more satisfaction than with horses or mules."

Card Index for Farm Papers

The issue of Western Farm Life for April 1 contained the advice to save the old copies and nothing can be better for farmers. For years, in fact, almost since the farm papers became a real help to practical farmers, I have saved my old copies and as I subscribe for a dozen or more of the best mid-western papers you may be sure I had a jumble in a year or two. Finally it became almost impossible for me to locate any helpful article out of such a mass and the whole mess became well nigh useless.

I had begun a sort of an index in a cheap blank book, but it soon became almost useless because I could not carry out an alphabetical arrangement with an ever growing mass of references. So several years ago I instituted my present system which I will outline. I have copied the card index that has superseded old styles of records in business. A small cabinet can be purchased, or a handy farmer can make or convert a small box for the purpose. Then I have taken heavy cardboard and marked the 26 letters on that many pieces with the letter standing up plainly. Under A, I have Ab, Ac, Ad, Af and so on as I find the first two letters are most necessary to find the article I desire, for now I have probably a hundred thousand references. In addition to the first and second letters of the words which takes in most of the articles I have inserted in their proper places, divisional cards bearing the names: Beans, bees, beef, butter, cattle, corn, dry (for dry farming), egg, feed, fertilizer, hay, hog, horse, livestock, meat, milk, packers, pork, potatoes, price, rye, sheep, silo, soil, tractor, wheat and wool. As time goes on I may see fit to put in other special headings, for the index is constantly growing. Many items may be found of special interest in a single paper and scarcely any that I take but what I find at least one article worth keeping in each copy. Whenever the time comes that any paper does not usually contain one or more good articles then I quit taking it.

I have used a good quality of tablet paper for fillers and cut them 8 lines wide and across an 8-inch sheet. Selected at random I will copy a card that I found under Fr.

Fruit, hardy for north, F 15, 1281.
Fruit, raspberries, F 15, 1618.
Fruit, winter protection, F. L. 12-15-15, 12.
Fruit, strawberries, F. J. 4-15-17, 8.
Fruit, strawberries, W 17, 727.
Fruit, strawberries, best varieties, V 3-18, 19.
Fruit, strawberries, best varieties, S 3-17, 54.
Currants, gooseberries, S 3-17, 56.

The initial at the middle of the card refers to the paper and some are paged consecutively for a year, hence if the initial is followed by simply 15 or 17, it means that it was that certain paper for 1915 or 1917. If the initial is followed by only two numbers, for instance 3-18, it is the March issue for 1918 and, therefore, is a monthly publication. My third reference is F. L. 12-15-15, and at the extreme right is 12 which indicates the page. Thus if I desire to find an approved method of winter protection for fruit I will take down my file of Western Farm Life, and in the December 15 issue of 1915, on page 12, I will find a good one. It is quite a job to keep the index up to date and yet I try to systematize that also. When I read an article that appeals to me I take out my pencil and mark it in a plain way and the paper is simply laid aside, but the wife and the little girls are careful to pile away the valuable farm papers where they will not be destroyed; then once a month or maybe longer, when opportunity offers, I get out my index cabinet and a few hours work on a rainy day straightens them all up and after indexing they go into permanent files.

A little box weighing but a few pounds, including fillers, is the key by which I can place my fingers on articles that are almost beyond value. I tried using the indices that some of the eastern papers put out, issued annually or semi-annually and found that with a dozen papers extending over several years, I would need an index to their index, so I have discarded everything but my own plan. Each person will probably gradually work out a different system.—E. W. Ferguson, Jr., Long Pine, Neb.

Let Western Farm Life Service Bureau help you solve your farming problems.

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By using the Moline-Universal Tractor and Moline Tractor implements, you can farm more land, better, easier and at less expense than you ever did before. Farmers in all parts of the country are now making more money through the use of the Moline-Universal Tractor and Moline Tractor Implements. Unsolicited testimony from owners is the best proof of satisfactory performance. Read the following expressions from Moline owners:

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"It has spoiled me because I do not care about driving horses any more." S. R. Moben, Westphalia, Kans.

"A big time saver and makes hard work a pleasure." Millard Belt, Rockville, Md.

"It has accomplished just 100 per cent more than I expected it. As a hill climber there is no equal." O. H. Barkledge, Washington, Mo.

"I can't work horses any more as I do my work so much easier with the Moline-Universal." Henry Shatz, Sheridan, Ore.

"During my ownership of the Moline-Universal Tractor my farm work has been made more pleasant and profitable." S. M. Pinckney, College Farm, Orangeburg, S. C.

"My wife and I have farmed this year by ourselves—something we never did before." H. E. Hartzell, New Weston, Ohio.

"It has saved me $600 in labor this season." Ira Brinkman, Shades, Ind.

If space would permit we could fill up this entire paper with letters from satisfied owners of Moline-Universal Tractors. Write for full information and large list of farmers who are making more money with less hard work by farming the Moline way.

Moline Plow Co., Moline, Ill.

"Moline Service Satisfies"

LOOK FOR THE MOLINE-UNIVERSAL TRACTOR AT THE DENVER TRACTOR DEMONSTRATION

Steamboat Gold

Continued from page 34

"I don't deny it—I've got it yet, in the original package," said Hugh.

"Mr. Randolph was here when the flood came, Mr. Stapleton," Juliet protested indignantly; "he was trapped in the shaft he had sunk to the wreck; somebody tore out the ladder, and I —I saw—"

"She saw the river coming in from the upper balcony of her home, and ran down here to warn me," Randolph finished for her, seeing that she hesitated in her delicate modesty. "I was in that hole, forty-four feet down, gentlemen, and I couldn't get out, due to the treachery of a man I can name. He broke off a section of the ladder, and shut me in. The water was pouring in on me when Miss Moore came—I'd have been drowned in a few seconds more. She let down the rope and hauled me out."

There was a noise in the old store as of a window opening or closing. Moore was no longer at the desk where his lantern stood. The men in the crowd drew together at the sound, and spoke in low voices among themselves.

Juliet, marking their fear, whispered to Randolph:

"Shall I call him again?"

"I don't believe it would do any good, Juliet," said he.

"You bought danamite," somebody insisted.

"Yes, and you used it," another charged. "The river was fallin'; it never broke that levee without being helped by some one."

"Hugh Atchison didn't get back from Richfield until two hours after the levee broke," Randolph told them. "We can produce plenty of people who saw him on the road."

"Well, if you've got proof, I'm glad of it, gentlemen," the leader said. "But a judge and jury 'll have to pass on that; it ain't our place."

"They bought the danamite, that's proof enough for us!" said a shrill man in the dark.

"Fetch 'em along. What's the use foolin' around about it?"

"We've got together, and we've talked this thing over," said Stapleton from his saddle, "and we decided it was our duty to take both of you over to jail and turn you over to the sheriff till the grand jury can act. Randolph, you was seen runnin' away from that levee not an hour before the river broke through."

"Oh, what a lie!" It flashed from Juliet, in scorn of the utter baseness of the charge.

"Nobody ain't asked you to put in," some unseen person reminded her.

"Bring 'em along; cut out this damn jawin'," came the too plain suggestion from the crowd.

The schoolmaster put the lantern down.

"Gentlemen, we're not going with you," Randolph said decisively. "We know who's back of this movement, we know who made the charge, and we also know all this talk about the sheriff and grand jury is a sham."

"If you're honest in your intentions, Stapleton," said the schoolmaster, "leave somebody here to guard us if you're distrustful, and go and get a warrant for us. Send the sheriff here with it, and we'll go. But we'll not go an inch with any mob, now or later."

"Oh, to hell with a warrant!" said one, pushing forward. "If you're afraid of 'em, Stapleton, git out of the road and let a man—"

Mystery Gregg snatched the lantern, jerked it with deft movement, and put out the light.

"Run—run into the corn!" she whispered.

A commotion in the mob ensued, for the putting out of the lantern had left it as dark as a pocket there among the shadows of corn and glooming warehouse. Men called to each other, shouting directions, cautions; urging others to lay hold of them and prevent their escape.

Even if their intent had been to fly, the quickness of the mob would have prevented their going. The inflamed farmers swarmed around the two men; the click of gun-hammers was heard, and Stapleton's loud warning to be careful of the women.

"Hold! Hold! You scoundrels!"

It was the voice of Caleb Moore sounding from a dark window on the shore side of his store, where he had come unseen and unheard.

"Grandpere, grandpere!" Juliet called to him.

"Randolph—Juliet! Where are you?" the old man asked.

"Here, grandpere—here!"

"Strike a light and stand aside from between me and that pack!"

Hugh had found the lantern; in a moment he had a match to it and a light.

"Step to clear—away to one side—and give me range at them, the prowling curs! Now, you clear out of here, you skulkers, clear out!"

The farmers had drawn back at Moore's first word. They were afraid of that mysterious building, where tradition and superstition had been heaping shudderful tales for half a century; afraid of the strange old man whom they never had understood. But the leader was assuring them, calling them back.

Randolph slipped away to the tent and got his revolver, which he had left there to get rid of its chafing weight in his pocket not two hours before. When he returned, the leader of the mob was standing on the water's edge arguing with Moore.

"But let me tell you, Mr. Moore," he was saying in deferential, conciliatory speech, "we heard—"

"But you didn't see," the old man cut in with contempt, "and on hearsay you've come down here on my property to drag two better men than any of you out and hang them. Yes, I suppose if you'd had the spunk, you and your daddies ahead of you, you'd have come down here and hung me, and burned this place, long ago."

"Yes, but let me tell you, Mr. Moore, Clint Johnson and his fam'ly nearly got washed off and drowned, and Sam Langworthy and his wife ain't been seen since the river took their house. Lives has been lost, and no end of stock. Wheat and hay was carried off in the stack, and barns and houses, and the New Jerusalem ceme-tury was washed—"

"I know, Stapleton; I know. I stood on the bank and saw it all go—I saw more than you can tell me. Let me ask you skulkers if there's something you realize." The old man's voice grew in volume; it came stern and deep over the black water, where little points of stars wavered in the spreading stream that cut him off from shore. "Do you know the river has come back to the Narris? Listen to it, stoop down and lap it with your tongues, you dogs! Old Crazy Moore, as you've called me for more than forty years, told your daddies before you it would come back and bring the boats. They laughed. they laughed a long time. But the river's here!

"You built a levee to hold it back, but it wasn't any more force against the river than my hand, and I told them it wouldn't be when they were building it. The old river melted it like a hot poker laid to butter, and turned to her right and lawful way. Listen to me, you pack!"

Moore struck the timbers of his window blow upon blow, as if he commanded order of an unruly throng, although if the corn-field had been standing empty before him it could not have been more quiet.

"Listen to me!" Moore commanded again, his voice sounding nearer, as if he leaned from the window. "Somebody told you Randolph and Atchison blew your levee up, and you were suspicious enough, narrow enough, blind fools enough to swallow the lie. Randolph and Atchison didn't have anything to do with it. If you're looking in earnest for the man that cut it, go and find Joel Langworthy, the hound of hell!"

The farmers made no answer to this startling charge. They huddled there in the dark as if for the comfort of shoulder against shoulder, the murmuring river at their feet.

":'I told you it would come back to me," said Moore, "and you had a better reason to come here and charge the crime to my hand than to these innocent men. But I would have waited God's own hour as I waited for more than fifty years. It never was my thought that the river would return to me through the work of an inquitous hand, but since it is so, I do not challenge the inscrutable ways of Providence. The river is here, and Joel Langworthy is the man that put the charge of dynamite in the levee and let it through!

"It washed out your burying-ground," said Moore unfeelingly, "it ripped your old daddies out of their graves and rolled their bones off to hell and damnation that was their due! I told them it would come and trample over their headstones—I told them, and they laughed! Now you know, you hounds, so clear out of here! I've got three shotguns loaded with buckshot, and I'll turn them loose on the man that hangs around here thirty seconds longer."

There was a commotion in the corn as if a herd of cattle had been turned into it as each man struck a line for himself and bolted into the dark. Distrustful of them, fearing that they might fire on him, Randolph jerked out the light.

The little group at the water's edge strained and listened for another word from the dark window. Presently the stock of the gun clumped on the floor, and the window sash complained as Moore started to close it. They heard him speaking, as if in explanation to any friendly ear that might hear.

"I must prepare for the return of commerce," he said.

To be concluded.

And Where?

"Jenkins is wrapped up in his auto."

"Indeed? When did the accident occur?"—Cartoons Magazine.

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Pulling a Normal Load on Old Ground

Tractor Fuel Consumption

The average quantity of fuel consumed per acre in plowing for all tractors on Dakota farms reporting is 2½ gallons. This figure does not vary materially for the different-sized outfits, as long as each pulls its normal load. It is possible, however, to reduce the fuel consumption somewhat by overloading the tractor; that is, adding one more plow bottom than the machine is intended to pull. This reduces the distance the machine must travel to plow one acre, and, consequently, results in a slight saving of fuel. The saving is not in proportion to the actual distance travelled, however, since the overload involves much more slippage of the wheels and consequent loss of power. Such overloading results in more time being lost per day, and in higher repair charges, so that this practice is expensive and inexcusable except in unusual cases where speed in completing a job is of the utmost importance. If such speed is required regularly the work could be done more cheaply and satisfactorily with a larger outfit.

There is a slight difference in fuel consumption between machines of different makes, and also usually a slightly lower consumption in some makes of tractors where gasoline is used instead of kerosene. These differences, however, do not usually amount to a great deal, and for most purposes the figure of 2½ gallons of either gasoline or kerosene per acre of plowing will be as nearly accurate as any that can be used for an average.

Kerosene cheaper fuel.—Although reports obtained in 1917 indicated that some difficulty was being encountered by owners of kerosene tractors in burning the lower grade fuel, the reports received on more recent models of tractors indicate that much less difficulty is being met with than formerly. The fact that the commercial grades of gasoline now obtainable are much lower than those on the market a few years ago probably accounts to some extent for reducing the difference between the amounts of these two fuels required to plow an acre of ground. Nearly two-thirds of the tractors on the Dakota farms are operating on kerosene, and where the machines have been especially designed to burn this fuel, the results are apparently very satisfactory, particularly in view of the present price of kerosene as compared with gasoline, the former costing more than one-half as much as gasoline. However, the greater ease in operating on gasoline and the somewhat greater certainty of steady operation are sufficient to cause many men to prefer this fuel to kerosene.—Farmers Bulletin 1035.

Tractor Record Sheets Free

Tractor owners who wish to keep a record of the cost of operation of their machines—and every owner should do so—may have a supply of Tractor Labor Record and Account cards free on application to Western Farm Life Service Bureau. The cards are cut 3½x8½ inches, of convenient size to carry in the pocket, with a half inch margin allowing for a punch hole by means of which cards, each containing a week's record, may be tied together with twine. The card is ruled to show the following; Nature of work; field number; crop; hours; acres; gallons and cost of kerosene or gasoline; oil; repairs and labor. One line is allowed for each day in the week. By the use of such a record any owner can see exactly what his tractor is doing for him and what he is paying for the service in time, labor and cash.

The Mountain States Tractor Company, Fordson Distributors of Denver and Northern Colorado, have recently been appointed distributors for most of Wyoming. A branch house will probably be opened in Cheyenne this fall. Alston M. McCarty is president of the Mountain States Tractor Company and Lester C. Thomas, secretary.

The Crawler Type Working in Wet Soil

Animal vs. Machine H. P.

It is rather difficult to compare the drawbar horse power rating of a tractor with that of horses, inasmuch as a horse is an uncertainty. Theoretically a horse of average size, say 1300 to 1400 lbs. will develop, while working day in and day out during 10 hours to the working day, an average of one horsepower, while on the other hand an average horse can, in an emergency over a period of several minutes, develop 5 horsepower.

The term "horse power" originated long ago when it first became necessary to have some standard by which to measure mechanical horse power and it was found that an average horse, in order to retain its health and normal physical condition over an indefinite period based upon a 10 hour day, would develop 33,000 foot pounds, but, of course, horses are more powerful and efficient today than they were 100 years ago. The last fact, together with the tremendous horse power developed by a horse in emergency, lead to the common misunderstanding of the relation between a horse (animal) and a mechanical horse power. Therefore, it can be seen that it is quite difficult to compare the horse power of a tractor with that of the same number of horses, since the capacity of a horse varies so widely.

It is generally conceded, however, that a 12 H. P. at drawbar tractor could be handled by 8 good sized draft horses in good condition, but this, too, largely depends upon the manufacturer's idea of rating a tractor. Some tractor manufacturers rate their tractors up to the limit of what it is possible to pull, while others rate their tractors with a conservative figure which leaves a reserve for emergency. Nevertheless, the fact remains that a mechanical horse power and an animal horse power is approximately the same when spread over a season's work—the tractor generally travelling faster and, of course, developing proportionately greater horse power at the same pull, and, of course, a tractor does not have to stop every half hour or so for a breathing spell, which brings its daily output of horse power up to that of an animal.

That Fruit Rate Question

There never has been a time in the history of the Grand Valley when the question of equitable freight rates for the transportation of our fruit was not a live one; we have always been at it and in some ways much relief has resulted from our activities. In a recent issue of the Western Farm Life under the caption of "What the Apple Rate Thermometer Tells the Grower," Alfred M. Wilson of Clifton, goes into detail in considering the question from the point of the best market, rates considered, for our fruits and concludes that we should sell all our crop in Colorado, Nebraska, Kansas, and a part of New Mexico. The matter is placed in an interesting light by means of the "rate thermometer" but it is nevertheless the same old question which the Grand Junction Fruit Growers' Association and others have been working on for twenty years, accomplishing a good deal of good in the way of securing a trifle the best of the rates over the northwest and California points.

After showing up the rates from many points Mr. Wilson insists that we must go after the markets in the states to which we have the lowest rate, by co-operation, advertising and solicitating by special agents.

This is all very true, but we have not been able, as he says, to compete against the northwest apple growers in our own Colorado market and this is true of the markets where we naturally might look first. And we will never hold those markets until we meet the pack and grade of the northwest. We use the Colorado market as a dumping ground for the fruit which is not allowed to be shipped at all out of the northwest; this is the fault of the growers who will send it by express if the associations refuse to handle it. Ask a Denver commission man why he orders the Idaho apple rather than the Grand Valley apple and he will tell you that his trade demands it, and because the trade knows when it orders an extra fancy box, that is what it will get, and we have seen box after box of Idaho apples opened with the same result—true to grade marked on the box. We have blushed with shame at some of the "extra fancy" boxes of Winesaps, Jonathans, and Ben Davis that we have seen opened and yet the northwest apple does not excel the Grand Valley apple in any respect.

The same is true of our bulk apples. Growers last fall piled the veriest junk into cars destined for the middle west markets that cannot fail to seriously handicap our future sales when consumers can get apples from some other point. We sent out many carloads of bulk apples that could not possibly pass the most careless inspection—apples on which a goodly amount of San Jose scale appeared. Such work will prevent any possibility of our securing a permanent market anywhere and is the real reason why we have not and will not sell our entire crop in our legitimate markets.

The first thing our friend Wilson should do is to get after the growers in this valley, preach co-operation and genuine honesty in the packing and grading of their fruit and above all endeavor to cultivate a spirit of loyalty to one another, and Mr. Wilson knows that this is more than anything which the growers need to hold their real markets. When they learn to co-operate, stand shoulder to shoulder in the matter of marketing, we may be able to use his "rate thermometer" to some advantage. We have been talking for an honest pack and a loyal support of our organizations—associations, equity exchanges, or Farmers' Unions—for many years and do not see that we have gained any headway whatever.

It is to be hoped that Mr. Wilson will not become discouraged and that we shall eventually sell good apples in the good markets as well as secure equitable freight rates.—A. C. NEWTON, Editor Fruit Grower's Department, Grand Junction Sentinel.

Comment by Farmer Putnam

Continued from page 11

has been bought by their own factory and all other tractors is spavined or hamstrung, or blind in one eye. Come and see 'em fur yourself; ask questions while you're follerin' the machines around over the plowed ground; ask other farmers that has got machines; watch your neighbor's tractor and then git the make that's big enough but not too big; that'll do the most power jobs on the kind of a farm you've got, but don't make the mistake of tryin' to run the whole place with tractors. Shunt off the big load to the machine and keep enough hosses to do the fill-in jobs and pull you out of emergencies. The hosses 'll appreciate the help of the tractor and they deserve a easier time the same as you do.

THOMAS JEFFERSON PUTNAM.

Storms Can Brew, Anyhow

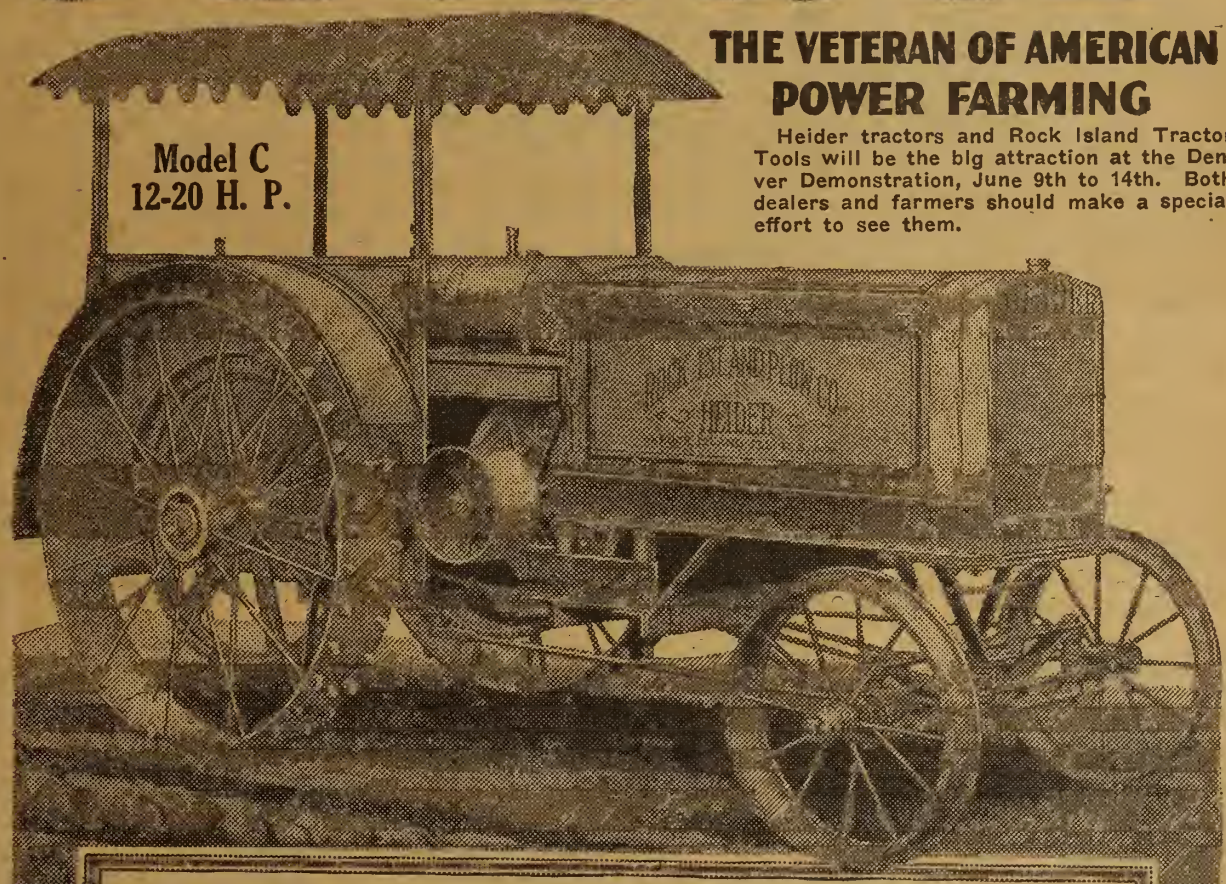
"Pa, where are those dark looking clouds going to?"

"To thunder, my son!"—Cartoons Magazine.

Heider

THE VETERAN OF AMERICAN POWER FARMING

Heider tractors and Rock Island Tractor Tools will be the big attraction at the Denver Demonstration, June 9th to 14th. Both dealers and farmers should make a special effort to see them.



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The following power equipment will be exhibited at the Denver Demonstration:
Heider Model "C" 12-20 pulling a Rock Island No. 19 Special three bottom power lift plow.
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Heider Model "D" 9-16 pulling a Rock Island No. 9 Special two bottom power lift plow.
Heider Model "D" 9-16 pulling a Rock Island No. 7CTX two bottom drag type plow.
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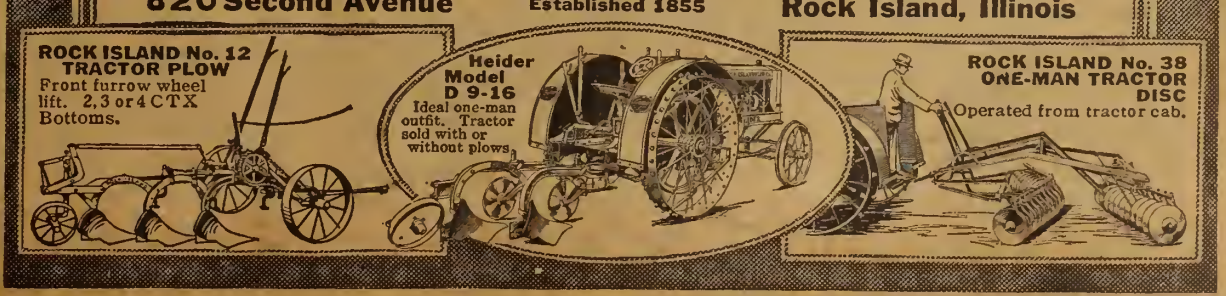

Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

Two Lessons in Breeding

A few days ago one of our neighbors came to our farm with the request to come immediately with my obstetric instruments for the removal of a calf from a young Holstein-Friesian heifer The first impression I got, upon seeing the animal, was that the man had kept the poor animal at least 6 hours too long, suffering from pains and that the treatment to remove the calf by means of an iron lever had been very rough too. But not only this; I felt rather sorry for it. I think it a pity that the man, whose aim it was, of course, to make of this heifer a good milk producer, had overlooked this simple lesson in breeding. If profitable cows for dairying are to be raised the heifers should not be bred before an age of about 16 to 18 months. This poor animal was only 16 months when she dropped the first calf and I need not tell here that such an animal will stay stunted and never come to a full milk-giving capacity. Another mistake this man made was: He had a large herd of beef cattle among which were two beef bulls of the Hereford breed that were allowed to run with the herd in which also four Holstein-Friesian calves were allowed to be bred by these beef bulls. If a person's aim now is to develop dairy cows, he should breed to a dairy bull and if the purpose is the raising of beef cattle, mate the beef cow to beef bull, in which two cases of preference, pure-bred sires should be used in order to make quicker success in his business. I thought that where so much has been written and lectured on this topic, every cattle man should be convinced, especially at the present time, that the breeding of mongrels will make it very hard to reach any ideal in business.—Dr. L. S. Dijkstra.

Silo a Paying Proposition

It does not seem at this time that anyone should doubt the good qualities of the silo. They have long since passed the experimental stage. But we will always have some doubting Thomases with us. The fall of 1911 there was a shortage of feed here, or a light crop, and of course, we wondered what we were to do for feed. We had some very good fodder corn. But the grain was rather shy, so we concluded to build a silo. It was rather late in the fall when we made up our mind to build. We had to construct a home-made affair. We put in a 7 foot pit and 20 foot stave. Went to the lumber yard and got 2x8's 20 foot beveled and dowel-pinned the staves. This made a silo 14x20 feet at a very reasonable cost. We filled it with corn fodder and cane; put in about six feet of cane, and the balance corn. Can't say that I like the cane silage very well. The stock do not seem to relish it as well as the corn silage. I have filled every year since but one. I have filled with green corn and also with dry fodder, but would prefer the green silage. I would rather have silage made from dry fodder than cane. It will take an immense amount of water. You can't give it too much water.

I consider the silo one of the best investments I ever made on my farm, and I do not care to do without one. I find it good feed for all stock. Even the brood sows like it, and chickens. In fact, I haven't been able to find any stock that does not relish a feed of good ensilage. I had one of the first silos put up in this county, and there was predicted all kinds of disaster for my stock, and bankruptcy for anyone that would put good corn in the silo. They told me the silage would make the milk cows lose their teeth and would kill the horses if fed to them. But I find it a splendid feed for mares in foal, or nursing a colt. It is an excellent feed for milk cows. Of course it is not a balanced dairy feed. I have had fine success feeding it to fattening calves. They make a wonderful gain, with silage as a part of their daily ration.

The greatest puzzle to me is why more of our dry land farmers do not have silos. I can feed more cattle on the same number of acres with silage than you can pasture on grass by about four to one, and keep them in much better condition. I use silage for summer feed if the pastures dry up and I need it, and I find it a fine substitute. We are feeding silage to our cattle now that are two years old and in excellent condition. In 1912 after I had fed silage one year, I thought so much of it as a feed that I put up another silo. 14x30 feet for summer use. or to fill when we had an abundance of feed. I used that one for four years with the same success I had with the first one. But it blew down and I never rebuilt it, as I had to dispose of some of my stock and did not need both silos. Last year I filled my silo 14x30 with 9 acres of cane. In 1912 I filled my 14x28 silo with seven acres of corn fodder, which made an average of about 12 tons per acre.

The silo is a money maker for any one that keeps a few head of stock. He can always get to it to feed. If the wind blows you can feed silage in the bunk, when it would be almost impossible to feed any of the fodder. Can't do without a silo for double the cost.—A. C. Cauble, Phillips county.

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Raise All the Chicks You Hatch

It is easy to avoid loss and turn failure into success now. Professor T. E. Quisenberry, Box 458, Leavenworth, Kansas, bas just written a 16-page bulletin telling plainly just how to avoid losses, how to successfully raise your baby chicks and just how to feed them. Every one of our readers should have one of these bulletins. Write at once and a copy will be mailed to you free.—Adv.

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Forty years in Iowa, now has for sale a Yearling Scotch Bull and some heifers. Write, or come and see them.

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ANYONE can milk a herd with the Empire, because there is so little to do. Simply start the engine, attach the milker by hose to the pipe line, apply the teat cups to the cow, and carry away the milk after the machine has done the work. One man with an Empire can milk more cows than three men by the hand method.

Not only does the Empire Milking Machine cut dairy costs, but it enables you to increase your herd and still handle it successfully with your present help. And the bigger your herd, the bigger should be your dairy profits.

The action of the Empire teat cups is always soothing and perfectly uniform, thus tending to make the cows give down their best. No trouble need be looked for, even with the nervous kickers and the "hard milkers"; they will like it better than hand milking, because of the absolute uniformity.

Why should you continue the drudgery of milking by hand? Why should you disregard those extra dairy profits which can easily be yours? Send for our catalog 28 and ask us for the name of the nearest Empire dealer.

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Although the *United States* has for years held the world's record for close skimming, its designers have now added important mechanical improvements and refinements that place it still further in a class by itself. In less than two years seven exclusive patents have been granted on the *United States* Disc Separator.

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Watch your newspaper for this advertisement telling where you can see the United States Separator. Agents and dealers wanted in some localities.

THE UNITED STATES DISC SEPARATOR

106

Feeding the Brood Sow

J. T. Tingle

There has never before been a time when there was as little difference between the price of hog blood (purebreds) and pork as at present, and the profit of the expert breeder as well as as the mere pork grower most largely depends upon the proper and intelligent feeding of the brood sow.

Realizing that 85 per cent of the expense for producing pork is charged to the feed bin, the amount of diligent and intelligent effort spent towards raising the maximum number of pigs, and putting on the greatest possible number pounds gain from pounds grain fed, is the keynote to success in the hog business. The degree to which Mr. Hogman is capable of doing this determines the percentage of profit on his business.

Owing to variation of price, feeds available, and systems of feeding employed to fit conditions prevalent in Colorado, the recommending of state wide feed rations is difficult and uncertain. However, suggested rations may be used as a base, comparing such feeds as are available to those mentioned and figuring out local rations on that basis.

Beginning with the sow at time of weaning spring litter, from May first to June first, and understanding she will be bred early June for September farrowing, caution must be observed to have her slightly gaining in weight throughout the period of pregnancy. Pigs should be eating rich slop (a slop composed of shorts 1 part, skimmilk or buttermilk 3 parts by weight makes an excellent weaning pig ration), eating a little grain (corn, ground barley, or rye), and running on pasture—preferably alfalfa or clover. The slop may be eliminated two weeks following weaning, provided the grain is increased so pigs are receiving from 3 to 4 per cent live weight gain per pig per day, and an abundance of succulent alfalfa or clover grazing.

The sow having weaned her pigs, should be kept on pasture and fed a gaining ration to build up her system and flush for re-breeding, and provide nourishment for the on-coming fall litter. A 3 per cent live weight grain ration will generally be sufficient to produce the desired growth and gain. Furnish an ample supply of fresh clean water, shade, and minerals for proper comfort, rest, and health.

Three weeks prior to fall farrowing the grain (corn, barley, or rye), should be displaced by a ration composed of 1 part corn or barley, 1 part bran, and 1 part ground oats. This ration may be mixed and fed dry up until ten days prior to farrowing, at which time many breeders prefer feeding these feeds ground and made into a thick slop. Cut out the slop twelve hours before farrowing and feed nothing but a little water, or very thin bran slop until twenty-four hours following farrowing. If the sow appears constipated add a little Epsom salts to feed, or if the pigs scour. it is well to give the sow a small amount of flowers of sulphur in feed.

The sow should be gradually put back on the same ration fed prior to farrowing, beginning with the slop much weakened, and thickening and increasing amounts until she is on full feed two weeks later. One gallon of high grade tankage or oil meal, added to each twenty-five gallons of slop will better balance the ration. However, if the sow is a heavy milker, and the litter is small and inclined to fatten, cut down on the corn or barley, as the case may be, and weaken the consistency of the slop fed. On the other hand, if the pigs are not growing off properly, thicken the slop. It is up to the feeder to use judgment and intelligence in feeding, especially is this true in making a go of the fall pigs. Fall pigs must be pushed to the limit and you will need skill in feeding to keep them growing through the winter months.

Breed sow for April farrow; figure up the gestation period at 112 days.

Keep alfalfa hay in racks before sow and pigs throughout the winter. Since legume pasture is not available during the winter prègnancy period, a higher protein ration will need to be fed than for summer. A hog will not eat enough alfalfa hay to supply sufficient protein for growth and development.

Ground alfalfa feed, 3 parts by weight to 1 part by weight of some ground grain as shorts, corn, barley, or rye, mixed thoroughly, scalded, a little common salt added, allowed to stand for twenty-four hours, and fed as a thick slop may be economically fed to brood hogs with very satisfactory results.

A grain mixture of 45 per cent corn or barley, 45 per cent oats or bran, 10 per cent tankage or oil meal is good for the pregnant sow. Small amounts of potatoes, mangels, or sugar beets may be fed to advantage without injury to brood stock, but do not attempt to feed such succulent products alone.

More attention must be given the proper balancing of feed rations for economy of feeding and larger and more thrifty litters with less casualties, and for more rapid growth.

Feed the sow a balanced ration that will keep her developing and slightly gaining in weight from breeding to farrow. Allow her to roam the fields and plow through the snow for exercise, but be sure to provide her with a warm comfortable house free from cold drafts and dampness

It is a rather difficult matter here in Colorado to breed sows to farrow late enough in spring to avoid cold weather and thumps, ready to put on alfalfa pasture and still be able to farrow fall pigs early enough to secure proper growth before mid-winter. The short summers chill the piggies early or late, if two litters per year are raised. Nevertheless, the cool summers favor rapid growth and perfect health in addition to furnishing an abundant growth of alfalfa, which is the king of forage crops for hog pasture.

It might be well to mention the feeding of condensed buttermilk as a hog feed, since many inquiries are coming in from interested farmers and hog men not having skimmilk or buttermilk available for starting young pigs on feed.

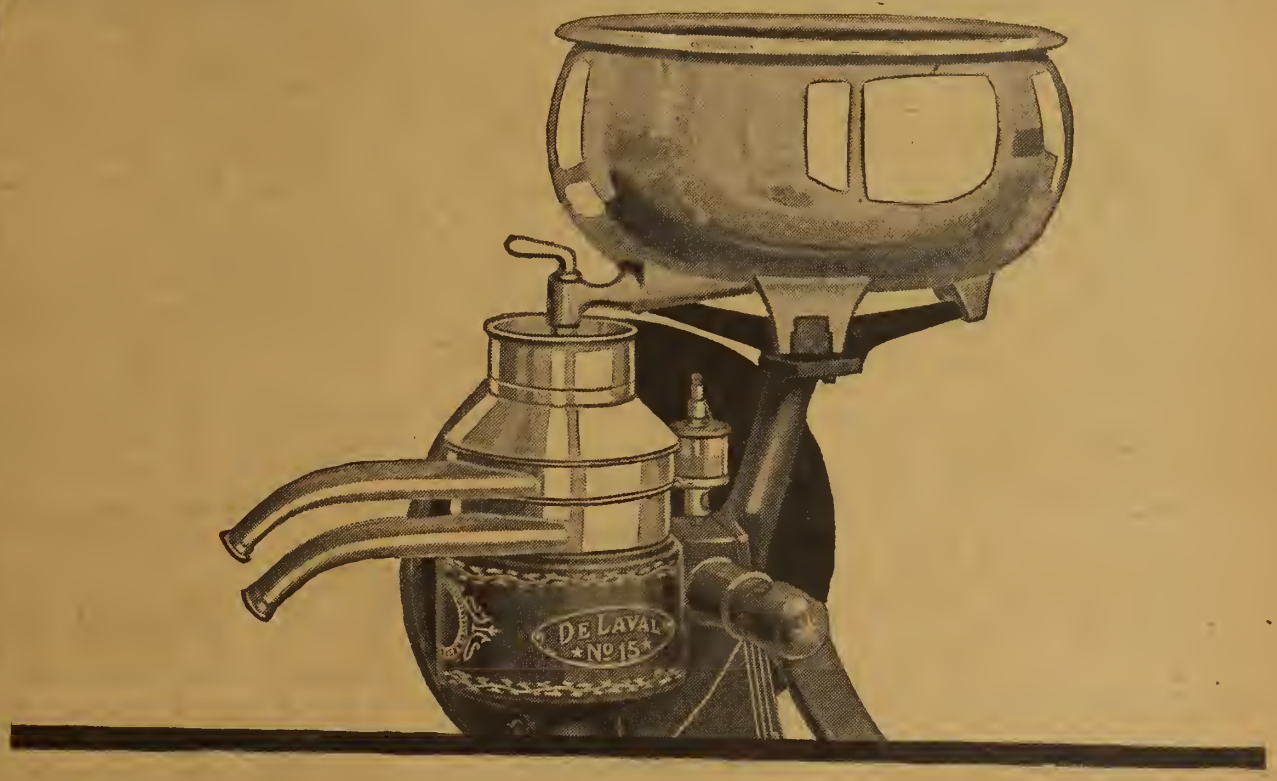
The commercial condensed buttermilk product prepared for hog feeding has the consistency of paste, is about four times the density of ordinary buttermilk, with a feeding value in accordance with its density. In other words, gallon for gallon, it would equal four times the value of ordinary buttermilk. This product should be thoroughly mixed with warm water and made up to a fluid slightly thicker than ordinary buttermilk and fed with grain, as heretofore mentioned for buttermilk and skimmilk.

Sterilizer for Small Dairy

As the warm weather comes on complaints about loss of milk through souring are to be expected. It is now recognized that one of the principal causes for this is inadequate sterilization of utensils. This fact has long been recognized by the managers of city milk plants and large concerns, and adequate equipment has been installed for the purpose, but both dairymen and dairy officials and instructors have not known of practical and cheap equipment for sterilizing, suitable for the small dairyman. This difficulty is now entirely overcome and equipment both cheap and thoroughly practical may be had.

C. F. Hoyt, our Market Milk Specialist, reports that Mrs. B. F. Van Dyke of Medford, Oregon, devised a sterilizer for this purpose several years ago. She did this by placing a false bottom in an ordinary clothes boiler. She then placed a little water in the boiler, and placed her milk bottles and other utensils on the false bottom and steamed them by causing the water to boil.

The same sort of sterilizer was devised by a dairyman near Los Angeles. Its value was recognized by the Los Angeles City Inspectors. Largely through their activity the use of this



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There was never greater need than right now for the best separator, skimming cleanest, having greatest capacity, turning easiest, requiring least care, and producing the most perfect product. In all these respects the De Laval has no equal. Take nothing for granted, simply let it be demonstrated to you. See the local De Laval agent or address the nearest general office.

THE DE LAVAL SEPARATOR COMPANY

165 Broadway NEW YORK

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sterilizer became general in that section and goes far to account for the high quality of milk produced there. It consists simply of a box of galvanized iron which may be placed on any source of heat. A stock size carried by dairy supply houses is 29 by 29 by 29 inches and the price is $8.00.

A modification of this box sterilizer has been made by Mr. J. E. Hathaway, a dairyman of Norwalk, near Los Angeles. For the galvanized iron box he substituted a box having cement sides and a thick iron bottom, which he heats over a wood fire. He built a foundation of cement and on this foundation placed an old kitchen sink of perhaps one-fourth inch thickness. Then he built up his box of cement on woven wire from the sides of the sink, and placed a cover on the top. The walls of the cement box were about one inch thick, and inside dimensions 24 by 28 by 32 inches. He used one sack of cement, costing two dollars and did the work himself. For this kind of a sterilizer there is no cost save for the cement and the discarded sink. Mr. Hathaway has used this sterilizer about a year now with complete success. He believes it cheaper and more durable than the galvanized iron sterilizer in general use.—News Letter, Western Office Dairy Division, U. S. D. A.

Utah Building Silos

Utah is making progress in silo building, according to a report received from the western office of the Dairy Division, U. S. Department of Agriculture at Salt Lake City. There are now about 400 silos in Utah. Questionnaires filled out by silo owners indicate an average yield of 13½ tons of silage corn per acre. A number of silo excursions have been conducted by agents of the dairy division and much interest has been found among farmers in construction cost figures, silage crops and the feeding program.

Cooling the Milk

"It is safe to assume that thousands of dollars will be lost this summer in Colorado as a result of careless handling of milk and milk utensils," says E. B. Darrow, of the Colorado Agricultural College. "The beginning of warm weather seems to be the time of greatest loss, except, possibly that time during extreme heat in mid-summer. Condenseries do not send back milk because they have too much. None of them are running to full capacity. Neither do our cheese factories welcome the chance to turn down high acid milk. And it is certain that the producer can ill afford the loss of part of his milk income.

"Now, as to some common mistakes dairymen make: They fail to realize that warm weather has come, and that cold weather practices will no longer do. Extra care is needed in all operations. Many dairymen fail to realize the value of prompt and efficient cooling. Remember that the number of bacteria in the milk may double in an hour—if you don't cool it. Let us emphasize this point—cool the milk immediately. Purchase a cooler. The simplest, cheapest type is far ahead of cooling in the can in a tank of water. This latter method takes too long, and to be effective at all the milk must be stirred frequently. First use a cooler. then keep cool by holding in a tank.

"If extra care is taken to have the milk clean in the beginning it is much easier to keep it sweet. All dirt is not visible—neither can you strain all the dirt out of milk. You only get a part of the visible evidence of dirt. The rest has been dissolved in the milk. So clean the udder well, and use the small-topped pail.

"Lack of care of utensils is one of the main causes of trouble. Remove covers from cans on return from factory. Any unclean condition will be found and remedied. Use steam. if possible. If not, boiling water and a good dairy washing powder. Remember that fresh air and sunshine are essential to sanitation, and the longer the milk utensils can remain in the open air the better. Scald them just before using, if possible."

Hogs at the State Fair

King Pig will be well represented at the coming state fair; the guarantees already received by Manager Beaman, make it sure that the pens will have to be made one and a half times larger than heretofore. The enlargement will be made to the west of the present pens.

Entries on the Poland-China futurity contest, which have now been closed, show that twenty-one leading hog raisers of the state specializing on this breed, will be on hand with their exhibits; last year there was but one lone Poland-China at the fair.

Six hundred dollars in cash will be distributed among the Poland-China winners, for the best senior pigs, best junior pigs and best litter of pigs. This futurity contest must have twenty entries to fill, and the following 21 have entered:

W. R. Reynolds, Longmont; Great Western Sugar Co., Longmont; E. H. Allen, Boulder; J. A. Davidson, Longmont; A. D. McGillvray, Boulder; I. L. Mathison, Fort Morgan; L. G. Davis, Overland; F. E. Common & Son, Yuma; C. E. Petrie, Loveland; J. P. Abren, Springer, N. M.; T. G. Twyman, Grand Junction; Wm. Robertson, Monte Vista; W. B. Patrick, Longmont; C. D. Sweitzer, Denver; H. S. McGillvray, Boulder; A. J. Campion, Denver; John T. Barr, Monte Vista; C. H. Akers, Monte Vista; Colorado Agricultural college; Wilbur Maxwell, Fort Collins; C. W. McLaughlin, Olathe, Colo.—Pueblo Chieftain.

What a Cow Thinks About

"How much longer will this bad weather continue? I certainly will be glad when I can get out into the meadow once more."

"He must be making profit on me—he has put up a new dairy house, bought a new cream separator, and is talking of a two thousand dollar automobile."

"It's a good thing I don't get lockjaw from chewing my cud. If I did, I can see where the old man would have to hang up his bucket and milkin' stool for a while."

"I wish he'd go right along with his milking instead of stopping every little while to talk politics with that farm hand. I want him to get through with the job and let me have a few minutes to myself."—Hoard's Dairyman.

Build a silo this summer.

What Is Barberry?

Many people do not know what a barberry is. They think that it is some wild weed of the vacant lot or the country road-side. A Pueblo man was quite willing to "hoe up his nawsty weeds" and asked to have them pointed out to him. When the scout showed him a hedge of ten purple barberries in the backyard, his enthusiasm waned. "But this is my shrubbery," he protested, "There must be some mistake." The green and purple barberries condemned for spreading wheat rust do not grow wild in Colorado. They are cultivated nursery products sold to city people for ornamental plantings in lawns, parks, hedges and gardens. It is the city man's shrub, but it is a thorn in the side of the farmer.—E. L. Sargent, Assistant State Leader, Colorado Agricultural College, Fort Collins, Colorado.

Farm Visitor: "I'd like to get a few hens."

Farmer: "What kind?"

Farm Visitor: "Good hens. The kind that says 'Now I lay me' twice a day' if you've got 'em."—Boston Transcript.

Blackleg Aggressin (Kansas Germ Free Fluid Vaccine)
One Dose Immunizes for Life — It Saves the Calf
THE U.S. BLACKLEG SERUM CO.
INCORPORATED
OKLAHOMA CITY, OKLA.
DENVER, COLO. STOCK YARDS
Write us about it. Dr. F. S. Schoenleber, Pres.
25c Per Dose——WHY PAY MORE?

Only $2 DOWN ONE YEAR TO PAY
$38 Buys the New Butterfly Jr. No. 2½. Light running, easy cleaning, close skimming, durable.
EASY TO CLEAN
NEW BUTTERFLY
Separators are guaranteed a life-time against defects in material and workmanship. Made also in four larger sizes all sold on
30 Days' FREE TRIAL
and on a plan whereby they earn their own cost and more by what they save. Postal brings Free Catalog Folder. Buy from the manufacturer and save money. [9]
Albaugh-Dover Co. 2129 Marshall Bl. Chicago

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FEED YOUR HOGS AND POULTRY
SEMI-SOLID BUTTERMILK
Semi-solid is pure creamery buttermilk with nothing added—only the water is taken away. It is NOT MODIFIED by the addition of sulphuric acid or any other preservatives. Its own NATURAL LACTIC ACID keeps it fresh.
ABSOLUTELY GUARANTEED
We guarantee that SEMI-SOLID Buttermilk is pure and unadulterated—sterilized and pasteurized. It's a safe feed and you will be satisfied with the results from feeding it.
SAVES GRAIN—SAVES TIME—SAVES MONEY
Semi-Solid is put up in 500 lb. barrels at 4c per pound. One barrel of Semi-Solid makes 1,000 gallons of buttermilk. Quick shipment from our Denver Factory saves you freight charges. You pay on receipt of the goods. SEND YOUR ORDER TO
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The Good Painter Says:
"Barns and other farm buildings, to meet modern needs, represent quite an investment—an investment worth all the protection you can give it. Good paint is the best protection to wood against time and weather, science has discovered.
"You showed fine judgment in selecting McMURTRY BARN PAINTS for your buildings. They are made especially for this very purpose and work equally well on both wood and iron. In 25 years of painting I have never had a complaint on McMurtry products. BARN GRAY and BARN GREEN are two of their popular paints for farm purposes and another, also made especially for permanently protecting both wood and metal is the McMURTRY METALLIC PAINT, made in four serviceable shades. All of these paints come ready for use." *Sold by all leading dealers.*
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Horse Fed Nine Hours for Every Hour He Works

Whether the tractor investment will pay or not, or whether it is cheaper than horse-power in all cases, are questions that will be debated for a long time. Probably the tractor will not pay on every farm, but it must be admitted that horses are an expensive proposition. They are idle much of the time and must be fed whether they are working or not. It is said that for every 100 bushels of oats eaten a horse delivers but six to eight bushels worth of horse power. The average life of the horse is short. He lives about 90,000 hours. Of this 90,000 hours it is estimated that he works approximately 10,000 hours. Hence throughout his career he is being fed nine hours for every hour he works. Added to this the horse is a good eater. To feed him requires the produce from one acre out of every five acres he works. Hence the farmer is obliged to use one-fifth of the land which the horse cultivates to pay for the power which he provides.

The tractor does not eat when it does not work, and is able to work 24 hours per day without tiring. Of course there is depreciation whether working or not, but probably no greater than in the case of the horse. The advantage is probably in favor of the tractor. The tractor will not replace all the horse power on the farm but if it costs no more than the horse-power displaced, it will be more economical than horses.

Great claims have been made for tractors by the manufacturers and in the main these claims have been substantiated by efficient work. Farmers however are skeptical and insist on being shown the full merits, and on having the machine do all that is claimed for it. They have a right to demand this; because if they have reduced their horse-power and adapted their machinery to tractor power they have a right to see that the machine will work as steadily as horses and be constantly on the job.—T. S. Parsons, Extension Agronomist, University of Wyoming.

San Luis Valley Corn Test

Can corn be grown profitably for ensilage purposes in the San Luis valley? Some farmers say it can, because they have tried it, but the handicap of 7,500 feet in altitude is a hard one to overcome, even with the adaptable varieties that have been bred for high altitude use. San Luis valley farmers say their climate is not to be likened to other localities in the state of the same elevation, because of the protecting mountain ranges and other favorable influences. To settle the question trials with several corn varieties are being made this season on a number of farms in Saguache county. Several farmers also will try Russian sunflowers. The plan for the corn test is outlined by County Agent Sauder in the following letter:

Sometime ago you asked about what we were going to do with corn this year. This year is entirely one of experimentation. We do not know what varieties can be grown here which will be best suited to our climate and our needs. We do know that for many years farmers in all parts of the country have grown a small-eared squaw corn with success. Yields as high as 40 bushels of ear corn were reported by actual measurement. This corn does not grow very tall, but it can be planted very thick and thus produce a large amount of forage and grain and still mature nicely. One farmer will put out about 30 acres of this and another about 10 acres. In another part of the county farmers are planning on at least 5 acres each of this same corn. In Center one man has been raising a mixed yellow and white flint corn with success for many years. His corn shows high germination and is a far better corn than the squaw mentioned above.

Last year W. G. Jamison of La Veta, sent over some seed to one man who grew it with success here and it is the best looking corn we have at present. At Saguache, Rainbow flint, Yellow flint and White Australian were grown for a number of years and the seed shows good germination this spring. At any rate enough corn has been raised here to make it worth while to try this out systematically and to get in some varieties which grow in a comparatively cold climate. Thus we have imported seed from North and South Dakota and from Minnesota. The following varieties are to be tried out:

North Dakota grown: Smut Nose flint; White flint; Yellow flint; Rainbow flint.

South Dakota grown: Northwestern dent; Minnesota 13; Early Murdock; August Fifteenth; Whimples Yellow dent.

Colorado grown: White dent from Canon City; Minnesota 13 from Boulder county; Squaw from this valley; Rainbow flint from this valley; Yellow flint from this valley; Yellow and white flint from this valley. (Jamison corn.)

Kansas: Ninety Day corn.

There are about 25 farmers who will try these different strains. We are keeping a record of just what each man does with it and how it turns out.—William O. Sauder, County Agent.

Farmers Making Corn Tests

Tests designated to select a variety of corn best adapted to use in El Paso county will begin at an early date. Seed corn to be used in the tests was received by County Agent W. H. Lauck this week from the Colorado Agricultural college experimental station, and will be distributed at once to the seven communities where the experiments are to be made, which are Signal Rock, Eastern Star, Highway Junction, Leader, Washington, Calhan and Surber. Request for the test was made by each of these seven communities in the adoption of their respective Farm Bureau programs, and the experiment will be a part of the program of work of each community.

The test will be comprehensive and will include five varieties of native corn, now being grown in the county, together with three varieties of corn furnished by the State Agricultural college.—El Paso County Democrat.

Grouters for Tractor Wheels

Grouters applied to a traction wheel are for the purpose of preventing the slippage of the wheel. Without the grouters, having merely a smooth wheel, the tractor would have very slight drawbar power, as the power that would result at the drawbar would be only that obtained by the friction of a smooth driving wheel upon soil. The varying conditions of soil necessarily require grouters of different types. Where the soil is loose and sandy, the ordinary peg tooth type of grouter would cut a groove in the soil, there being but little soil resistance. Under such circumstances, a long angle grouter would be required to produce the necessary drawbar results. Different types of grouters have been designed to meet the varying conditions, and in different weights of tractors somewhat different types of grouters are required to accomplish the desired result. It has been the expressed hope of many manufacturers that a standardized type of grouter might be found that would be efficient under all circumstances; thus far, however, it has not been produced.

What are known as "slick spots" in the soil at various places in Idaho are being treated to a stick of dynamite, with the result of drainage that takes away the slickness.

AMERICAN Flint Tile SILOS

The Everlasting Silo

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More Plowing Per Gallon

During plowing, farm tractors work at full load—with the throttle wide open. This produces higher operating heat than automobiles develop—especially when you burn kerosene.

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is made to stand the extra high operating heat of tractor engines. It is the oil that leading tractor manufacturers recommend. It insures correct lubrication, full compression and minimum wear on the vital parts of your engine—assures maximum power with low operation and upkeep expense—more plowing per gallon of lubricating oil and more power per gallon of fuel. Join the thousands of satisfied users of this oil.

Buy it from our nearest distributing station or from your dealer.

THE CONTINENTAL OIL COMPANY
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we find one of our men customers who doesn't know that we have been selling good clothes here for years.

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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

June with the roses garlanding,
June with the honey bees a-wing,
June when the vine blooms kiss and cling,
June when the world is gay!

The June Wedding

Weddings for the last two years have approached the epidemic stage; the girls have married their sweethearts because they were going to war, and because they came back. This little overflow hasn't anything to do with those reasons at all. It's only going to talk for a little while about the weddings that come about because "they fell in love and just couldn't help it;" and these are going to be country weddings at that.

Much has been written about the etiquette for bride and groom, their families, guests and friends; but usually after the manner of those who are only married in large city churches. The girl who is to be married at home in the country could not follow all these suggestions and rules of conventional formality, if she so desired. She must just use her own good judgment and think first of the things as they will touch those she loves best.

The invitation is the first thing to consider. For formal weddings where there are to be a great many guests, the engraved invitation is of course the only thing. For farm girls of ample means who expect to ask in a great many friends for the great event this should by all means be used. But when the expenditures must be carefully planned, and there are not going to be so many guests the cost of the engraved invitations had much better be applied on something needed for the new home. In that case the mother of the bride-to-be may, after careful planning with the young people, invite those friends of either family whose presence really means a joy, through a letter or note, which shall be friendly and yet with enough dignity and formality for the importance of the occasion. It should not sound like an invitation to a week-end party. Those guests who must come from a distance should of course be provided for with as much thought for their entertainment and comfort as if they were just going to stay for a family visit. Such guests, however, should show a little more consideration about taking the time of a household busy with such interesting preparations. And as a guest a wedding invitation needs a very prompt acknowledgement, whether it be engraved or a personal note. It is also generally conceded that the honor of receiving an invitation should be worth a gift which will be appreciated by the ones who have so honored you.

Perhaps the next question is about what the bride should wear, the groom too, if he deigns to read these pages; but he must realize that, in the eyes of many for this one day, he is part of a most interesting background; but that the central figure is certainly feminine. It would have to be the bravest of melodramatists who ever wrote about "His Wedding Day," it just naturally has to be "Hers."

A great many of us feel that the simplest of gowns is the very best of all and we would like to have it white. But that depends largely on the taste and purse of the wearer. Among the beautiful cotton materials for a white dress, none falls in such soft lines as a good voile with some fine lace. Organdies, fine mercerized materials and lawns are dainty and easily cared for. In the more expensive and not so easily kept silk materials are soft silks, such as crepe-de-chine, crepe meteor, washable satin and georgette crepe, which are most effectively made up on simple lines with a touch of white embroidery or designs worked out in white beads, as part or all of the trimming. A veil should only be worn with the more elaborate of the white silk gowns, and that necessitates wearing long white gloves. White shoes of kid or fine cloth are best.

If the young lady, for reasons of her own, does not choose to wear white, a simple suit of good cloth is next best. This year a medium dark blue or tan seems to be among the most popular shades. A dainty waist with high collar looks best with these; and hat, gloves and shoes of a harmonizing color should be worn.

But remember this, a white dress or a suit does not make a wedding or a happy married life. Many of our mothers were married in a colored "stuff" dress, neither gloves, or shoes to match, and have lived fairly happy and useful lives in spite of the handicap. To look her best and sweetest with the means at her command is a large part of a girl's wedding day.

We have just space enough for a word about gifts. As has been mentioned before, it is a privilege of the friends to present an acceptable gift; but the happy bridal pair should remember that a "thank you" is due very soon after the marriage at least. Gifts are sent to the bride and she is the one to acknowledge them, but it does not preclude her letting the giver know the husband's appreciation also. —E. D.

What Mary Wants

Dear Sarah:

You "wouldn'a believe" and "dinna ken about being quite sure" of my luminous letter and now you are getting "shown" by way of these pictures. In "me and the separator" you will notice my absorbed expression, including a look of bewilderment, a

"Me and the Separator"

faint anticipation of dread in the desire to knock on wood for fear it isn't really so—and a self conscious smirk, always present when one is trying to look natural. The reason for the absorbed expression is that the way of the shock is so easy that sometimes I'm afraid I've slipped into the primrose path without realizing it. John says openly that though cranks may turn the world, he turns no more cranks. You see that he's even gone so far on that that he lets me run the separator. But I always loved to punch a button and see something happen—from the days when we used to drop a penny into a talking machine which had a stethoscope arrangement fitting into your ears and you alone heard the squeaky little tune which came forth.

Picture number two shows another wonder. Don't hold your breath and say that peroxide would have done the same thing to your hair, for it isn't my hair and it isn't me. It's a woman who never before did a washing for me nor anything else if she could decently refuse. It's Mrs. Carpenter down the road who always has onions to hoe, or a teething baby to watch, whenever I send for her help. I have been general nurse and "horse doctor" with the neighbors for a season and the running back and forth left me with a three weeks' wash and more to do this week than I knew how to face. As a last resort I once more sent for Mrs. Carpenter.

Her first question was, "Is she usin' the 'lectric washer?"

When John replied that she was, she immediately went for her bonnet with a "Yes, I reckon so."

Watch—before long she'll be bringing me some onions and letting me hold the baby for the privilege of doing that same weekly wash! To change grudging labor into the "joy of working"—that's the wonder of my machine.

Now, will you believe, with these graphic evidences of my joy? And will you take back what you said

Mrs. Carpenter doing Mary's Washing

about excited nerves? Any way come over and try both of them. The milk will be a little cool after the thirty mile drive, but the washing will be there.

Lovingly,
MARY.

Noted in a Farm Home

Instead of the customary cloth in a stick used in a great many homes for greasing the griddle and muffin pan, one farm housekeeper uses a small paint brush. This is kept in the little can which holds the grease and is washed out with hot soapsuds every few days to insure keeping it sweet. As an aid to thoroughness in a puttery job it cannot be beaten.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2813—A Simple, Comfortable Frock—Voile, batiste, linen, chambrey, Swiss, silk and lawn are good for this model. It closes on the shoulders. The belt holds the fulness at the waistline. Cut in sizes: 2, 4, 6, 8, and 10 years. Size 6 will require 2¾ yards of 36-inch material.

2808—A Dainty Dress—Batiste, voile, charmeuse, satin, taffeta, velvet, serge or gabardine could be used for this model. The tucks on the skirt may be omitted. The dress may be finished without the bolero and with long or short sleeves. This style lends itself nicely to combinations of material. Cut in 4 sizes: 6, 8, 10, and 12 years. Size 8 requires 3½ yards of 27-inch material for the dress, and ¾ yard for the bolero.

2806—A Practical Garment—A comfortable apron of this character will be a blessing to the industrious home worker. It is practically a dress in apron style; neat and serviceable. The model is suitable for gingham, percale, seersucker, lawn, drill and linen. Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches, bust measure. Size medium requires 4¾ yards of 36-inch material.

2802—A Simple Home Dress—Gingham, khaki, drill, seersucker, percale or lawn, could be used for this style. The garment is a "one-piece" model—with a sleeve that may be finished in wrist or elbow length. Cut in 7 sizes: 34, 36, 38, 40, 42, 44, and 46 inches bust measure. Size 38 will require 6 yards of 36-inch material. The dress measures about 2½ yards at the foot.

On April 1st the total amount of mortgaged loans closed since the establishment of the Federal Land Banks was $198,609,626, numbering 79,949 borrowers. During March, 5,916 applications were received asking for $20,622,021. During the same period 4,605 loans were approved, amounting to $14,561,784. Altogether 185,643 have applied for loans under this system, aggregating $492,066,733.

To Build and Foster

A COMMUNITY always welcomes the establishing of an institution that fills a recognized community need; unfortunately it doesn't always manifest a lively interest in the health of such an institution after it is established.

It is one thing to establish industries; it is quite another thing to build up, develop and maintain them.

An industry can be established by the investment of capital; its development and maintenance deped upon the attitude of the public toward the enterprise and toward the product.

Likewise, the permanency of an institution depends upon the willingness of its customers to pay a sufficient price for its product to enable it to continue strong and healthy financially.

The Mountain States Telephone and Telegraph Company's system of wires, furnishing the means of communication over mountains, plains and desert, is a tremendous factor in the development of the West.

Telephone service is a "home product" of every community in the mountain states, and is woven into the very warp and woof of commercial and social life. The permanency and adequacy of telephone service depend upon the same factors as are involved in the security and permanency of every other established industry.

With very, very few exceptions the people of the West recognize these principles and pursue a "live and let live" policy toward all legitimate business institutions.

THE MOUNTAIN STATES TELEPHONE & TELEGRAPH CO.

MOUNTAIN STATES

NATIONAL TRACTOR DEMONSTRATION

DENVER COLO.
JUNE-9-12

Special Summer Rates On All Railroads. Camping Grounds For Automobile Parties.
Farmers and Ranchmen Be Sure To Attend The Demonstration

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

We promised our readers a brief summary of the reports sent in to the office in response to the poultry questionnaire recently sent out. This summary of opinions shows pretty clearly how the poultry business appeals to them. We also think that the information here given reflects the attitude of our more than fifty thousand readers of Western Farm Life in the Rocky Mountain region. After reading over the answers to the questionnaire and reading carefully the remarks made by a number of writers, we feel quite encouraged. We hardly would have guessed that so many were succeeding so well with their poultry, or that so many not succeeding still had the greatest faith in the possibilities and were keen enough to see that local conditions were to blame.

One woman says: "Yes, I am very much interested in poultry and think there is money in it, but my husband doesn't, so there you are. I have noticed in places where husband was interested and saw that comfortable quarters were provided, it paid, and in places where the opposite was the case, it was only an added expense."

They used to convert people by the threat of hell fire, but it would take worse than that to get some people converted away from their prejudices. Strange that a man won't encourage his wife to earn money to help dress and educate the children! The woman writing the above has only a dark corner in the barn for her fowls, gets only a few eggs and her hens do not pay.

Here's a different picture: A woman on the Western Slope says: "Three years ago I commenced to keep a record of my sales and expenditures; everybody said there is no money in poultry on the Western Slope. I started with forty hens and a setting of turkey eggs and had a net profit of $70. Last year I started in with 111 hens and cleared $190. This year I had the same number and cleared $192.90, so I am pretty well satisfied with the chicken business. I have never had a good chicken house or sufficient feed to produce winter eggs. I charge up everything, cull potatoes, skim milk and even the grain which they forage."

The husband of this woman has better than an oil well but I'll bet he doesn't know it. What couldn't this woman do with a good lay out, netting nearly $2 per hen as it is.

Another Western Slope reader says: "I've used your record sheets for nearly one year now. I find that my hens have brought me a profit of as much as their feed cost. I've not given them much care either. As our farm is new we have not got all our buildings done."

A reader living in the plains section has 75 hens and netted $43.10 for the year. Now has 120 hens and pullets in a building 10x20 and realizes that this is crowding. It doesn't pay to crowd but of course one is tempted to keep all the good ones even if no more room can be provided.

Another plains reader says: "I could make the poultry business a success if I could ever get anything in shape." Another letter says: "We keep a hundred Leghorns on the farm and they make a nice profit each month and would do lots better if we had a better market."

This better market ghost won't down; over three-fourths of the writers want a better market and only a very few are satisfied with their market. These are usually near a good town or city where they get retail prices.

There are twice as many Leghorn flocks as any other breed. Rocks and Reds are about equally divided. One party reported Orpingtons. Only one reported the breed kept as being unsatisfactory.

With one exception, fowls were reported healthy. A very few reported March and April chicks not laying in early winter. In practically every case where eggs were laid by pullets in October and November they were hatched in April or March. A surprisingly good percentage report "all winter" eggs. Those advocating hen hatches and incubators are about equally divided.

Many who use hens for hatching say, "Wish I could hatch my chicks at one time." Five said, "hens pay" to one who said, "hens don't pay."

Those who claim "no money in hens" generally report poor buildings, equipment and markets. Poor buildings, coyotes, poor stock, poor markets get the blame for "poor luck."

So I am led to believe, after looking over these reports more carefully that the poultry people are about as optimistic as the seventeen-year locusts. Why not? With something to sell every day in the year, a ready market at good prices, a machine capable of turning large quantities of waste material into this product, what farm animal or crop can beat it?

Poultry Pointers

Do not overlook the fact that the chicks must have shade. If there is no natural shade for the chicks to stay under during the heated part of the day, be sure and provide sufficient for their needs.

Avoid overcrowding in growing chicks. A coop, brooder, or colony house that was large enough to hold the baby chicks is not large enough after two or more months, depending on the breed and growth. It is absolutely necessary that growing chicks have plenty of room to grow. Cockerels that are sufficiently large should be disposed of. Chicks that have not shown proper growth should also be separated and leg or wing banded. Many of these chicks, even the pullets, should be marketed. Only the good, strong, vigorous specimens should be retained as breeders and layers, as these are the only ones that can return a profit.

Growing chicks will not eat too much if they have plenty of range so they can get the desired exercise. A good growing mash should be accessible at all times to growing chicks. Such a mash should contain plenty of bone meal ground very fine and fine-ground oats and barley. Be sure to have the mash ground very fine.

Growing chicks that are kept closely confined need much greater attention along all lines than those that have range. See that they have plenty of green feeds that have not wilted down to almost the decaying point and that the yards are kept sweet. Culling also is more essential when chicks are closely confined.

Do not forget to look over the young chicks from time to time for lice and mites. Hot weather is the paradise for lice and mites. So be careful, be sure, don't be sorry. Look out for lice.

Organizing Egg Circles

The plan of organization of an Egg Circle is simple, consisting in uniting several egg producers who agree to market their combined products. The aim of such a circle is to market fresh eggs, carefully graded as to size and cleanliness, so that a grade of eggs considerably above the average is placed upon the market. The trade of the Egg Circle is largely with clubs, hotels and restaurants, which are usually willing to pay a premium for fresh, clean, well graded eggs. Detailed information upon the opportunities for the organization of an Egg Circle can be obtained upon request to the Bureau of Markets, Room 305 Custom House, Denver, Colorado.

We have plenty of monthly record blanks, free to all our readers.

You don't know that your hens don't pay. Keep records and the chances are that you will find they do pay.

We have had some very interesting records sent in; we want more of them before publishing the results; please send us your last year's blanks.

Not That Kind

"Griggs and his wife are not getting along very smoothly, I hear," said Brown to Smith.

"No," replied Smith, "and you can't wonder at it. He married a girl that looked like a magazine cover, and then expected her to work like a cook book."

Make the Pennies Bigger

When James Buchanan was President and tall beaver hats were in vogue; when gentlemen wore broad cravats and ladies wore hoop skirts, the pennies they tossed to children were as big as quarters. But the cart-wheel coppers your grandfather got for keeping his lace collar clean were not as big in buying power as the pennies of today.

A penny then might buy a pastry, or ten of them take one to the Fair, but your great-aunt and great-uncle couldn't have gone to a movie at any price.

Your great-gran'ther may have driven the fastest horse in the country and paid a tidy sum for it. But the price of a stable of thoroughbreds would not have bought him a flivver.

Sixty years ago the ladies could go shopping for dry goods and buy silks that would make you green with envy, linens that were linens and broadcloths that beggar description. But what their favorite store did not have they usually got along without.

Times have changed, and so have merchandise and business methods. One of the influences that has helped to bring about so much of change, that has helped to multiply opportunities and increased the spending size of our pennies is advertising.

Every merchant, every manufacturer, knows that advertising materially reduces selling costs by increasing the demand for and the distribution of the products of hundreds of thousands of factories. Indeed, many of the things we count today as necessities or simple luxuries could not be made and sold at their reasonable prices except as advertising has created a broad market for them, making millions of sales at little prices and little profits.

And so you owe very much to advertising. You owe much to the people of yesterday who have read and been influenced by past advertising and so have made possible the economies and varieties and wide distribution of merchandise that you enjoy.

You owe present advertising a thorough reading. A greater familiarity with advertising, with advertisers and advertised merchandise makes continually for the increasing size of your pennies.

Utilization of Beet Tops for Fattening Steers

(Continued from page 6)

pulp, 80-100 lbs.; beet syrup, 3-5 lbs.; cake, 2-3 lbs.

Lot 2, Alfalfa hay, 10 lbs.; wet beet pulp, 80-100 lbs.; beet syrup, 3-5 lbs.; cake, 2-3 lbs.

Lot 3, Alfalfa hay, 22 lbs.; dried molasses beet pulp, 6-10 lbs.; cake, 2-3 lbs.

Lot 4, Alfalfa hay, 14 lbs.; beet top silage, 25-50 lbs. to March 4, followed by corn silage, beet syrup and cake.

Lot 5, Alfalfa hay, 11 lbs.; corn silage, 40 lbs.; beet syrup, 3-5 lbs.; cake, 2-3 lbs.

Lot 6, Alfalfa hay, 27 lbs.; beet syrup, 3-5 lbs.; cake, 3-5 lbs.

The ration fed Lot 1 proved the most profitable in the three year experimental test, completed in 1918 and is a very common ration. Lot 2 was fed the same way to get out the final effect of pasturing on tops. As shown below, this lot made cheaper gains during the 110 day period than any other lot. The alfalfa hay, beet syrup and cake combination was used as the basal ration to make comparison more easy as between the wet beet pulp, dry molasses pulp, beet silage and corn silage. As a matter of fact this ration is not especially good except in combination with the wet pulp. With the silage and hay lots it would have been improved considerably by adding corn or barley.

The steers were shipped to Clay Robinson Company at Denver, April 22nd and sold to the Colorado Packing and Provision Co., who made a careful valuation of each lot and furnished separate dressing percentages. The following is the result of the final feeding test, and sale.

110 Day Feeding Period and Sale

Lot No.	Gains per Day	Cost per Lb.	Price per Cwt.	Dressing per cent
1.	2.47	13.89	$15.65	63.35
2.	2.57	12.92	$15.75	62.63
3.	2.08	18.94	$14.85	60.62
4.	1.87	20.65	$14.75	60.34
5.	2.11	18.20	$15.00	61.45
6.	1.16	33.51	$14.00	59.07

Lot 2 was not really entitled to a higher selling price than Lot 1, so far as the feeding experiment is concerned. Lot 1 was not quite so uniform in breeding but had put on more gains and dressed out higher. In our opinion, also, the corn silage lot was entitled to a slightly higher valuation compared to the price paid for Lot 4.

Other tabulations regarding this experiment have not been completed. An information bulletin may be published this fall by the Colorado Experiment Station, giving the main results regarding beet tops. A complete bulletin will not be published until the experiment is duplicated.

A Day's Work in Plowing

Theoretically a 14-inch plow, when drawn by a tractor, should cover approximately 3 acres in an ordinary working day of 10 hours, as the average plowing speed is slightly more than 2 miles per hour. This holds true in actual practice when the plowing conditions are favorable, provided the outfit does not give trouble. That is, a 2-plow machine should plow 6 acres and a 10-plow outfit 30 acres per day, provided both travel at the average rate of speed and are kept moving. However, where trash, which frequently clogs the plows, is to be turned under, each plow drawn by a large tractor will cover much less ground in a day than one drawn by a small outfit, since the delays will naturally be in proportion to the number of plows pulled.

Two, Three, or Four Plow?

Throughout the central section where the rotation of crops is practiced more than in other parts of the United States, a two-plow outfit will give satisfactory service on an average farm ranging from 80 to 140 acres. The size of farm on which a tractor of this size can be used profitably depends very largely upon the method of farming. In the eastern states, the average farm is smaller than in the central, while in the western states the average farm is larger. A general farm under each of these conditions would probably require different size tractors, but under average conditions it is probably safe to say that farms of 130 or 140 acres to 170 acres can use a three-plow outfit very economically, while a four-plow tractor will be best suited for farms of a larger size, ranging from 170 acres up.

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

S. C. BLACK LEGHORNS; STOCK AND EGGS for sale at all times. Harry Grimes, Chula, Mo.

SINGLE COMB WHITE LEGHORNS—YESTER-laid-Young strain; 108 eggs $5.00; chicks 15c. Mrs. C. C. Cole, Levant, Kansas.

EGGS, S. C. WHITE AND BROWN LEGHORNS; 15, $1.50; 50, $3.50; 100, $6.00. H. N. Holdeman, Meade, Kansas.

CHOICE YEARLING S. C. WHITE LEGHORN hens. Extra layers; reasonable. Mrs. Geo. Stephens, Overton, Neb.

PUREBRED SINGLE COMB BROWN LEGHORN eggs, $5.00 per 100. Manda Godard, Mound City, Kans.

S. C. BROWN LEGHORNS—$1 SETTING OR $5 per hundred. W. L. White, Altamont, Kans.

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

WHITE LEGHORNS SINGLE COMB, EGGS $.06 each for 30 or more. Wm. A. Draves, Lemoyne, Nebr.

HATCHING EGGS FROM SINGLE COMB WHITE Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Robert Shumway, Fountain, Colo.

WILKINSON'S S. C. W. LEGHORNS—BRED to lay. They also won all firsts and specials at Eastern Colorado show, January, 1919. Eggs, $1.50 to $5 per 15. E. C. Wilkinson, Box 94, Fort Morgan, Colo.

BUFF LEGHORNS, BEST LAYERS ON EARTH. Baby Chix, not the cheap kind. 25c each. One or a hundred. Hatching eggs, $1.50 for 15, prepaid. You will be pleased with my stock. Champney, 25 So. Logan, Denver.

SINGLE COMB WHITE LEGHORNS. THE LAY-ing kind; the paying kind. No hucksters, but genuine business birds that fill the egg basket all seasons of the year. Standard bred, line bred and trapnested continuously. I breed from nothing but the best. Selected for prepotency, size and vigor, and verified the trapnest route. Eggs, $2.00 per setting. Incubator lots 8c each. Send for folder. J. S. Stever, Rock, Kans.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and facts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Colo.

PLYMOUTH ROCKS

WHITE ROCKS, WINNERS IN SIX STATES, utility eggs, $10 per 100. Williams Poultry Farm, Cedar Bluffs, Nebr., Box F.

PUREBRED WHITE ROCK EGGS FROM PRIZE-winning stock. Fishel strain. $1.50, 15; $4, 50; $7, 100. J. S. Cantwell, Sterling, Kans.

BARRED ROCKS—EGGS $2.00 PER 15, $7.00 per hundred. Mrs. H. E. Bacheider, Fredonia, Kan.

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

PARK'S BARRED ROCK EGGS, $1 to $2, 15; $6 to $7, 100; baby chicks 15c. Bourden Red pure bred turkey eggs, $5 for 12 prepaid. N. P. Jones, Speed, Kans.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list. Chester Blunt, Route 1, Greeley, Colo.

LAYMORE BARRED PLYMOUTH ROCKS. Eggs, $3.00-$5.00 for setting (15); $12.50 per 100. Prize winning stock. Buy eggs of this stock and you buy the best. I can furnish a few hundred Rhode Island Red baby chicks at $20.00 per 100. J. R. Anderson & Son, Fort Morgan, Colo.

ORPINGTONS

WHITE ORPINGTON EGGS, $6.00, 100. NELlie Penticuff, Knobnoster, Mo.

"SHANK'S ORPINGTON'S S. C. BUFF." YOUR chance to get great layers from Madison Square Garden Blood. After this date I will sell hatching eggs at—utility $1.75 for 15; $5.25—50; $10.00—100 Pen 1 eggs, $4.00 for 15; $7.50 for 30. Pen 2, $3.00—15; $5.75—30. A pleased customer is my motto. F. M. Shank, Route 2-A, La Junta, Colo.

WYANDOTTES

COLUMBIAN WYANDOTTE EGGS, $1.50 PER 15. Orvel Sharits, Newton, Kans.

GOLDEN WYANDOTTE EGGS, $7 HUNDRED, $4 fifty H C Moeller Rt. 1, Wheeler, Ill

WHITE WYANDOTTE STOCK AND EGGS Also Fox Terrier Ratters. Ginette & Ginette, Florence, Kans

WHITE WYANDOTTE EGGS — PUREBRED. $1 50 per 15. $8.00 per hundred. William F. Holmes, R R 5 Gallatin Mo.

WHITE WYANDOTTS, LARGED BONED; EGGS $.07 each for 30 or more. Wm. A. Draves, Lemoyne, Nebr.

RHODE ISLAND REDS

ROSE COMB RED EGGS FROM WINNING DENver Stock Show strain. Get my prices now. C. E. Dewey, Fort Morgan, Colo.

HIGH-CLASS SINGLE COMB REDS. GET MY price on hatching eggs. Three pens 250-egg strain. Nels W. Peterson, Mason City, Neb.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize-winning, heavy laying strain. Write for mating list. E. A. Miller, Alma, Nebr.

EGGS FOR SALE—EGGS FROM HALL'S Rhode Island Reds; our stock bred from stock show winners. Write for information and prices. Liston L. Hall, Gering, Nebr.

ROSE COMB REDS

PURE ROSE COMB REDS, GOOD LAYING strain; eggs, 15-$1.25; 100-$6.00. R. Messing, Weldona, Colo.

ROSE COMB REDS, FARM FLOCK; EGGS $6.00 per 100; special yard mating, $3.00 per 15. Single Comb Reds, eggs $2.00 per 15, $5.00 per 50; safe delivery and strong fertility, guaranteed. Free mating list. Mrs. E. C. Grizzell, Claflin, Kans.

ANCONAS

S. C. ANCONAS—FOR MORE EGGS TRY OUR Anconas, bred from the famous Sheppard strain which holds the world's records for egg production. They fill the basket with large white eggs. Price, $2 per fifteen; $8 per hundred. Mrs. J. B. Shenk, R. F. D. 2, La Junta, Colo.

CORNISH

INVINCIBLE DARK CORNISH, UTILITY AND exhibition; mating list. R. H. Jandebeur, Alma, Nebr.

SEVERAL VARIETIES

FOR SALE—PHEASANT EGGS; THREE KINDS $4.00 per setting, mixed. J. T. Graves, Bentonsport, Iowa.

EGGS FROM PRIZE WINNING RINGLET Barred Rocks, $1.50 for 15; $7 per hundred. Clarence Brooks, Logan, Kans.

BUFF COCHIN BANTAMS, CHINESE RING-neck Pheasants, stock and eggs for sale. E. A. Miller, Alma, Nebr.

CRITTENDEN'S FAMOUS BLUE ANDALUSIANS, winter layers; eggs, 15, $1.50; 50, $4; postpaid. S. D. Crittenden, Mansfield, Ark.

COCKEREL BRED BARRED ROCKS. WINNER Kansas and Missouri shows. Eggs, $5 per 15. Chas. Darnell, Topeka, Kans.

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

PUREBRED BARRED ROCKS—EGGS IN SEAson, one dollar for thirteen; seven dollars per hundred. Peter H. Friesen, Lehigh, Kan.

BEAUTIFUL SILVER CAMPINES — 240 EGG strain—$8.00 for 100; $5.00, 50; $2.00, 15; large white eggs. Culvendale Farm, Red Oak, Iowa.

WHITE ROCK, PURE FISHEL STRAIN EGGS for hatching; cockerels this year direct from Fishel stock also. Eggs carefully selected and well packed, $1.50 per 15; $4.25 per 50; $8.00 per 100. Mrs. Jack Cavett, Box 553, Bayard, Neb.

BLAKESLEE'S BRED-TO-LAY PLYMOUTH Rocks. Five hens of this strain hold the record of laying more eggs in 12 months than any five hens in over 2,600 entered in five laying contests held at Mountain Grove, Mo., under government supervision. Over 45 varieties from 37 states and 8 foreign countries, including the famous English and Australian Leghorn and Wyandotte laying varieties. Pullets, $3.00; cockerels, $5.00-$10.00. O. H. Blakeslee, Fort Morgan, Colo.

REV. LEE WHIDDON, BOGARD, MO.; ADVICE free; how any minister, teacher or farmer can make from $200 to $500 as side line out of fancy chickens and rabbits; stock and eggs from the best strains of White Wyandottes, Anconas, Black Minorcas; 200 eggs per year hens; eggs, $2 to $10 per 15; Buff Orpingtons, White Rocks, White Leghorns, Barred Rock eggs, $1.50 to $5. Chickens, $10 each; rabbits, Flemish Giants, New Zealand Reds, Belgians, $1 to $7.50 each; guaranteed tablets to make your hen double egg production, $1 box.

BABY CHICKS

BABY CHICKS FROM LARGE BONE DARK Rose Comb Reds, mated to males from winners in egg laying contest. Hen hatched 16c. Mrs. Alex. Leitch, Parkerville, Kans.

COLUMBIA HATCHERY — ALL LEADING VArieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incubator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

BABY CHICKS THAT WILL LIVE—EGGS selected from the best Colorado flocks. We hatch chicks that will live and thrive in the mountain territory. Have been making the Denver Incubators and hatching and selling baby chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 100 or more, guaranteeing live delivery or money refunded. Selected Rocks, Reds, Wyandottes, $20 per hundred. Extra fine stock, $22. White Leghorns, $18 Why not buy direct from the firm that does the hatching, who will give you nothing but good, strong chicks that will live Hatching eggs, $7.50 per hundred Denver Incubator Co. & Hatchery, 175 S. Broadway, Denver, Colo.

DUCKS

RUNNER DUCK EGGS—$1 SETTING OF eleven; $3.50 for 50. Mrs. Baker, Arvada, Colo., Rt. 1.

PUREBRED BUFF INDIAN RUNNER EGGS, $1.50 for 15; duck and Leghorn; parcel post. Oak Grove Poultry Farm, Kell, Ill.

INCUBATORS

INCUBATORS, COLONY BROODERS—THEY sure do hatch and raise the chicks. The Denver Incubators are made especially for this high, dry climate, and you always hatch the big, healthy chicks that live. They will thrive best in a Denver brooder. Free catalogue and price list. Write today. The Denver Incubator Co., 175 S. Broadway, Denver, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—HIGH GRADE HOLSTEIN GUERNsey heifer calves; $24.00 crated or $30.00 express paid. Herbet Taft, Whitewater, Wis.

ABERDEEN ANGUS BULLS AND TWO YEAR old Percheron Stallions. R. R. Lucore, Arriba, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLbred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $150 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

BIG TYPE POLAND CHINA; BOAR PIGS, OLD enough for service; correspondence solicited. Gad Barney, Haswell, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

I AM OFFERING FOR SALE A CORKING FALL boar ready for service; will make a real boar—price $50. Spring pigs now ready, sired by Mouws Best Gerstdale, the great son of the $6,600 Gerstdale Jones, and Mellow Big Bob by the illustrious sire, Big Bob. These pigs are good enough to go in any herd and guaranteed to please or your money back. Price $25 to $50. Geo. R. Gilmore, Fort Morgan, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo. On U. P. R. R.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

EXTRA GOOD RECLEANED SHROCK KAFIR seed, $3.50 per bushel. Sample on request. J. P. Nachtigal, Buhler, Kans

A SMALL AMOUNT OF CHOICE RED FODDER cane seed at $1.50 per bu. H. E. Morton, Oberlin, Kans.

GOOD PINTO BEANS $6.50, AMBER CANE seed; $3.00, Dwarf Broom Corn; $4.00, all per cwt., in new bags, f. o. b. Lamar, Colo. J. W. Hoover, Joycoy.

BLACK AMBER CANE SEED, $3.00 PER CWT. Kaffir seed, $4.50 per cwt. Both 1918 crop, recleaned. Sacks free. F. E. Eakins, Oberlin, Kans.

SWEET POTATO PLANTS — NANCY HALL, Southern Queen, Triumph, Porto Rico, Cuba Yam, 100-55c, 500-$2.25, 1,000-$4.00, postpaid. Ozark Nursery, Tahlequah, Okla.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—TO HEAR FROM OWNER OF GOOD farm for sale; state cash price, full particulars. D. F. Bush, Minneapolis, Minn.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

WANTED—TO HEAR FROM OWNERS OF farm or unimproved land for sale. O. Hawley, Baldwin, Wis.

TRACTOR DEMONSTRATION LAND, EITHER 80, 160 or 640 acres at $50.00 per acre; some terms. A. J. Simonson, 314 Cooper Bldg.

I HAVE CASH BUYERS FOR SALABLE FARMS. Will deal with owners only; give description, location and cash price. James P. White, New Franklin, Mo.

FOR CASH—FOR SALE CHEAP, 480 ACRES grazing land, 40 timbered, near Fraser; several buildings; plenty of water. Owner, N. L. Bjork, Englewood, Colo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

WE LOAN OUR OWN MONEY ON NON-IRRIgated land. Write for particulars. The Eastern Colorado Farm Loan Company, 410 First National Bank Bldg., Denver. Colo.

10 SECTIONS CHEYENNE COUNTY LAND, $9 to $12.50 per acre; 10 sections Kiowa County land, $9 to $15 per acre. Write me for legal description, price and terms on any of these tracts. A. N. Mitchem, 305 Gas & Electric Bldg., Denver, Colo.

320 ACRES 1½ MILES FROM INTERURBAN station, close to Lincoln Highway; 13 miles from Denver; fine water right, 3 good lakes; 7-room house, good barn; 120 acres alfalfa; fine thorough stock farm close to loading station; only $140 per acre. B. J. Hockabout, 527 17th Street, Denver, Colo.

160 ACRES IRRIGATED LAND, WELL IMproved and a dandy farm, only 7 miles northwest of Denver; about 50 acres fall wheat and 70 acres alfalfa; 7 acres orchard; good house and barn and other buildings. This is a good place and worth $200 per acre. To settle estate will sell for $175 per acre. Terms. See Morlan, with the John M'Donough Security Co., 207-9 Central Savings Bank Bldg., Denver, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

MASON SOLD 18 SPRAYERS AND AUTOWASHers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

NEGRO SOLDIERS IN WAR. BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

U. S. GOVERNMENT WANTS RAILWAY MAIL Clerks—Men—Women 18 to 35. $1100 first year. Permanent positions. List Government Positions free. Franklin Institute, Dept. F 171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

IF YOU WANT TO MAKE A SATISFACTORY Job of Canning all kinds of Vegetables, Fruits and Meats, by all means use an Alexander Home Canner, and you will never be disapoointed. Thousands of people are delighted with the superior quality of the canned products. Canning Experts and Demonstrators say the Alexander Home Canners are the best Family Canners on the market. For prices and description write G. W. Alexander & Co., Plattsmouth, Neb.

PIPE — PIPE — PIPE — CASING. 4,500 FT. 2-inch std. second-hand black pipe. 6,000 ft. 1½-inch s. h. light weight black pipe. 1,000 ft. 3¾-inch s. h. casing. 2,500 ft. 3¼-inch s. h. casing. 1,000 ft. 10-inch s. h. casing. 1,000 ft. 9-in. riveted pipe. 600 ft. 18-inch riveted pipe. 3,000 ft. 22-inch riveted pipe. 1 mining whim, 1 Spence heater, 1 boiler feed pump. Get our prices on pipe not listed above. Havens Bros., 1622 Wazee St., Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES—Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention this paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

FARM MACHINERY

TRUCK-DERRICK. ONE MAN EASILY changes heaviest hay racks and wagon boxes onto and off the wagon—price $9.00. Satisfaction or price returned. F. Lovering, Fremont, Nebr.

CABBAGE CUTTER SIX KNIVES—SLICES ALL kinds of vegetables rapidly. Fine for Saratoga chips. Prepaid $1.00, three for $.200; Agents wanted. Lusher Brothers, Elkhart, Ind.

Power Farming Under Mountain States Conditions

(Continued from page 4)

The frame of these types are supported in different ways by two, three or four wheels. The three-wheel support is decidedly decreasing in number. That is partly due to side draft and partly due to the limited field of operation which tbe three-wheel type often has. Types of tractors supported by two wheels and those with the drive wheels only, making the third point of contact with the farm implement, are increasing in numbers. They possess very decided advantages in that ordinary farm implements may be used. Most of this type can be turned in as short or shorter space than horses, so that they can be used for plowing, harvesting, mowing or other harvest operations. The most numerous wheel type on the market is a four-wheel tractor driven by the two rear wheels. The four-wheel drive is also increasing very rapidly. It has one advantage of having twice the traction surface on the ground of any of the two-wheel types.

There is a very decided increase in special types of tractors for use under special conditions such as in orchards or in cultivation. This specialization in type to adapt the tractor to special kinds of work is going along side by side with a very decided standardization of parts and design. Standard types of gear assembly,standard types of wheel construction are becoming more and more numerous. These standard types are of very decided advantage where a good standard has been worked out, because it works for simplicity for machines, making it much easier for farmers and farm operators to become acquainted with the operation, care and repair of tractors as well as to simplify the repair problem, especially where interchangeable parts have been worked out as a part of the standardization. There is ample room for a great deal of improvement along these lines yet. Every real improvement in this way will be to the advantage of the operator.

Grouters Not Yet Perfect

With the wheel types, manufacturers are still experimenting with the best type of tread or grouters for the wheels. No system of grouters has yet been worked out which is perfect. Much has been accomplished in design towards permitting a constant contact of the grouters with soil surface. One difficulty of the wheel type in field practice is what is known as slippage. Where slippage is occuring, the machine is not getting traction. Slippage may take place in stubble land or on plowed land. Proper grouter design will reduce wheel slippage to a minimum. It probably can never entirely obviate slippage because the wheel comes in contact with only a very narrow line of soil at any one time. Grouters may readily become clogged with trash or damp soil, so that slippage is increased.

Of course, the question of slippage is practically removed in the case of the track laying-types and constitutes one very decided advantage of that type.

A new type which combines some of the features of the track-laying type with some of the features of the wheel type has recently come on the market. It has not been sufficiently tried in the west to know whether the design is a good one or to know just what combination of materials will furnish longest wear with the least repair.

The farmer naturally wants to know what is the best size tractor to buy. Such a question cannot be definitely answered because so much depends upon operating conditions. In general, it has been found that medium to small sized outfits for plowing work are more economical than very large outfits because the chance of continuous operation seems to be better with these sizes. A large sized outfit, when requiring repairs, disjoints the working force more than it does to have a medium size outfit out for repairs. A study of tractor development shows that the farmers have decided that the three and four bottom outfits are the best size for most purposes. Tbe former demand was almost entirely for big outfits. Except for special purposes, the big outfit is being used less and less, while the medium size outfit is increasing enormously in numbers. The tractor should be large enough to furnish power for other purposes besides plowing. In all cases the tractor should be bigger than its job. A slight surplus of power operates more economically than to be underpowered. A machine which is slightly overpowered works easier and requires less repair than a machine which is decidedly underpowered for the work to be done.

The number of kerosene burning tractors is increasing. Not all of the so-called kerosene burning tractors will successfully burn kerosene. Manufacturers, however, are improving the designs of fuel handling devices and ignition so that the cheaper grades of fuel can be used more successfully. This is one phase of tractor development which can be still further improved to a great extent. The fuel cost on a successful kerosene burning tractor is very much lower where kerosene is used than where gasoline is used. The lower fuel cost, of course, very greatly reduces the cost of tractor operation.

The tractor is with us. It has reached a high state of development; it can be still further improved. It enables the farmer to handle the same business with less labor, or to increase his business with the application of the same labor. It enables a better preparation of the seed bed more nearly at the correct time of preparation. It enables a bigger peak load at harvest to be carried. It makes more food with the same amount of labor. For these reasons power farming is with us and with us to stay.

As improvements are made in tractors, many operations which are not now possible through tractor power will become possible. On many farms, for a long time to come, tractors will not entirely replace horses, but the present tendency is to reduce the horses to that number which can be continuously employed. Tractors are adapted to large size farming and to intensive farming. They will not now and may never be adapted to range farming. Tractors are not trouble proof and will never become entirely so. They are becoming more reliable, more durable, and although their cost is greater than a few years ago for the same types, they are actually cheaper to operate because of greater reliability. Tractors are bound to increase in use on western farms because they meet the great American need, the great national and international needs of more power.

Montana White Bean Test

Experiments are being conducted in Wyoming with the Montana white bean in territory where the pintos do not thrive. Mr. J. B. Lamson, agriculturist for the Burlington railway, asked a number of farmers to try these beans during the past season and he has received some encouraging reports. Further work will be done with this variety this year. The beans were tried both with and without irrigation and they seem to have done well under both conditions in Converse, Natrona and Campbell counties. Following are extracts from reports received by Mr. Lamson concerning the 1918 experiments with this crop:

"I will answer your letter that I got ugust 13, 1918, asking about the beans I got of Mr. Scott, the county agent. I got about 3 or 4 pounds and I have them all threshed and got 75 pounds of good beans. They sure did fine; they all got ripe before the frost got them. I will thank you for them, as I will seed all of them next year."—F. H. Sanders, Douglas, Wyoming.

"I only got about one pint of beans from County Agent Scott, gave one of my neighbors about half of them, and the other half of them I gave to father and told him to plant them, and I wanted to get a report of same. Here is the whole matter: Planted 8 rows 165 feet long; when near the end of season had a hard wind and blew down half of them which were ruined. Father had one bushel of shelled beans off the other half, so he sure felt they were certainly a great bean to raise. Today my wife baked some of them and we all said they were fine. County Agent Scott took a picture of them, perhaps he sent you a picture. He has gone to the front and perhaps never had them finished up. Think I have given you all that you may desire. The wind I spoke of, no doubt you are aware sometimes the wind blows very hard here in Wyoming. Even though one loses half his beans he sure has a big crop after that. These beans had no irrigation, strictly dry farm."—Chas. W. Vleet.

"The seeds were planted the latter part of May and extending into first part of June on a plot of ground 50 feet by 60 feet in size on a city lot. They were not irrigated at any time, but were cultivated from the time of planting until it was impossible to get in between them with a Planet, Jr., hand cultivator. A good stand was had and there have been fully matured beans on the vines for the past week; in fact, at this writing I believe 75 per cent of the beans are ready for picking. I also distributed some of the seed to other neighbors and their results are equally as good. Personally I can say in regards to the beans that they are very hardy and it looks as though the yield on my plot will be very heavy. However, I will advise later the exact amount of yield received. Have showed the beans to many people and they all praise them highly, and I know that my beans have matured quicker than any other variety in this section."—Wm. I. Winslow.

"I received 9 pounds of seed and planted them on a piece of sod ground that I broke about the first of May. I drilled them with the corn planter in rows. I just finished harvesting them and got 100 pounds. Will say they are as nice a cooking bean as I ever saw, and am well satisfied with the yield on dry land. Mr. Scott seems very much interested in these seed beans, as he was out to see them three times during the summer. Many thanks to Mr. Scott and yourself for the seed. We have nine homesteads among our own family in a bunch and are thankful to get the seed. It will help us get a start in seed. We are 32 miles north of Douglas and have 40 acres plowed on four of the claims, making 160 acres broke and ready to be planted in the spring. We expect to put 100 acres in fall rye and have 60 acres already drilled in. Don't know what we will put the rest in next spring. If at any time you have any different kinds of seed that you would like to have tried out on dry farming we would be very glad and thankful to receive some of it with directions how to plant, and we will give them a fair test and report when harvested."—J. P. O'Leary, Douglas, Wyoming.

"Some time ago you asked me for a report on the beans grown from seed of the Montana Whites that you sent to this office last spring. I answered your letter and gave you such information as I had at that time, but since then I have visited nearly all of the ranchers that secured some of this seed, and they report that they are the earliest and heaviest yielding bean that they have grown, and a number of them, who have raised beans for their own use for a number of years, are going to raise this variety exclusively. Three ranchers grew these beans without irrigation and the reports are very good. We wish to thank you for sending us a start of these beans and from all indications by the esults obtained this year, the Montana Whites will be the most popular variety grown in this county."—John C. Hays, Natrona Co. Agricultural Agent.

"Mr. Meyers has enlisted in the army, so that he is unable to answer your letter of September 17, and I cannot do so fully, as I do not know where all of the bean seed you refer to was placed. However, I have had reports from two of the farmers. One of them could see very little difference between the Montana Whites and the improved Navy, but what little there was was in favor of the Montana White, and he is going to plant them exclusively this coming year. The other man said that the Montana White yielded 400 pounds to the acre to the improved Navy's 200 pounds. The beans were on the same kind of ground and had the same treatment, except that the Montana White's were sown at the rate of 12 pounds to the acre and were not inoculated, and the improved Navy's were sown at the rate of 10 pounds to the acre and were inoculated.——Philip B. Miles, County Agent.

Cane Seed for Chickens

Is cane seed good for laying hens, or young poultry? Could it be used with wheat, half and half?—H. W., Washington county.

I am not posted as to cane seed for poultry, but would not hesitate to use it, in connection with other grains, and should depend entirely upon results as to whether it pays to use it or not. We know that the seed is good for other stock and undoubtedly it has a place in the hen's ration. We would suggest more variety, but if no other grains are available, use wheat and cane in equal parts.

Appreciates Parsons' Articles

Western Farm Life:

I am sending one dollar for 2 years' subscription to your valuable paper. I don't want to miss any issues, as I am reading the interesting story now running in it. I sure appreciate its articles written by Mr. Parsons on dry land farming. If we would follow his teaching we would be better off.—Otto E. Barr, Bennett, Colo.

Livestock Field Notes

In this number is the advertisement of John E. Painter & Sons' Registered Herefords of Roggen, Colo. Here is a chance to buy top-notchers, all guaranteed. Mr. Painter is a progressive stockman and is always represented at the National Western Stock Show, and at Hereford sales and exhibits.

A fine lot of Herefords are offered for sale by Fulscher & Kepler of the Valley View Hereford Ranch, Holyoke, Colo. Messrs. Fulscher and Kepler are the owners of the registered herd bulls, Beau Aster and Prince Domino, and others. Read their announcement in this issue.

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted

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Purebred Livestock

Herefords, Shorthorns, Holsteins, Jerseys, Aberdeen-Angus, Galloways

If you wish to buy anything in the way of purebred live stock write our live-stock department, stating what you want, and we will place you in touch with Colorado breeders that have just what you want. There are almost 1,000 Colorado breeders. We can find some of them that will have real bargains for you. Our services are free to our subscribers. Address

Livestock Department
1400 Arapahoe Western Farm Life
Denver Colorado

Majestic Sunbeam Herefords

Herd headed by "Majesty Sunbeam" by "Majestic 24th," by the Imported Bull "Majestic," he by "Argon" by "Prospero" by "Statesman." Dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

Also "Beau Andrew" by Beau June" by "Beau Mischief."

MAJESTIC SUNBEAM weighs 2,500 pounds. He is the biggest boned Hereford bull in the country.

BEAU ANDREW, grandson of "Beau Mischief," one of the biggest boned bulls produced from the great "Beau Mischief."

Also have several head of big-boned yearling bulls sired by Majestic Sunbeam, and a few yearling bulls sired by "Beau Andrew" from Majestic Sunbeam heifers.

If you are looking for best blood and quality and the biggest boned bulls to put the size and weight in your herd of Hereford cattle, you should see these choice heifers and bulls. Come and look them over.

A. J. CAMPION

Care Sigel-Campion Live Stock Commission Co.

Union Stock Yards DENVER, COLORADO

FOR SALE

Twenty head of full-blooded Poland China gilts by my great head boar, "Wonderking," bred to my great boar "Standard Darkness," the biggest boned Poland China boars in Colorado. Get in the hog business. Fifteen head White Leghorn cockerels one year old; Tom Barron and Ferris strains. Show birds, $2.50.

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyo.
406 New Live Stock Exchange Building, Union Stock Yards, Denver, Colo.

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent JAMES C. ADAMS, Salesman

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Durocs am sold down to November pigs. They are sired by a son of Top Sensation.

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

Holstein Cattle

Five Registered Bulls All but one from A. R. O. Dams by a grandson of a World's Record cow. Strong in Jobanna and King Segis blood—good individuals and nicely marked. A bargain.

18 Holstein Cows and Heifers

Of very bigb grade, all fresb or in calf to a bull of World Record breeding — a money-making herd. For sale on account of our policy of keeping only registered cattle in tbe future. We also bave for sale six yearling beifers out of these cows. You can pick a young registered bull for service with this berd at a reasonable figure.

Use a bull that will raise tbe average of your herd. A cow of our raising topped tbe sale at Englewood recently.

Calves taken now will be delivered FREE to Colorado Springs.

R. G. Douglas, Rush, Colo.

WYNNEWOOD RANCH

BIG TYPE POLAND CHINA HOGS

Junior Champion Gilt, Denver Stock Show, 1919, exhibited by Wynnewood Ranch

FOR SALE—Two young boars, sired by the Sensational BIG BOB WONDER No. 252987, dam Master Queen 2nd No. 696650, weight 600 pounds.

These boar pigs are out of a litter of ten, their color and marking are perfect. They are six months old and weigh 200 pounds, not fat. They are of the best Poland China blood lines.

L. G. DAVIS, Owner

Address C. E. GORDON, Manager, Overland, Colo.

Registered Hereford Bulls

Very Attractive Prices
Some good Registered Hereford Bulls of our own raising, and ready for immediate service.

Any Number From One to a Carload

Write your wants, or come and see them. Everything we sell is fully guaranteed.

JOHN E. PAINTER & SONS
Roggen, Colo.

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion,
Chicago, 1917
Denver, 1918
and 1919

Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

LAKESIDE HERD REGISTERED DUROCS

Witb hogs selling at $21 on the open market, and bigh price of feed, isn't it about time to improve your herd of hogs? Be honest with yourself. WHY WASTE FEED ON AN INFERIOR ANIMAL? Better start now. We can offer you tried sows and gilts, of Sensation, Kings Col., Defender, Orion Cherry King, and Golden Model breeding, bred to farrow in August and September, to our BIG TYPE BOARS, Diamond Orion, and Diamond Model Supreme.

Weanling pigs in pairs and trios unrelated. We invite inspection. All bogs immuned. Write us your wants.

DR. F. T. DALY, CAMBRIDGE, NEBR.
The greatest pure-bred live stock center in the West.

THE CITY PARK DAIRY FARM

We breed and always have for sale

High Grade Holstein Cows

Our herd is sired by registered bulls of reputation.

Visit our farm—only 1 mile from Denver, on Leetsdale Drive.

OUT OF TOWN ORDERS FILLED

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

DRAFT HORSES AND BEEF CATTLE

I can sbow tbe buyer 288 imported and American Bred Percberon and Belgian draft stallions and mares. Will weigb at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings Prices, $75.00 and up. Pedigrees witb each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH
Montrose, Colo.

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.
Elbert, Colorado

"OAKLANDS"

The Rocky Mountain Holstein Ranch
Some Good Registered Bulls for Sale

C. W. CURTIS & SONS

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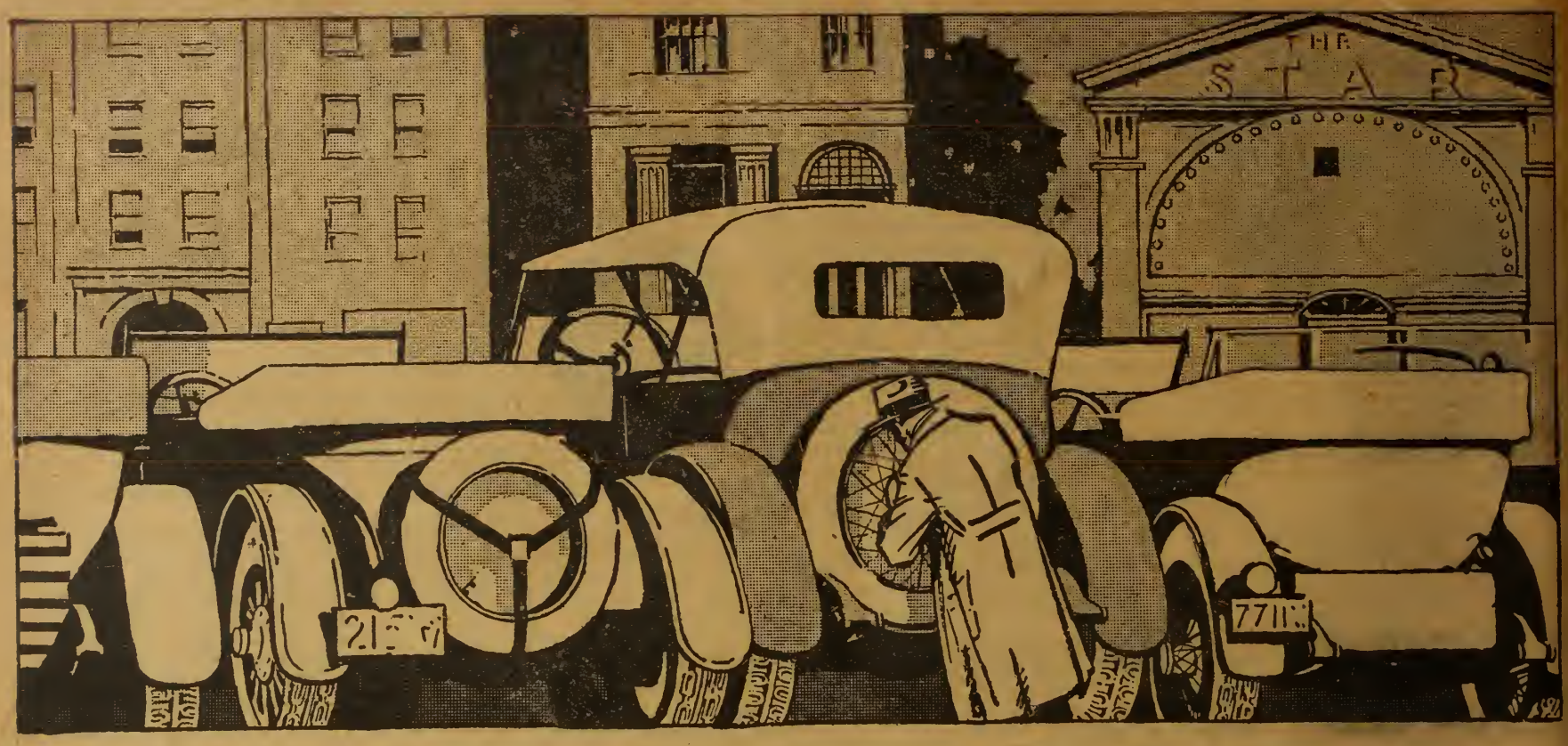

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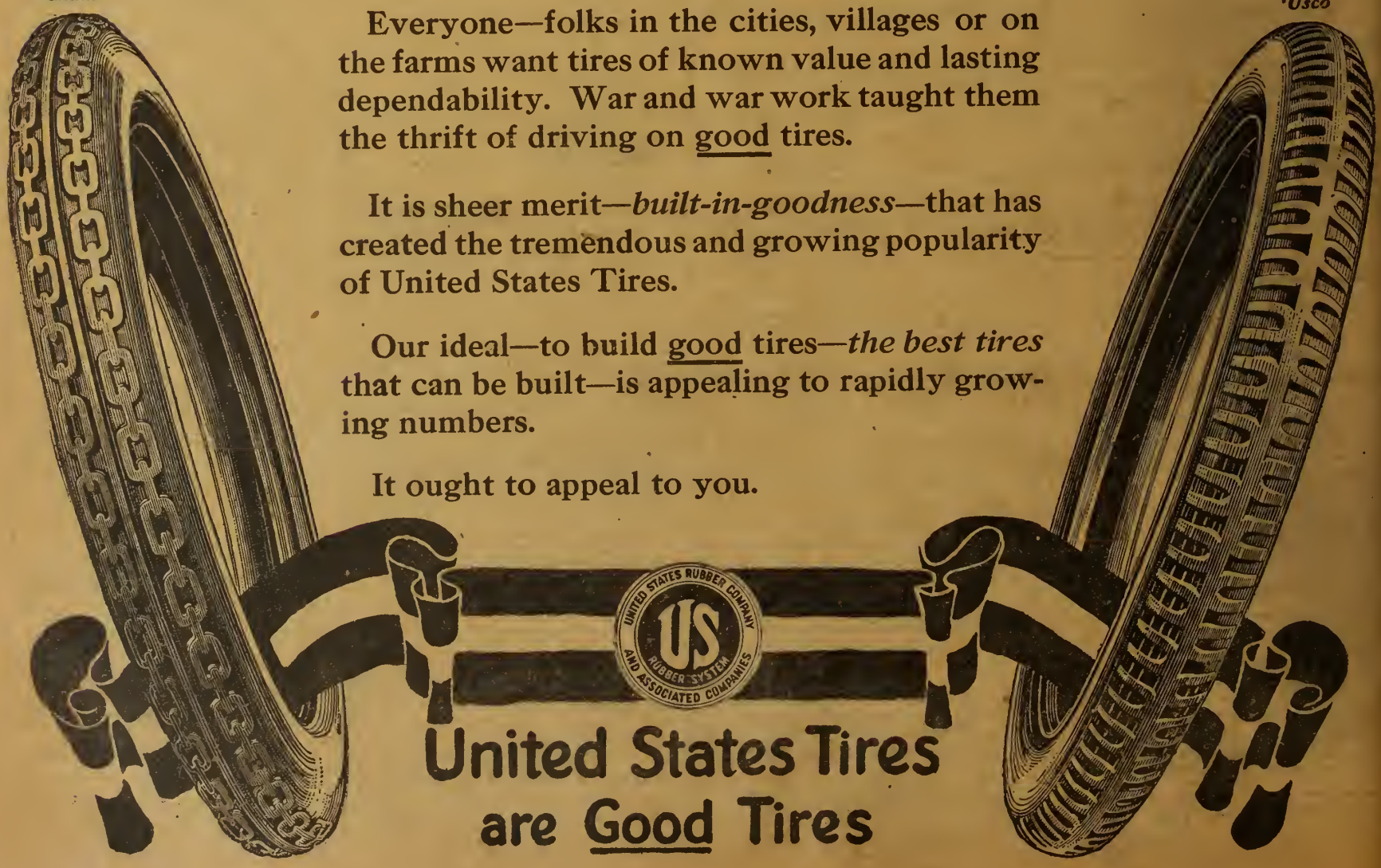

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JUN 25 1919

WESTERN FarmLife

Vol. XXI Denver, Colorado, June 15, 1919 Semi-Monthly

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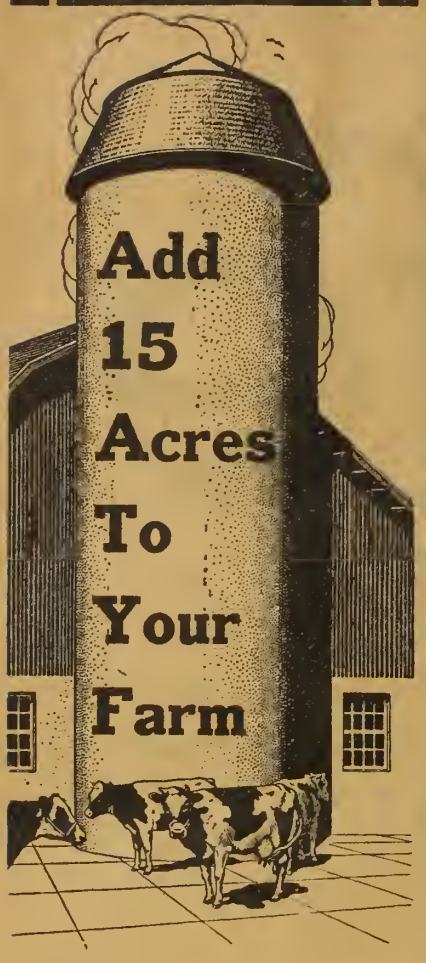

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Concrete for Permanence

Miracle Wheat Fraud

Athough bulletins have been issued and many articles published warning farmers against Alaska or Miracle wheat, seed salesmen traveling through Idaho last fall again sold considerable quantities of seed of this variety at from $25 to $30 a bushel. The University of Idaho, in a recent issue of the News Letter, states that grain buyers and millers refuse to buy Alaska or Miracle wheat because of its poor milling qualities. It is also pointed out that there is great danger of the Alaska becoming mixed with more desirable wheat, thus lowering the grade and price.

Alaska wheat has a large branched head and looks like a heavy yielder. The grain, however, is very soft and chalky and has a disagreeable flavor. This variety has been discarded wherever tried and its sale has been denounced as a swindle upon the farmers.

Advice on Bloating

Many a cow has come to an untimely end, because she became dissatisfied with the scanty feed to be gathered from the closely crop-fed pasture, broke down the fence that surrounded a field containing a more luxuriant growth, and stuffed herself with the luscious, stolen greens until she lost all desire for even another mouthful. Soon her troubles begin. Fermentation develops in the mass of corn or clover, and gas forms that fills the first stomach of the cow to its utmost capacity.

The danger to the animal from acute bloating is not that the distended stomach may rupture, for such an accident is almost unknown. The pressure of the gas-distended stomach, however, exerts a dangerous pressure upon the heart and lungs, with the result that animals dying from acute bloating usually die of strangulation through inability to breathe with their compressed lung tissue.

The stock owner should guard against the bloating of his cattle by every precaution at his command. Clover or other green vegetation, if eaten when wet by dew or rain, seem to be especially liable to ferment before leaving the first stomach of the animal that has fed upon them. Eating excessive amounts of middlings or corn meal will also cause bloating. It also occurs in cattle as a result of becoming choked. The principal cause, however, is overeating succulent green forage, such as clover, green corn, or cabbage.

To prevent bloating in cattle, the animals should be shifted, by easy stages, from dry or scanty feed to abundant and luxuriantly growing fodder. They may be allowed to feed from the good forage for only three-quarters of an hour on the first day they are given access to such grazing. A full hour may be allowed on the second day, and by continued slow steps and gradually lengthened stay in the tempting feed, the danger of loss from bloating will be largely overcome.

But in case the first evidence of a too protracted stay in the heavy growth of forage should be that the owner notices one of his animals with sides distended, and perhaps even lifted above the level of the backbone, he must act quickly. Removal of the gas from the paunch will quickly bring relief. If a veterinarian is within reach he should be summoned at once.

Many cattle owners keep a trocar and canula constantly on hand and thoroughly understand its use. The trocar is a sharp pointed rod provided with a metallic sheath or canula which leaves the point of the trocar exposed. The spot to be selected for inserting the trocar is a point equally distant from the last rib, the hip bone, and the lateral bony projections from the spine in the region of the loins. Here a small cut about three-fourths of an inch long should be made through the skin with a small knife, and then the trocar with canula attached may be pushed through the cut into the paunch. The trocar is then removed, allowing the gas to escape through the canula. The canula should be retained in place so long as any gas escapes through it. Sometimes several hours are necessary, and the canula should be firmly tied in place. An attendant should remain near the animal, if possible so long as the canula is in the paunch.

If the animal is not distressed by the bloating, and the swelling of the body is not great, or when the alarming conditions have been removed by the use of the trocar, it is best to resort to internal medicine to allay the formation of gas. Two ounces of aromatic spirits of ammonia in two quarts of cold water should be given every half hour, or half an ounce of chloride of lime dissolved in a pint of tepid water may be given every half hour until the pressure of the bloating has been removed. A dose of purgative medicine is usually beneficial after the bloating has disappeared. For this purpose of one pound of Glauber's salts will usually prove effective.

Care should be used in the administration of fluid medicines. Take time. Do not hold the cow's head too high. Keeping the animal's head raised, so that her nose is slightly higher than the level of her face will allow her to swallow without interference.—Bureau of Animal Industry.

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Largest Circulation of Any Farm Magazine in the West

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Building A Hereford Type For Western Conditions

INTERVIEW WITH THE BREEDER OF THE NOTED SIRE WYOMING

ALVIN T. STEINEL

SOME men have the vision to recognize approaching changes in an industry and so shape their course as to meet the requirements of a new era. Forty years ago few men had any other thought than that the vast range country of the western mountain and plains states would continue to produce beef from free grass indefinitely. Practically nothing was known of scientific dry land agriculture, and farming under irrigation was limited to a narrow region near the headwaters of the streams. The grass belonged to the man who had cattle and he also controlled the water. The homestead laws brought a change and cattlemen were forced to restrict themselves to smaller areas. This process of restriction of the range has been gradual but certain. With it came the knowledge that if cattle must be produced on smaller areas and given greater care and more feed, it was essential that the class of stock be improved. A few men saw this approaching change long before the general public became aware that it was impending. These were nearly always men who had gone through the experience of raising range stuff. They bought purebred bulls and began to build up their herds. Naturally some of them saw a future in the purebred business and they went further; they established herds of purebred cattle to meet this range demand for better blood right on the home ground.

Among the men who have been known as pioneer western breeders of Herefords and whose operations have followed this process of evolution, is Mr. L. G. Davis of Saratoga, Wyoming, and Denver. Back in 1884 when the cattle business was in the hands of the big range men, with English capital largely responsible for a wonderful impetus given the industry as it began to settle down to a substantial basis, Mr. Davis made a start with a herd of range cattle at Saratoga. He was progressive in his methods and he used registered sires in his herd. In a few years he found feed costs mounting and the grass getting scarcer. He had to put feed into the cattle anyway, so he reasoned that it would be folly to continue putting high priced feed into low grade cattle. He rounded up his range stuff in the fall of 1900 and sold it off.

Took Tama Jim's Advice

It is an interesting sidelight to hear that one of the men whose advice he took in making the change was James M. Wilson, the famous "Tama Jim" of Iowa, the farmer who made the United States Department of Agriculture the greatest force for scientific improvement of farming in the world. On Mr. Wilson's advice Mr. Davis first chose Shorthorns and he got them from the district back in Iowa where the former Secretary of Agriculture makes his home. They did not suit Mr. Davis' conditions; they were not prolific, nor did he find them to thrive as well as he thought they should on the grass and with the outdoor life at Saratoga. So he changed to Herefords. That is the breed which suits him and for which conditions are just right. He says in answer to a question as to why he chose Herefords:

"I found them more prolific; they seemed to do better under our conditions and, furthermore, there was a good market for their offspring. I used to get a hundred dollars a head at weaning time for the young bulls and people came right to the ranch and got them."

Having chosen Herefords and being satisfied in his own mind and through his market that the choice was wise from a business standpoint, one is moved to ask: What particular strain of Herefords and what is the ideal type that Mr. Davis has in mind in breeding? Anxiety 4th blood is at the foundation of the herd. A few were picked up here, and a few there, but the principal individuals came from Gudgel & Simpson's famous herd. Every follower of the breed knows what these veteran Missouri importers and breeders did for the Herefords in America.

Sustained Effort Necessary

Now a good many breeders start just about that way. They select a few here and a few there, decide on blood lines and type, but in a few years they change their ideals, or they take advantage of a chance to make a good sale—and then they have it all to do over again. They lack a quality that is often wanting among American breeders, and that is persistent effort toward a fixed goal. This charge cannot be made against Mr. Davis. He has been consistently engaged, since starting with Herefords, in a single-minded effort toward breed improvement. In seventeen years he has not bought an animal for re-sale and there is not an animal on the ranch today, except the two herd sires, that was not bred on the place. He buys only to replenish the blood and he picks and chooses sires or dams that will come nearest to continuing toward the type for which he is aiming.

And what is that type? Very few breeders can, or will if they can, explain in detail the points of refinement of type which they have in mind. No good breeder, perhaps, ever attains that perfection which he sees in his mind's eye when he looks over his herd. No matter with what pride he may look upon his stately sires and handsome matrons, or their lively young offspring, he can fault them—when he is honest with himself—and see what they still lack of perfection. So asking Mr. Davis what his ideal is would merely be repeating the question: "What is the perfect type of Hereford?"

Trying for Perfection

Has any breeder the right to try for perfection? He has, providing he possesses a quality herd and is rearing it under Hereford conditions. The breeding place of the Davis herd is 7,000 feet above sea level. Pure spring water from limestone rock (and lime makes bone), with lush grasses such as thrive in the upper valleys of the Rocky mountain region; with the bracing air of the higher altitudes, where heart girth and lung power are developed along with rustling qualities; these constitute the environment. Take Herefords whose heritage goes back to the kings of the tribe from Herefordshire, whose ancestors were bred out of doors by the great graziers of the previous century, who knew how to develop constitution; put them into an environment so naturally propitious to man and beast, give them scientific breeding supervision and improvement is bound to follow.

What, we may ask, has been attained toward improving the type? Mr. Davis answers that he has been able to attain what he considers a finished Hereford head. This means not in shape alone, but from the utility standpoint, the development of a broad muzzle that indicates a good feeder. Breadth is carried out between and above the eyes; the nostrils are large. With these indications of size in the head, however, there is no coarseness; no heavy fleshing of the cheeks; nothing that detracts from refinement that goes with aristocracy, which cannot be sacrificed without the loss of that indefinable something that goes with purebred cattle of good ancestry, and the lack of which robs them of the power to produce offspring of quality.

As to the body—well, they are long, and broad and deep-bodied, with short legs, plenty of bone and good heavy coats of hair, as all good Herefords should be, and they are fairly evenly covered with firm flesh. Reads like a catalogue description, but if the owner of the cattle can show you that the description fits, why seek new terms to describe them? It is an elusive thing, this perfect Hereford. Like the perfect man he hasn't been born, but the breeder's game is to seek to develop him from the best material at hand, and that is what Mr. Davis is aiming to do. If every new generation of cattle were better than the previous one the work might have stopped long ago. The incentive in breeding comes from its uncertainties and surprises, and it is the business of the breeder to eliminate the unfit, to mate the best and seek to procure better.

Type of Bulls Produced by L. G. Davis. Prize Winners in Get-of-Sire Class, 1919 National Western Show

The Stamp of Consistency

With such a conception of his work it is not surprising that Mr. Davis has been able to produce Beau Carlos 2nd bulls that were picked by an able judge because of their uniformity and distinctness of type and called "Davis' cattle." They bore the stamp of their breeding; the stamp of consistency that carries through to each individual. The great bull Wyoming was bred by Davis, and Wyoming was sired by Beau Carlos 2nd. No one, as far as I am aware, ever heard Mr. Davis say that "Wyoming is the greatest bull of the Hereford breed in the West"; nor has he said: "I have some in the herd that will be even greater than Wyoming." He looks at them as individuals; some please him; some do not suit him as well, and he goes on from generation to generation, thinking of the perfect Hereford and approximating the ideal insofar as man can control the functions of breeding—which is up to a point where Nature says: "So far, and no farther."

Looking at the other side of the business, that of raising them after they are bred, Mr. Davis follows the plan that is customary in this western country. His cows and heifers never see grain. They are made on grass and hay. For the breeding herd and the calves oats supplemented by barley and bran fill out the program of grass and hay. There is seldom a time, even in winter, when the pastures cannot be utilized and it is this outdoor life that gives these cattle their magnificent coats and sends the blood through them with vim and vigor.

Some of Davis' Winnings

Rex Major, the first herd bull used by Mr. Davis, was bought from the Gudgell & Simpson herd in 1902. He was sired by Dandy Rex, a direct descendent of Anxiety 4th. He proved to be a great producer of females and many of these cows are still in the herd. Beau Carlos 2d, the present herd sire, was shown ten times as a calf and yearling, winning first each time. His ribbons included first and junior championship at the Nebraska State Fair and first at the American Royal and National Western. Bonnie Weston, another of the herd bulls, is by Bonnie Brae 15th, an International winner. It will be interesting to look over a list of Mr. Davis' winnings. At the 1916 National Western he won grand championship on yearling bull and grand championship on carlot of breeding heifers; at the 1917 and 1918 shows he took second and reserve championship on carlot of bulls. At the 1919 show his winnings included the following: Grand championship on carlot of yearling bulls; second premium on carlot bull calves; first and championship on yearling bull; second, senior yearling bull; third and fourth on junior yearling bull; third on get-of-sire and Bohm-Allen cup for best Western herd in get-of-sire; fourth, senior bull calf Futurity; fifth, senior heifer calf, Futurity; fifth, young herd; seventh, senior bull calf; seventh, junior yearling heifer; eighth, senior heifer calf; Stockyards cup for champion carlot bulls. Also, Mr. W. N. W. Blayney won second in produce-of-dam with animals of Mr. Davis' breeding.

What significance has all this for the

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Why and How To Cultivate Dry Farming Crops

DIFFERENCE BETWEEN HUMID AND SEMI-ARID CULTURAL PRACTICE

E. R. PARSONS

IN cultivating the surface of the soil with different implements the original idea was to kill out weeds. It was noticed by some of the older agriculturists that cultivation to some extent was fertilization; for working the soil produces friction. breaks granules, and enriches the soil solution by developing mineral plant food. In dry farming the principal function of cultivation is to produce a mulch to conserve moisture. Some years ago the champions of intensive cultivation and summer fallowing were sharply criticised by men of the Department of Agriculture because they claimed that this surface work used up too much humus. There is no denying that it does destroy some of the surface organic matter; but this can be reduced to a minimum by deep plowing, which mixes the humus with a large amount of dirt and holds it where the roots can reach it rather than the air. Then again, the mineral plant food developed is probably a gain which more than compensates for the loss in humus, but this matter is of slight importance compared to the conservation of moisture, which is the prime factor in dry farming.

In the eastern states it is claimed that cultivation economizes the subsoil moisture during the growing season by cutting off capillarity, and preventing the loss of free water, which otherwise would keep working to the surface and be evaporated into the atmosphere. This is where the east is so different to the dry farming country, for back there the subsoil nearly all contains free water from the liberal precipitation, and this rises by capillarity to replenish the upper layers as they dry out from the heat of summer.

We were asked the other day why cultivation or plowing should cut off capillarity. Simply because loose soil requires about twice as much water to fill or nearly fill the interstitial spaces as solid subsoil. Therefore the percentage of water which is able to rise by capillarity in a more or less tight subsoil is not sufficient to maintain this action in the loose soil above it. Would packing the top soil enable it to do this? Not unless it could be packed until almost as dense or solid as the subsoil, but in case of the subsoil carrying an unnaturally high percentage of water owing to heavy rains or floods, or the close proximity of a water table, a capillary rise might be obtained in plowed or cultivated topsoil which had been ordinarily packed.

In ordinary good western subsoils from 1 per cent up to 15 or 17 means film water. Free water begins to move by capillarity when the content is generally about 17 per cent or over. The percentage can only be given approximately because of the difference in soils, the rich and the clay soils holding onto the water tighter than the poor or sandy soils. In other words, it requires less water to start capillary action in sand than it does in loam or clay.

One Farmer's Experience

A dry farmer may have land which is above a naturally dry subsoil. With this he may also have some bottom land above a water table. A case in point came up the other day, when a man on a bottom probably over a water table plowed deeply for alfalfa, but neglected to conserve a sufficient supply of moisture in his seed bed. The weather turned dry and the alfalfa perished before its roots could reach the wet subsoil, but some which was just scratched in on the edge of the patch rooted in the wet soil and, although the plants were small, they lived and became established. In this case the plowing cut off capillarity, but the seed on the edge of the patch which came in contact with the wet subsoil sprouted and survived. In farming over a water table (which is not dry farming) the plowing should have enough water conserved in it to carry the crop until the roots can get down,, or else it should be shallow and packed very solid, to entice, if possible, a slight capillary rise, to help establish the crop, the roots of which will only have an inch or two to go to reach the moisture. The former would be recommended for corn and crops which usually need plenty of plowing, while the latter method would be successful with alfalfa and small grain, provided the subsoil was not too hard for root penetration.

The difference between dry farming and any other form of agriculture is largely one of subsoils. On the true dry farm the subsoil is relatively dry. may be so for hundreds of feet, and there is no moisture for crops except that accumulated and conserved by the farmer. The water does not rise by capillarity to any extent in dry farm subsoils, because as the free water percolates downwards after the storms it keeps on moving by capillarity and gravity until it is all taken up by the dry dirt and becomes film water (where capillary action ceases), which sticks to the granules until the roots of crops use it up.

A waterlogged soil is one that is filled to its fullest capacity with water and therefore contains no air; but any soil which contains only film water has still plenty of space between the granules which is filled with air. So long as there is any moisture in the subsoil this air is more or less saturated with it, and if it is allowed to escape into the atmosphere, it carries some of the water content of the soil with it. Therefore cultivation on the dry farm is not for the purpose of cutting off capillarity, but to break the continuity of the air pores or spaces and to prevent any circulation which would carry off moisture. Air is always in the soil and a certain amount is necessary there, but the circulation of air is death to crops.

Effects of the Crust

Before the effects of dry farm cultivation were thoroughly understood it

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Pleasant View, the home of Basil D. Buck, Eads, Colorado

Mrs. Buck cutting cane with the binder

How Basil Buck Is Winning With Corn

A DRY LAND FARMER ON THE ROAD TO PROSPERITY

BERTHA L. WASEM

WHEN the urge for big things gets into the blood of the farmer, when he allows nothing to obstruct the vision that sees in his mind's eye a rich and abundant harvest, then definitely plans to realize on his big idea, something will surely happen. Such was the urge and such the vision of a determined homesteader down in Kiowa county, Colorado. Basil D. Buck came to this county from Kansas in 1908 and later with his young wife and two little children settled on a half section of land, fourteen miles northwest of Eads. A small shack sheltered the family while the sod was broken and crops planted. As is the case in a dry farming district, there are good years with good crops, and there are years with little or no crops, but this enterprising couple paid no heed to the off-years, taking things philosophically, knowing that, all things considered, the next year would be good. They had set their stakes at the goal of success and fearlessly. courageously marched on. Proving up on their three hundred and twenty acres, they bought the adjoining half section, on which were more comfortable and commodious buildings, moved over, and then it was, Mr. Buck began to calculate in bigger figures. The new farm was transferred with but very little cash, and notes on long time, but this did not deter the young farmer in his desire to liquidate those notes, and corn must do it.

The year before, the new farm had produced sixty-five bushels of corn per acre, but there had been an abundant rainfall and a bumper crop all over the country. Following this, 1915 proved exceedingly dry and the yield fell far below that of the year preceding it. It must be remembered that in the absence of summer showers to stimulate the growing corn, constant cultivating is necessary, and what might be considered a small yield, 2,800 bushels shelled, on less than one hundred acres, had been secured at the price of eternal vigilance.

The following year Mr. Buck added eighty acres of wheat, cane, feterita and maize to his crop and despite the fact of another very dry year, 4,000 bushels reared their golden heads from the open cribs in the yard.

Last year, 1918, war conditions had made help a very serious problem, but here the admirable wife rose to the occasion. Securing a housekeeper, Mrs. Buck took a man's place in the field, stepping upon the disk, then the lister and later the cultivator. She managed the four-horse team as expertly as did her husband. and the work on the farm moved along quite as if there had never been an interruption. The continued dry weather, causing crop failure over north, south, east and west, lessened the prospect, of course, but the accompanying photograph shows the 3,000 bushels that were gathered in November from the same corn field which had produced the bumper crop. Many would have grown faint hearted, many have, but not this plucky homesteader. He has implicit faith in the future of dry farming, in the resources of the prairie land in its dual office of crop production and stock grazing.

Fifteen hundred bushels of dry land corn raised by Basil D. Buck

"It takes several years in any country to become accustomed to its various conditions," said Mr. Buck. "What has happened before will happen again, be sure of that, but in order to win one must have faith and courage. We like this country fine and will make this our home. Permanent settlers will come in to this part of Colorado when we who are here show good crops, and so it is up to us to push up the production to its highest notch. Oil may come and oil would help, of course, but we know corn is the substantial background of every farmer and stockman, so better corn and more of it will be the slogan this year and still on, to the end of the chapter."

To all this the smiling, happy, helpful wife and mother adds her approval, for Mrs. Buck is regarded as a wonderful woman. Bringing up four children in the best way possible to the farmer's wife, cooking, in which she is an expert, making her hundred and more hens keep the incubator going beside filling the Saturday egg basket, is no small task, but this isn't all. A veteran at the wheel of her car, she markets the cream, eggs, butter, and attends to various errands for the husband while field work is pressing, and all in the happiest possible way.

"Pleasant View," the Buck home, is modest and unpretentious. There the proverbial "latch-string is always out" and a warm welcome awaits the friend or stranger as well. With the happy combination of hope, ambition and optimism, it requires no prophet to foretell the promising future of this most estimable couple, who have learned to climb the ladder to success patiently round by round.

Why It Pays the Farmer To Buy Purebred Bulls

MARKET WANTS GOOD BEEF AND IS WILLING TO PAY THE PRICE

CHARLES I. BRAY

CAN the small farmer afford to buy a purebred beef bull if he only wants to handle a small bunch of grade cows and produce steers for market? It is easy to point to men who have made loads of money producing purebred beef animals to sell to somebody else. The agricultural press makes a great deal of the fact when Warren T. McCray in Indiana sells $150,000 worth of stock in a year, after his neighbors had all voted him crazy, or when Lookabaugh in Oklahoma starts in a sod house on a dry land homestead, and gets to where he can sell 38 Shorthorns in a day at an average price of $2943.

Of course these men may make money in purebred stock. So does Rockefeller make lots of money out of oil. The small farmer sometimes wonders, however, what all this has to do with him, and whether these high priced Herefords and Shorthorns are going to help him to make money. The small dairyman has been pretty thoroughly educated in regard to the value of purebred sires. The big range cattleman was probably the pioneer in the use of registered bulls in Colorado, but little has been said about the value of the purebred sire for the small farm herd of beef cattle.

Who started the idea of purebred beef cattle anyway? Some people have a notion that beef type was invented by the agricultural colleges, or by the directors of the International Stock Show at Chicago, or by somebody else who had nothing to do with practical farming operations. If we go back a hundred years in agricultural history we find that this is not the case. We will find that the men who had most to do with the development of improved beef cattle were practical farmers who were interested in the production of beef stock that would be most profitable to them.

Hughie Watson of Keilor, who did most to develop the Aberdeen Angus, was a tenant farmer. Charles and Robert Colling, who started the Shorthorn breed; and the Tomkins family and the Hewers who developed out the whitefaces in Herefordshire, were middleclass farmers, who had no other thought than to develop a beef critter that would make them more money when sent to market. Although the agricultural colleges have done a great deal in systematizing stock judging, and have been a tremendous help in popularizing the purebred sire, their work has been at all times founded on the results obtained by the men who had to make their living in the production of livestock. The first score cards were not developed in the college class room, but by the early breeders who wanted to express, in a concrete, systematic way, the particular animal form that they had found by experience to be the most profitable.

Perhaps we might ask here wherein the well-bred beef animal is more profitable than common stuff. Does the Hereford put on faster gains than the Holstein, or does he put on these gains with less feed? Is the Shorthorn more profitable than the native steer because it can lay on more fat, or is the Aberdeen Angus in more demand because it will eat less feed? There is no doubt but that all of these reasons have some weight, but they are not the main reasons. It is usually expected, of course, that wellbred beef steers will put on faster gains when on feed. If they have good beef type they are likely to be deep bodied, and capacious, and will have that desirable blend of vigor and docility which enables them to consume larger quantities of feed and utilize it to better advantage than can be done by the narrow-chested, high-flanked and nervous or light eating steer, which may be alongside of him in the feed lot. A dairy bred steer may sometimes put on as rapid gains as the beef steer, though he will not do so as a rule. He may occasionally put on his gains with the same amount of feed. He may even come very close to the high dressing percentage of the supposed better animal. Why then have anything to say about good beef type?

Heirs Anxiety, bred by Dr. T. F. DeWitt of Parshall, Colorado and owned by Colorado Agricultural College. This bull sired the champion steer of the National Western show in 1918

What the Packer Pays For

The immediate reason is that the packer insists on paying a much higher price for the well bred steer than he does for common, native or dairy stock. The following quotation is from a market report of fairly recent date, showing the prices paid for steers of different classes on the Denver market.

Fat Steers—Good to choice, 1,150 to 1,300 lbs., $15.50@16.00. Medium to good, 1,150 to 1,300 lbs., $14.50. Plain to medium, $11.00@12.50.

Feeders—Good to choice, 850 to 950 lbs., $13.50@14.50. Fair to good, 850 to 950 lbs., $12.75@13.50. Fair to good, 600 to 750 lbs., $11.00@12.00.

It is very true that a good share of this difference in steers is due to difference in fattening rather than to difference in type or breeding, but the most of it is due to the larger proportion of beef blood in the better steers. The following incident may illustrate this. The writer was on the Denver market recently with the experimental steers from the college. The head buyer for the Colorado Packing and Provision Company was going through the dried beet pulp lot, preparatory to putting a price on it, when he pointed out two steers and said, "Those two would be worth 2c a lb. more by themselves." They were two of the best steers in the lot from the standpoint of gains made; one a fine 1600 lb. Shorthorn, that had gained 440 lbs. in 150 days. The other a low-flanked broad-backed Hereford. We asked why they were worth so much more. He replied, "Because they show much better breeding and they will kill out so much better."

It is the packer who sets the value on breed type, and not the agricultural college or the stock show. The packer is not generally accused of being a philanthrophist, and it is not likely that he does this to make trade for the producers of purebred bulls. The fact is simply that the packer can get more high priced meat out of the animal that has at least 75 per cent of pure beef blood in it than he can out of the steer with little or none. The part of the steer that brings the highest prices is the loin, the round or thighs and the ribs. The shoulders, the belly and the legs and neck are much cheaper. The beef steer has been bred to make more meat in the regions of these cuts, consequently his carcass is worth more.

This is not all. The beef steer, when fattenning, puts a good deal of his fat between the layers of muscles and muscle fibers, where it not only increases the thickness of the cuts and the dressed weight of the animal, but also improves the flavor and texture. The dairy steer puts a larger amount of the fat around the intestines and the lower parts of the body where it is usel for oleo or soap grease. Even where laid on the upper part of the body it is not likely to be well mixed in with the meat.

Few lines of business make such a close study of costs and profits as do the packers, and few run on such a close margin of profit. The packer keeps an itemized account of each bunch of steers that goes through his plant. He knows what they cost, their dressing percentage, the per cent of tallow and hides, the cost per lb. of the carcases, and the price received for the same at its final market. He ought to know, therefore, what is the best type of beef animal.

We may safely conclude that he does know, and we know also that he has decided very strongly in favor of the steer which shows the highest proportion of beef blood and is the nearest to what is recognized by the breeders as good beef type. It is through the backing of the Union stockyards and the packing companies that the National Western Stock Show was promoted and financed year after year when it was a money losing proposition. Why? To provide entertainment for the cattlemen, or the people of Denver? No. It was because they realized that the more improved beef blood could be brought into this western country, and the more that good beef type could be impressed on the minds of the western stockman, the more the cattle business would thrive and the more business there would be for the stockyards.

In a later issue we expect to publish an article from the packer's standpoint showing comparison of the percentage weight of cuts in good and medium steers, to bear out the statements in the present article to the effect that good beef blood brings a better return on the market than the scrub.

Does It Pay the Producer?

This may not seem to answer the question for the farmer. Even if the feeder and the packer profit from the use of better stock, does it pay the producer of the steers? Suppose we ask the big range men about it. The western cattlemen were the ones who first appreciated the Anxiety 4th Herefords in the 70's when they appeared to be a drug on the market in the corn belt. Do we see them using scrub bulls? Not so you could notice it. They know from experience that a choice 900 lb. 7/8 Hereford feeder at 14c a pound is more profitable than a 700 lb. half scrub and half Texan at 11c. Perhaps that spread in weights and prices may seem extreme. It has happened in the past, however, on more than one market and in more than one section of the country that one man would sell bred stuff, and get almost twice as much for it, considering increased weights and increased price, as his neighbors would get for inferior stuff of exactly the same age.

The matter of quick maturity is not to be overlooked. A number of years ago the Illinois station fed out six carloads of steers, each of a different grade. There was not such a great deal of difference in profits among the three best grades that were well bred, or between the three poorer grades that had little beef blood. In fact, there was little difference in actual profit to the feeder, on any of the lots, owing to the change in market conditions and the difference in price paid. There was a rifference in profit, however, of nearly 3 to 1, and the basis of a stationary market, in favor of the two better grades, even considering that the poorer steers were bought for 70 per cent of the price paid for the better steers. The main point of interest is this: In order to get steers of about the same weight in each grade the best grade of cattle had to be about one year younger. In other words, the prime feeders had reached a given weight a year earlier than the inferior stuff, and sold for 25 per cent more. This should surely mean something to the man who is producing feeders to sell. An increase of $10.00 per head on 20 calves will pay all the necessary difference between a serviceable purebred sire and a scrub.

After all, why should the small farmer sell his stock as feeders for someone else to fatten? Why not fatten it out himself? If he does this he will want to finish it off young as baby beef. He cannot afford to keep his

(Turn to Page 24)

Hereford steers from a high grade herd using purebred sires. Photo by Boynton on the E. L. Montgomery farm, Longmont, Colorado

Boston's Cows Sold High

Strong demand and high figures continue to characterize sales of purebred Holstein Friesian cattle, as was again evidenced at the dispersion sale of Sunny Flats herd owned by L. M. Boston of Mount Morrison, Colorado. The sale took place May 28, purebred cows bringing all the way from $30 to $700 and grades from $135 to $260. Young stuff also sold at good figures. It was a complete dispersion, Mr. Boston planning to devote himself to other lines of farming for the present. Sam Hanson, whose sale two months ago established a new record for purebreds, was on hand as one of the heavy buyers, stocking up again with heifers of choice quality. Jesse F. Cruse, a young man who but recently entered the purebred game, picked out some of the top cows, paying all the way from $400 to $700 to add to his recently established herd of registered stuff. He sold off his grades which were driven over from his own farm for the Boston sale, getting good prices for them.

Holstein Friesian sales in this neighborhood are principally made up of cow buyers who are after cattle in the prime of their production period. They are not breeders. Therefore, the demand for bulls is usually light. For this reason there was no surprise when Mr. Boston's principal herd sire, Western Johanna Champion, was lead into the auction ring, and found bidders scarce. This bull was senior champion at the National Western Show in 1919 and he traces back to that famous old show bull and sire of many high producing cows, Sarcastic Lad. He was bred by Hall Brothers of the Western Holstein Farms. In spite of his remarkable record as a getter of high producing females there were practically no bids and he was knocked down to F. J. Horton of Goodalnd, Kansas, for $210. He goes to Sherman county, Kansas, to head a herd of Holsteins in a section that is just beginning to build up along approved dairy lines.

Another good bull disposed of was Sunny Flats Dirkie Pontiac, a young show animal, who was bought by Jess Cruse for $300.

Colonel G. M. Banks was the auctioneer in charge with Colonel H. E. Buchanan as pedigree man. Following is a list of the sales of registered cattle only:

COWS

Sadie Cornucopia Karen 190842, Jess Cruse, $400.

Leeuwarder Pontiac 179944, Jess Cruse, $500.

Segis Maid of Myerdale 216756, Jess F. Cruse, $425.

Sadie Cornucopia Rag Apple 307045, Jess F. Cruse, $700.

Rose of Sunny Flats Johanna 314104, R. P. Lamont, Jr., Larkspur, $525.

Segis Kerndyke De Kol Lass 2d 336229, Sam Hanson, $350.

Scene at the L. M. Boston Holstein Sale

Elaine Onyx De Kol 341844, Jess Cruse, $275.

Grace Drake De Kol 341840, J. G. Midcap, Ft. Lupton, $400.

Gladys Longfield De Kol 341841, John Kramer, Brighton, $300.

Sunny Flats Mildred 370375, Sam Hanson, $450.

Sunny Flats Dark Lady Johanna 372755, John Kramer, $500.

Avoca Lodge Segis Maid 409206, Sam Hanson, $285.

Pearl of Sunny Flats 430964, Sam Hanson, $310.

Avoca Lodge Pauline Johanna 409199, N. R. D'Arcy, Parker, $260.

Sunny Flats Sadie Rag Apple 430966, Sam Hanson, $275.

Sunny Flats Belle Colantha, Joseph D. Brown, Englewood, $275.

Sunny Flats Lydia Pontiac, Joseph D. Brown, $200.

Sunny Flats Gertrude Colantha, Sam Hanson, $220.

Sunny Flats Netty Pontiac Colantha, Sam Hanson, $175.

Sunny Flats Nancy Walker, Joseph D. Brown, $185.

Sunny Flats Polly Walker, Sam Hanson, $150.

Champion Rigtje De Kol 438036, Chas. A. Rossiter, Lafayette, $525.

Alta Pontiac Tehee 401141, Sam Hanson, $110.

Flivver Segis Pontiac 453889, E. C. Ransom, Parker, $250.

Case Alta Pontiac 2n 448868, N. R. D'Arcy, $325.

Queen Roxy Pontiac Clothilde 484997, Sam Hanson, $160.

Jessie Fobes Champion Star 438051, Sam Hanson, $210.

Avoca Lodge Alcartra Korndyke 459806, Sam Hanson, $200.

BULLS

Western Johanna Champion 86491, F. J. Horton, Goodland, Kan., $210.

Sunny Flats Dirkie Pontiac 234085, Jess F. Cruse, $300.

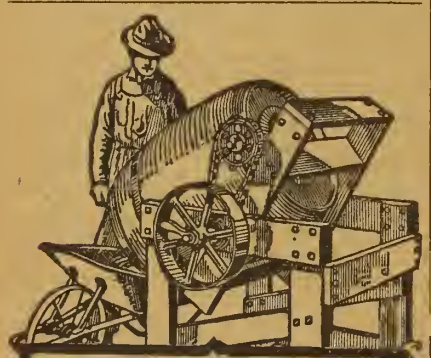
Sunny Flats Sir Sadie Walker, H. C. Boston, $125.

A Rag Apple bull consigned by Avoca Lodge Farms, John A. Ryner, Edgewater, $300.

Has Complied With Law

A files on the E. ½ Sec. 28, makes his proof, moves away and dies. B files on the W. ½ of Sec. 28. When he finds the line between the places, the house that A built is on B's land. B moves into the house and has fenced his land and has 100 acres in cultivation with other improvements. B has tried several times to buy the house from the heirs of A, but they refuse to sell. Will the fact that B does not own the house he lives in prevent him from making his proof?—J. W., Weld county, Colo.

This seems to be a desert entry; if it is, proof will be allowed upon showing improvements have been made to a certain amount. The house therefore, does not count in the improvements. If this should be a straight homestead entry, it would require a different answer.—Hamlet J. Barry, 724 Equitable Bldg., Denver, Colo.



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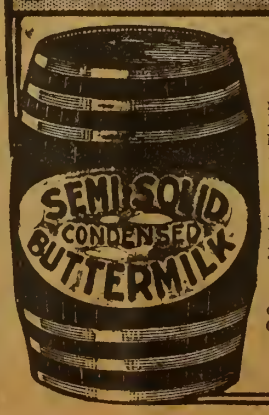

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A Drastic Stallion Law

Governor Shoup of Colorado has affixed his signature to the new stallion law, an act of the recent legislature amending the statutes relating to public service by stallions and jacks. This measure is calculated to shut out the scrub horse and put an end to the business of producing inferior draft animals. It also contains a provision changing the method of offering premiums at state and county fairs and stock shows, making horses brought from outside states eligible to the stallion classes in these competitions. It was passed at the behest of the Colorado Horse Breeder's association, who are united in an effort to improve the quality of animals in use on the farms and to end the practice of unrestricted breeding of inferior horses. The law defines the purebred and the grade and prohibits, by indirection, the use of the scrub sire, as it defines a grade to be an animal whose either parent must have been a registered purebred.

It provides that no stallion or jack may be used for public service in the state without a license from the State Board of Stock Inspection, such license to cost $5 and to be in effect during the calendar year. The license shall specify whether the stallion or jack is a grade or a purebred. In case of a purebred, the application for license must be accompanied by the certificate of registration. In case of a grade, the application must be accompanied by the affidavit of the owner or breeder, in suitable blank form to be provided by the state board, showing the breeding of such grade animal and including the registry number of either parent, and the name of the breeder.

Definition of purebred for the purposes of the law is "one that is registered in a book recognized by the National Registry Board." Definition of grade is "one whose either parent is registered in a book recognized by the National Registry Board."

Any stallion or jack whose parents are purebred, but of different breeds, shall be licensed as a grade.

The license shall state, in large type, that the animal is licensed as a purebred, or that it is a grade, as the case may be, and it shall give the breed, age, color, marking and name or names of the breeder and owner.

Each application for license must be accompanied by a certificate from some licensed veterinarian of the State of Colorado or federal government, stating that the stallion or jack sought to be licensed is not afflicted with any diseases or unsoundness unfitting the animal for service. The law contains a list of such disqualifications. The law also forbids the importation into Colorado of any stallion or jack afflicted with such diseases or unsoundness. Fees of veterinarians for making examinations are limited by the law to $3 and actual expenses for such service.

The State Veterinarian is empowered to revoke the license of any owner who may be using for public service any stallion or jack afflicted with diseases and unsoundness.

An important change from the old law is the section which provides for premiums at fairs. Heretofore such premiums, paid out of what is known as the stallion fund, have been given only to horses bred in Colorado. This shut out from competition many fine imported stallions, which will now be eligible to compete with Colorado horses.

The law is particularly drastic in regard to changing color markings, or making false written or verbal statements regarding the breeding of any stallion or jack, with intent to deceive. Such violations are punishable by a fine of not to exceed $100, or imprisonment in a county jail for thirty days, or both such fine and imprisonment, at the discretion of the court.

Dry Farm Cultivation

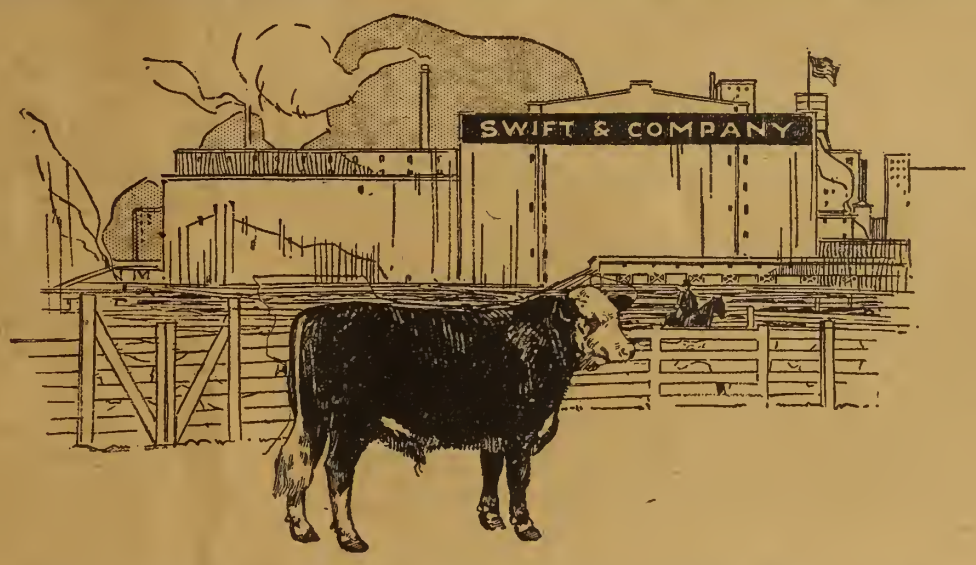
(Continued from Page 4)

used to be thought that a crust turned the crops yellow because it cut off the air, and some instructors went about telling the farmers to get air to the roots of their crops.

The fact of the matter is that all crusts are porous except perhaps one formed by the tramping of cattle. Even an ordinary brick is porous, and a man with a strong pair of lungs can sometimes blow out a candle on the other side of it. When wet soil bakes after a rain the result is a crust. The pores through which the air circulates are the spaces which were occupied by the water since dried out. When water falls on the soil it drives some of the air out. When water dries out of the soil air takes its place. The atmospheric pressure tends to this. That very little air is needed by the roots of vegetation is proved by the fact that many of the most healthy and beautiful trees in our large cities are entirely encircled by solid pavements. In dry farm procedure the theory is that every crust that forms should be broken up by cultivation. In practice this is well nigh impossible; the farmer can only do the best he can. Just as he gets through with his corn, for instance, a rain may come and form a crust all over again.

Deep cultivation does not crust much after light rains and there is no danger of injury to the corn roots if it is kept up until the laying by period, but after corn has been laid by and developed surface roots it would do it more harm than good to cultivate either deep or shallow. For row crops the two horse cultivator with three blades on each side of the row is better than the double shovel, which furrows the interspace too deeply, and better than the four bladed cultivator, which leaves it too smooth. A level granular mulch is needed and rough enough to prevent run off and cause the water to go in. A dust mulch is good for conservation purposes. but not for accumulation, for it puddles easily and prevents absorption. Hilling up corn, potatoes and other crops is rather a disadvantage on the dry farm, since it turns the rain from light showers away from the roots and, there not being enough water to penetrate the interspace deeply enough, the effects are lost. If a crust forms on small grain it should be cultivated with the harrow before it has jointed; but if cultivation is needed later the spring tooth weeder should be used. Winter wheat which has been pastured to cattle and begins to look yellow can be brought back by a good harrowing, especially if accompanied by a top dressing of nitrate of not less than 100 pounds to the acre. It is a great advantage to small grain if it can be brought through the June drouth with a mulch on it.

A bulletin from Nebraska tells us that there the pulverizing roller gives better results than the harrow. The soils of Dakota. Nebraska and Kansas, owing to the moisture absorbing qualities of the type of clay present in most of their loam soils, heave on the surface if frozen when wet and often lift the winter wheat roots almost out of the ground. The roller presses them back and the corrugated edges leave a mulch on the ground. Wherever the ground heaves and becomes loose the use of the roller is clearly indicated; but where it is crusted and packed the harrow will help it. The soils of Colorado, Wyoming and New Mexico, except in the extreme eastern parts, and in fact of all states adjoining the mountains are mostly of the crusting rather than the heaving type.



A steer is worth $1.02 to Swift & Company

That amount is profit

Cattle raisers received an average of $92.70 apiece for live cattle in 1918 from Swift & Company.

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This $1.02 profit per animal made by Swift & Company includes all that was cleared from each animal on its cured hide, tallow, fat, bones, and other packing-house by-products, as well as the meat.

Here are the figures:

	Average per head
Paid for live cattle (all grades)	$92.70
Received for meat	$81.45
Received for by-products	22.06
Total receipts	103.51
Amount remaining for expense and profit	10.81
Expenses	9.79
Profit (interest not deducted)	1.02

What other system or organization of the packing industry can bring about a higher price to live stock raisers and at the same time a lower price in the sale of meats?

Serving the cattle raiser and the public at a cost of only $1.02 per steer is rather economical, isn't it?

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Frost and Rain Report

Reports from county agents in the north central section of Colorado indicate that the rainfall on or about June 1st was of some benefit to winter wheat but not sufficient to insure a normal crop on fields that had already fired.

Adams county: The rainfall was not sufficient to be classed as a million dollar rain. It relieved the serious situation to a great extent, as the rain in many places was sufficient to wet the surface deep enough to connect up with the sub-surface soil moisture. This applies especially to the wheat question. The rain in the gardening section was very favorable as the beets and other vegetables were suffering very much and were not of sufficient size to do good irrigating. This will give them a new start. The rain continued quite steadily for some time but the amount of moisture which fell was very small.—George R. Smith.

Morgan county: We had a general rain over Morgan county on Saturday 31 and Sunday 1st. Most of the crops are improved, especially wheat which had suffered considerable by the dry spell. Our rain was quite spotted, some sections receiving more than others. Three-tenths of an inch seems to be the amount most accurately recorded. We had a frost the night of June 2d that did some damage to garden truck.—Walter J. Ott.

Elbert county: The exact rainfall is not known. Much of our moisture was in the form of hail and snow. It was sufficient to help the winter wheat that was getting pretty dry, but a freeze on the night of June 2 and 3 damaged much alfalfa, beans, corn, etc. Practically all of the gardens were damaged badly by the frost. Frost was worse June 3 than after the storm. —H. L. Ford.

Lincoln county: No definite figures regarding rainfall, but can say that we have had considerable moisture over most parts of the county. The north half seems to have received most of it. The rainfall has been sufficient to benefit small grain.—Scott Wisner.

Weld county: The rain was of considerable help in the vicinity of Greeley and to the southeast and northeast. North and northwest, however, there have just been light showers. A farmer from Nunn reports rain of little value there. The frost hit the tomato plants, beans, sweet corn and also alfalfa in some places.—Mason E. Knapp.

Kit Carson county: On May 31st we received ½-inch rainfall accompanied by a very hard hail which damaged a large area leaving local spots. On June 1 we received .8 inch, making a total of 1.3 inches for that storm. On June 3 and 4 we received another inch in a long steady rain and it is snowing at the present time. Regarding crops, hail damaged the earliest crops. Thirty per cent of the fields were burned and it is a guess as to what the results on some fields will be. I am of the opinion, however, that the prospects will be better than ever on fall grain and it makes spring again look above par as it had not suffered previously—H. O. Strange.

County Agent D. C. Bascom of Larimer county reports that there has not been enough rain to do any appreciable good. Some drizzling showers occurred on Sunday, June 1, and a frost followed that night killing tomatoes and beans.

Boulder county reports indicate that the rain was heavy and beneficial, the precipitation being almost an inch at Longmont. Frost damage was considerable in the higher sections of the county.

El Paso county reports heavy frost damage, and only slight benefit from moisture.

Shorthorn Records Broken

All records for Scotch Shorthorns in America were broken at the H. C. Lookabaugh sale, Watonga, Oklahoma, May 15, when 38 head went through the auction ring for a grand total of $111,850, an average of $2,943. This was more than $900 per head above any previous record on Scotch cattle in America. Three sons of Fair Acres Sultan sold for $30,950; 35 females brought $80,900, an average of $2,311. The top sale was that of Fair Acres Sultan, Jr., who went to William Stewart of Paris, Illinois, at $17,250. J. H. Sullivan and Son, Mangum, Oklahoma, took Max Acres Sultan at $6,100, and W. S. Bowles & Son, Enid, Oklahoma, paid $7.600 for Pleasant Fair Sultan.

Nine of the thirteen daughters of Fair Acres Sultan were taken by buyers outside of Oklahoma, the whole 13 bringing $28,750, an average of $2,211. Pleasant Violet Bud topped the sale among these, William Stuart paying $4,400 for her. The highest price received for any female was $5,000 for Imp. Gowan Cardigan with calf at foot. She was bought by Donald Gunn, Duncan, Oklahoma.

The 20 head in the sale of Mr. Lookabaugh's own breeding brought $67,250, an average of $3,367. The total he received for 16 sons and daughters of Fair Acres Sultan was $59,700, an average of $3,731.

South Idaho Breeders Organize

The Southern Idaho Hereford Breeders association was organized at Burley recently with the following officers: President, H. F. Deardorff, Malta; vice-president, Walter Blanchard, Buhl.

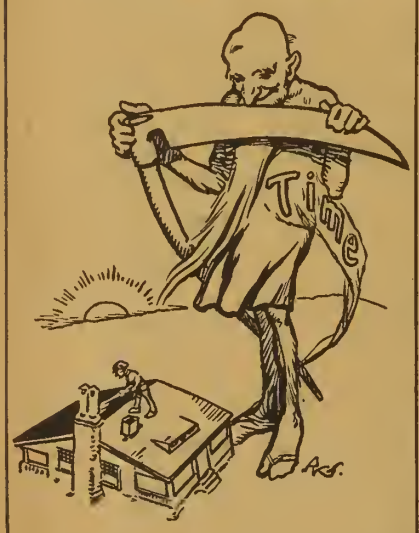
The organization was formed at the instance of County Agent E. E. Chester and E. F. Rinehart, field animal husbandmen of the University of Idaho. The objects of the association are set forth in the constitution as follows:

"The object of this association shall be to encourage and extend the influence of Hereford breeding and safeguard the interests of the members by creating better trade opportunities and, as far as possible, co-operate to their general advantage and profit; to promote closer relations between the membership and to stimulate greater activity among them.

"To arrange for holding public sales at which sales each member may consign the stock bred and raised by himself or one used as a breeding animal in his herd not less than two consecutive years; to provide a careful inspection of the entries for these sales in order that a creditable offering may be assured.

"To arrange for exhibits at local and other fairs that may be agreed upon and, wherever necessary, selections of individuals from various herds in order that the show group may represent the best of the association's cattle."

The Test of Time



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The Chandler is famous for its marvelous motor and the sturdy strength of its whole chassis. In essential features of design and construction it checks with high-priced cars. It is the most closely priced fine car. You are asked to pay hundreds more for cars which perhaps might reasonably be compared with it, and cheap cars sell for almost as much.

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The Egg Situation

The Ozark hen is now being called upon to help the European food situation and "laid in Missouri" eggs are being shipped to Glasgow and Liverpool. the Ozarks contributing largely to shipments. One St. Louis commission firm contracted for six million eggs the other day, and local shippers have been asked to help fill the contract. This is the first time such a contract has been made so far inland, foreign trade depending on eastern markets heretofore.

In addition to the home demand for eggs, eggs are moving for export, shipments having been made the last month to Europe. It is definitely reported in the trade that one large house is storing for shipment on an order to Europe in the near future a total of 300,000 cases of eggs. Of this total, 100,000 cases are being put away in New York, 100,000 in Chicago, 50,000 in Detroit and 50,000 in Lincoln, Nebraska.

This should serve to show that the demand for eggs is probably greater tban it ever was before, while we do not have the source of supply that we have had in other years. There is a slight increase in the number of hens in the country over the number last year, but not as many as were on farms and in the poultry breeders' yards prior to 1918.

You cannot get away from the law of supply and demand as a factor in governing prices. You may disregard the cost of production as having anything to do with the selling price, but rest assured that when an unusual demand exists for any product the price will go up. Eggs are higher in price this spring than they have ever been at this time of year, but the demand for eggs is heavier than ever before. The price of eggs, however, is not out of proportion with the prices of everything else.

Not many persons accuse the producers of getting too much for eggs, but the commission men and cold storage men are constantly being flayed for robbing the people. If a commission man or a cold storage man is successful and makes money he is accused of robbing the farmer and of robbing the dear people—in other words, he is accused of working both ends from the middle, and is a crook and not fit to associate with decent people. But if a merchant who deals in women's wearing apparel and caters to the class of women—those same women who are most active in club affairs and boycotts—who wear expensive things that are not necessary for bodily comfort, amasses a fortune, he is much to be admired.

Notwithstanding all the efforts that have been put forth by poultry breeders to produce better laying hens—hens that will be efficient winter egg producers—it still remains that the great volume of eggs is produced during the spring months, and thus far no system of utilizing all of the spring output of eggs has been devised other than that now employed by the commission men who buy the eggs and put them in the cold storage plants. Under the present system enormous quantities of eggs are saved and made available for use during the winter when the production is lowest. Without this system of handling the product of the hen, eggs would be a drug on the market in the spring, and would be so scarce, and the price so high, during the winter that, except in a few cases, they could not be considered as an article of food. The cold storage egg business is a big business and, like the packing business, railroad business, and other big businesses, there are times when it needs regulating, but no one yet has been able to devise any system of handling the egg crop, so that eggs are available at all times of the year, that is better than the system now employed. A boycott on eggs, while it may have some local effect, will not affect the price as a whole.

The cost of distributing eggs is quite an item, often amounting to more than the producer receives for the product, but no one yet has presented any plan whereby this distribution cost can be lowered. Some weeks ago Food Commissioner Ladd of North Dakota stated that 69 per cent of the final selling price of a dozen eggs goes to the cost of distribution. If a dozen eggs sold for a dollar, 69 cents would have been spent for distribution. Mr. Ladd found that the distributing cost of oranges is only 20.3 per cent.

"The orange growers of Florida and California are organized," he said. "They advertise extensively. They have built up a national demand for their fruit, and it is having a bigger sale today than it ever had before. Experts have figured that distributing these oranges is not half so expensive as distributing a product that is not advertised at all."

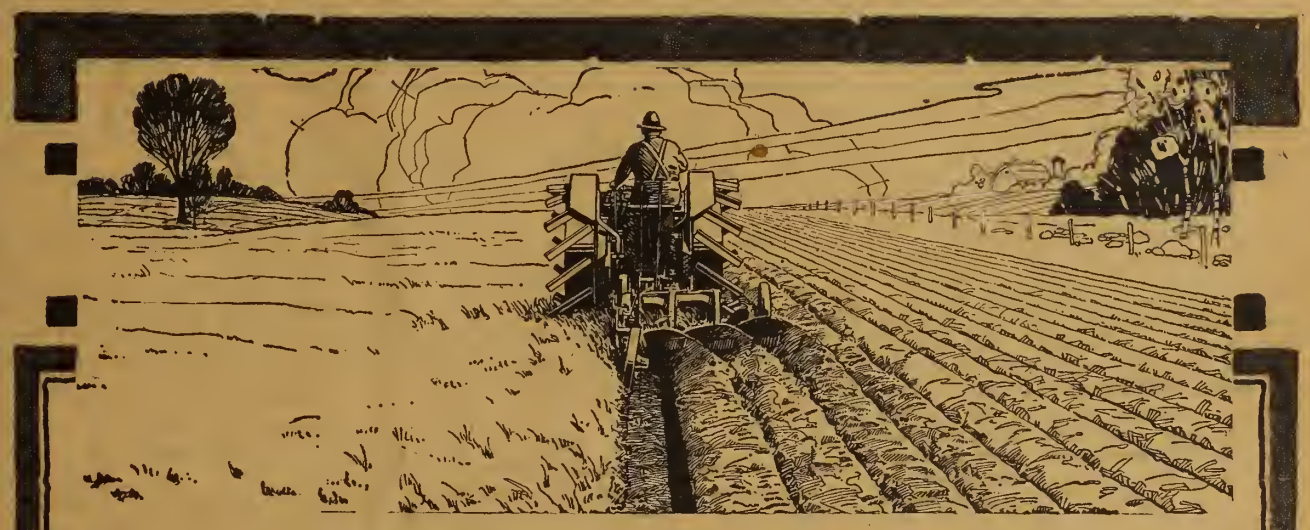
I gather from this that Mr. Ladd thinks that if egg producers organized and advertised their product that greater consumption of eggs would result and the distribution cost would be lowered. I am in favor of some poultry organization putting on an advertising campaign for the purpose of educating the public as to the real food value of eggs. When the food value of eggs is known universally, consumption of the product will take care of itself, and egg boycotts will be a thing of the past, regardless of the price of eggs. But egg producers cannot organize as have the orange growers, for the reason that oranges are grown in quantities in only two states, whereas eggs are produced in almost every nook and corner of the United States. Community production of one grade and color of eggs and community marketing is the best solution advanced thus far in the interests of the producers. In the interests of the consumer, a shorter route from producer to consumer by eliminating some of the handling under the present system of distribution would give the consumer better eggs, but it is doubtful whether it would mean a reduction in price. At the present time many consumers pay more than the market price, and are glad to do it, for strictly fresh eggs that come to their homes direct from the producers.

The foregoing is rather significant, but let us consider the price of eggs as compared with the prices of a few other articles of food. The average price of eggs for the year 1913 was 34.5 cents a dozen; the average price for 1918 was 56.9 cents. In 1913 round steak averaged 22.3 cents, bacon 27 cents, butter 38.3 cents, milk 8.9 cents a quart, and flour 3.3 cents a pound, and so on. In 1918 the average price of these same articles was, round steak 36.9 cents, bacon, 52.9 cents, butter 57.7 cents, milk 13.9 cents, and flour 6.7 cents. The question naturally arises, why the boycott on eggs, when the price of eggs is not out of line with the price of every other article of food? Eggs always "get theirs" first, yet there is no substitute for an egg.—G. D. McClaskey, American Incubator Manufacturers' Association.

Something Wrong

A sale bill bearing the signature of "Will Quit Work" has been going the rounds of the press and purports to be a Missouri auction sale, giving evidence of what queer combinations can be made by a printer who is suffering from the effects of a night out and badly pies the galley. The bill announcing the sale includes the following list:

"Twenty-five good cows, broke to work; 41 head of cultivators, coming in soon; 10 head of shoveling boars, with scoops by side; 8 piano mares; 120 rods canvas belting, better than new; De Laval cow, with ice cream attachment; McCormick binder, in foal; Poland-China bobsled, due to farrow in April; 14 head of chickens, with grass-seed attachment, in good working order; 2 J. I. C. riding heifers, good as new; spraying outfit, can be ridden or driven by children; 15 billy goats, 70 bushels capacity, with spraying nozzle and other attachments; many other articles too numerous to mention, which I expect to get at night between now and date of sale."—Country Gentleman.



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Operate on Cheap Fuel

All tractors of the same size use about the same amount of fuel. It is not uncommon to use 1000 gallons in a season. International and Titan tractors operate on common coal oil, which costs about half as much as gasoline. Even if our tractors were superior in no other way, the fuel saving would make it worth while to own an International.

Tractor Service

Every tractor owner needs service at one time or another. When that time comes our Service Organization of 89 branch houses and thousands of dealers responds quickly. Think what it may mean to you in a rush season to get a repair part or have an adjustment attended to within a few hours. Every International or Titan tractor owner who needs service gets it without unnecessary delay or trouble.

Our tractors are made in three sizes, 8-16, 10-20 and 15-30-h. p. All operate on kerosene, or any other oil fuel down to 39° Baume. We will send catalogues with full information about tractors or any other machines in the list below. Write and tell us which machines you are interested in.

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Planters Drills
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Motor Cultivators
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CHICAGO U S A

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W. E. VAPLON.....Poultry Raising
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The Editor Needs Your Help

To the Editor:

Why should not the subscribers of Western Farm Life be considered stock-holders? Granted that they are entitled to such a dignified position, why should they not, and why do they not, occasionally at least, voice their wishes, out loud, regarding the material dished up from time to time? Personally I should like to have those readers who appreciate the fact that there is a poultry department in Western Farm Life call for discussion, or lead in a discussion of such matters as are of greatest interest and importance to them. A peculiar problem may be worrying some one; a discussion of that problem in Western Farm Life may help bring a solution. A certain experience may have been of value to one reader; the relation of that experience in Western Farm Life may be of help and value to another reader. Some one may have solved the marketing question for himself and were the fact known, another might readily adopt the same plan and be benefited. Will you give your readers an editorial on the subject and suggest that they relate experiences that have proven valuable.

Have them suggest topics for discussion by your writers.

Ask questions more freely, present ideas that may help the editor to present material in a better way.

Criticize constructively.

Commend any particular policy or article that pleases.

Somehow the readers of Western Farm Life of late have seemed to me as being one big, comfortable, happy family and possibly such co-operation as suggested may make us better acquainted and even more congenial?—W. E. VAPLON.

To which let us add a few lines. The other day a farmer called upon the editor and when asked for suggestions as to making Western Farm Life more useful, said: "I have only one objection to your paper; you do not print enough articles about the actual experiences of farmers. I like what the experts write and I know it is helpful, but if we could have before us in every number several short letters from farmers who have done some one thing particularly well it would add fifty per cent to the value of your magazine."

Every reader must admit the truth of this statement. The editor is in much the same position as the minister at the old fashioned prayer meeting when voluntary petitions to the Almighty are few and far between. He doesn't like to call on Brother Briggs or Sister Dorsey, but if things do not liven up a bit, he will be compelled to draw out some of the bashful members of the congregation and make them speak. We get plenty of letters asking for help and advice, and gladly give the best we have in response, but we could answer some of these questions a lot easier if, in turn, the farmer or his wife—or one of the children—would favor us with letters of experience in regard to some crop, some method of handling livestock, some way of applying water, some way of conserving the moisture that comes from the clouds, some plan of simplifying house work, some form of co-operation or neighborliness that has benefited them or the community, something constructive and helpful that could be passed along to others of the big Western Farm Life family. What do you say neighbors? Shall we take Mr. Vaplon's suggestions and freely give, or do you want to wait till the editor begins to call you up by name?

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The Hired Man Speaks

All too often when discussing the farm labor problem we overlook the side of one important party to the deal, namely the farm laborer. There are other things to consider besides wages. In El Paso county, Colorado, there is a county agricultural agent W. H. Lauck by name who used to be a farm hand. He had something to say in the El Paso County Democrat recently on the farm labor question that is worth passing along and thinking about by all of us who have ever employed men and women on the farm. His statement needs no added comment. It follows:

"Since I have been a hired man a considerable part of my life, I have had some real experiences myself. It's often the little things that are left undone, to show we are interested in our labors, that make for discontentment. We should be interested in the general welfare of our workers if we expect the highest kind of efficiency from their labor.

"No one will show the greatest amount of loyalty to another if he or she is made to feel that they are in an inferior class. This is contrary to American ideals. The following came under the writer's notice one time in working for an Iowa farmer, who had lived in the city and then moved to the farm to raise purebred Shorthorn cattle. It was convenient to have the three hired men eat at the same long table, with the family at one end and the men at the other. The family had hot biscuits, cream and fruit for breakfast, while the men had cold lightbread, skimmed milk and no fruit at the other.

"I did not wonder that these men did not stay long; in fact, if they had stayed it would have been an indication of lack of "guts" that make good Americans.

"It takes the hearty co-operation of every member of the family and the community at large to make things attractive for the real good men who labor on the farms, or who might be induced to do so. Communities must work on the social problem if we attract the best class of labor for our farms."

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Corn Belt Farmers Worried

Reports from the corn belt indicate that corn planting has been delayed over large areas, and in other sections the early planted corn has been killed by excessive moisture and cold. The Breeders Gazette goes so far as to predict another year of soft corn. It is urging farmers to build silos in preparation for saving the crop which may not mature.

Damage to the corn crop in the Mississippi Valley states invariably means a loss to the nation. In spite of the tremendous acreage of wheat, the money value of a normal corn crop still exceeds the value of a billion bushel wheat crop. Corn is the most sensitive factor in the agricultural wealth of the nation. Excessive moisture, a cold spring, hot winds, drouth—these are among the risks which the corn belt farmer faces every year. These risks are every whit as great as those which come to the mountain states farmers on either the irrigated or the dry lands. While conditions in the West this year are spotted, some sections being short of moisture, others having suffered from an abnormally late freeze, we still have practically the entire growing season before us. Because of the high percentage of sunshine and the consequent rapid plant growth in high altitudes, our crops are more quickly made than those in the humid regions. Comparing the two regions, present conditions in the mountain states are more favorable than they are in the corn belt. If we raise plenty of feed and stick to the livestock program we are sure of at least a normal year and possibly of another unusually profitable season.

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Not Wild Sunflowers

Writers on the subject of sunflower silage should emphasize the fact that the sunflowers in use are not the native plant but the Russian sunflower. Wild sunflowers infesting fields of grain are often used as forage, but they add nothing to the value of hay and are not desirable when cut for ensilage. There would be no profit in attempting to cultivate or propagate the native sunflower which is a weed and not a food plant. It does not have the value as a food and cannot produce the bulk necessary to make its cultivation as a silage plant profitable. Russian sunflowers grow several times the size of the native wild plant. It is the Russian sunflowers that the farmers of the mountain states are feeding and not the common or Kansas variety. This statement is necessary in view of information recently sent out by a railroad agriculturist on the subject of ensilage from sunflowers, in which he referred to wild sunflowers. Unless this mistaken notion is nipped in the bud it may result in the gathering of wild sunflower seed and the sale of this to farmers who have not read the articles in which the experiments with Russian sunflowers have been detailed.

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Away Out West

W. D. HOOVER

In the minds of most Americans, sugar has been associated with the jungles, slave owners, the silvery moon and the bamboo tree, all the dank and noisome mysteries of the cane fields, the enervating life of the tropics.

Why should it not instead be associated, like the pure white energy-giving crystal it is, with the clear, cool air, the snow white sparkling peaks of the Rockies, the bright sunshine and the activities of the free American farmer of the Great West?

Our future national success will be determined, not by how many more acres, but by how much more an acre of land can be made to produce.

During the last five decades American industrial development was largely due to the rapid "opening up" of the vast domain west of the Mississippi river, through the phenomenal railroad construction, and the manufacture of man power saving agricultural implements.

During the next five decades our national industrial life will be determined by the prevalence of well-balanced farming throughout this same territory.

The continued development of both man and horse power saving machinery, the national acceptance of the sugar beet, and a policy favorable to qualified agricultural immigration will be great contributing factors.

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During the long period in which apples and peaches brought very low prices, fruit trees were not properly cared for and especially were not kept pruned. It is not generally known that a fruit crop is an expensive one. When receipts were small growers were compelled to turn their attention to other crops to make expenses; the result was that fruit lost its quality and then prices did revive, was not in the best condition for market. The past two or three seasons when prices were much better, growers have been able to give more attention to their orchards; trees have been pruned and sprayed and fruit will doubtless return to its former profitable basis.

The Branding Iron

Applied by Elias M. Ammons

The Co-operative Fruit Association of California marketed $42,000,000 of citrus fruits the past year without losing a dollar in collections.

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So far there have been 23 Farm Bureaus organized in Colorado. As there is a bureau for each county, this means that there are 23 agricultural counties in the state that have effected such organizations.

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The National Livestock Show at Denver intends to emphasize Boys' and Girls' Club work in livestock and has appointed a special committee to arrange for competitive exhibitions at next January's show. This committee is composed of George T. Wells, Chas. McAllister Wilcox, Alvin Steinel, Maude Sheridan and H. H. Simpson.

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Because of the large increase in the wheat and beet planting in the Greeley district, only about 65 per cent of the normal acreage in potatoes has been planted this year. There is also a shortage in the Carbondale district, but in the San Luis Valley, Montrose, and other potato producing sections, there seems to be a sufficient increase to offset the shortage in the Greeley and Carbondale districts.

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The Fort Lupton and Brighton districts expect to ship 2,000 cars of cabbage this year, in addition to the large amount to be used in the factories for sauerkraut. Much of this product will go to the South. Cabbage there will be harvested early in the season, and by the time the product is ready here there will be nothing left along the Gulf coast. Because of climatic conditions, the Colorado cabbage is of much better quality and finds a ready market all along the Gulf coast line.

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A protest by a large number of livestock associations has been sent to Secretary Lane against the enlargement of the Yellowstone National Park to take in considerable sections of the state of Idaho. These associations insist that many thousands of cattle and sheep will be driven off their summer range if the Park is extended. The National Park Bureau wants the territory and the Forest Service wants to retain it. "When friends fall out other folks may get their dues."

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In dividing the country into regional districts for vocational education, Denver has been chosen as permanent headquarters for the Trans-Mississippi zone, which comprises the states of Montana, North and South Dakota, Wyoming, Nebraska, Kansas, Oklahoma, New Mexico and Colorado. Temporary headquarters have been in Kansas City. The offices will be moved to Denver about July 1st, and located in the old Federal building. The establishment of the district office at Denver will make this city a center for practical education and exert a strong influence toward the establishment of vocational training throughout the state.

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During the past year there have been constructed in the San Luis Valley 97 new storage houses for potatoes. One of the greatest difficulties experienced in the disposition of the potato crop has been the want of facilities for holding the crop after digging time. Often cars could not be secured, and the congestion in freight in the fall of the year has been so great that the crop could not be disposed of. During the past few years a campaign has been under way to secure the construction of storage plants so that the necessity for marketing the potato crop in the fall would be avoided. With adequate storage facilities, growers are enabled to hold their potatoes until spring, if necessary, when prices are generally better and the markets are in better condition to receive the spuds. Advantages gained so far are so favorable that the number of storage houses will probably be greatly increased the present year.

Comment by Farmer Putnam

ATTENDS SOME MORE COW SALES AND ALSO HAS SOMETHING TO SAY ON PRAYER

GOSH how I love to attend them cow sales! I been a-goin' around with the editor ag'in. First we went up to Greeley, in Knapp county, to help Delph Carpenter git rid of some of his Bates Shorthorns. Delph didn't need us. He could-a sold three times that many if he'd a had 'em. We went up on the Colonel's Special via the U. P. Them Colonels was not military but auctioneer Colonels. Senator Carpenter had one Colonel fur each two bulls that he sold. Colonel Gross of Kansas City was in command, assisted by Colonel Buchanan, Colonel Snook, Colonel Jennings and Colonel Hayes. If General Pershing would-a had a squad like that with him in France, we'd a won the war even quicker than we did. He had too many privates and he had to give 'em all a chant to fight, turn about, or they'd a got sore and went home. I never seen a sale go off quicker. Col. Gross is a whizzer anyway. He sells cattle so fast that the buyer lots of times don't know he's bought somethin' till the auction is over, and some fellers that come to buy is bound to git left. There was some good boosters in the crowd. Johnny Klug has been a-buyin' Herefords of late, but he sure had kind words fur them milkin' Shorthorns. He said the feller on the farm where he was raised back in Missouri had some of them Bates cows and that they were everlastin'ly givin' milk. You just couldn't dry up them cows.

I guess he knowed what he was a-talkin' about, fur I kin recollect when I was a young feller, one of our neighbors in Platte county had three head of them Bates cows, and they waren't even pure Bates, but just Bates topped. Well sir, all three come fresh at the same time, and this farmer was kind-a short of hands, havin' only three boys workin' fur him at the time. He sent a feller over to our farm to git some more help and we let him have a man. Well, the next day our man didn't come back so I rode over to see what was the matter. When I got to the barn why they was two of the boys ridin' around in a skiff, in a reg'lar lake, and I sez: "What's the matter, boys, did the crick run over?"

"Nope," they sez, "them durn Bates cows of ours all come fresh at onct and Dad and four hands has been milkin' by turns fur thirty-six hours to keep the milk from washin' out the foundation to the barn. One of the boys was so wore out last night with a sore wrist that he quit milkin' fur a while and he liked to got drownded. They got 'em milked down now and Dad is out roundin' up six more calves to put on 'em. Bet your life Dad's goin' to be careful never to breed them three critters at the same time ag'in."

They're sure the milkin'est cattle I ever seen! And then besides they is duel purpose, that is, they kin hook and kick at the same time.

Well, the next sale I went to was out to Boston's farm, in back of Fort Logan. This was Holsteins—some of the best cows that we got in the state, and they sold high, goin' up to $700. Colonel Banks was in charge and Colonel Buchanan was the pedigree man, it bein' his duty to reel off the Rag Apple and Hengerveld de Kol business. I met a couple of fellers from Kansas at the sale, Mr. Horton and Kysar of Goodland. They just come to look around, they said, but I'm allus suspicious of them kind of fellers at a sale; they generally has a pocket full of money and is ready to spend it. Well, I found out them two was a lookin' fur bargains and they got one when they bought Western Johanna Champion, the herd sire, which they took back to Kansas to improve some of the Holstein herds in Sherman county with.

It's funny about the cow game. When a feller onct gits into it he cain't hardly let go. Sam Hanson tried to give up by havin' a big sale this spring, when he broke the record on Holstein purebreds fur Colorado. He sold off pretty nigh everything. When he heard about Mr. Boston goin' to sell out he sez: "Well, I'll just go over to Sunny Flats and see them cattle sell."

He went on over and sat down to watch the other fellers buy cows. Well it wasn't long before he begin to git nervous and fidgety. By and by, when things seemed a little quiet, Sam would start a cow around $150 and then watch some other feller buy it. So it went on till Col. Banks got to noticin' who was biddin', and the next time it happened Banks sez: "Sam, you've bought a heifer!" Well after that Sam was in the game ag'in fur fair and he come away with a nice string, mostly young ones.

What I like about them Holstein fellers is the way they sticks together. Carl Hall, Mr. Donley, Mr. Simpson, Mr. D'Arcy and other breeders was at the Boston sale, helpin' out with pedigree information, and tellin' others about the good points of the cows. One thing I noticed was that when any of them breeders made a bid, why they bought something; they wasn't thar to run up prices on the other buyers. It's co-operation that's made the Holstein go ahead so in the mountain states—co-operation and big milk yield.

That's about all on cow sales fur this time. I reckon I'll git my foot in it now, because I'm goin' to write on religion, which is forbid in this paper. I was readin' in the Greeley papers where some of the parsons in the dry farming part of Weld county was goin' to pray fur rain, because the winter wheat was lookin' poorly. Well they prayed and about a week or so later it rained. So fur so good. But, when the rain come it also snowed and then we had that June freeze, when the truck crops was damaged, and fruit was hurt in the valleys, causin' a big loss to irrigated farmers. Well what I'd like to know is what was the matter? Lack of co-operation ag'in?

I ain't no parson, though I was raised pretty churchy and allus attend service when I'm not too busy, but what I want to say is, prayin' fur rain is all right, but it ain't enough. You got to summer fallow, plow deep, keep the weeds down, conserve the moister, sow light and then pray, and you'll generally git a wheat crop on dry land. I don't suppose any of them dry land farmers went to church that Sunday with a umbrella. Nobody was expectin' any rain to come of the prayers and I reckon them preachers was as much surprised as anybody when it did begin to shower even a week late. The same way with them truck gardeners in the valleys; they waren't expecting a killin' frost in June and they probably hadn't prayed fur warm weather to keep up.

Between the two I'd a heap ruther take my chances with the dry landers and drouth then with the irrigators and frost, prayers or no prayers. You kin lay up moister fur the dry spells, but they ain't no way to prevent frost on big fields. They is chances in all kinds of farmin', and that's what makes the game interestin'. If it warn't fur the frosts and drouths and winds any durned fool could farm. It takes brains and patience and wit to git around nature's obstickles, and I reckon the Almighty knowed what he was doin' when he refused to let every Tom, Dick and Harry regurlate the weather. We'd have a pretty state of things if all we had to do when we

(Turn to Page 12)

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Income Tax Question

In keeping account for the income tax I made a record of all cream checks, eggs, hogs, grain, cattle, horses, in fact everything sold off the farm; also any money received from any source and deducted farm help, taxes, feed and seed bills, and allowances for wife and baby. It left no income tax to pay. Not being able to get blanks at our trading town, I went to a neighboring town and had a banker help me make out my report. He made me go back to January 1st, 1918, and state what I had on hand on that date, such as livestock, grain, hay, etc. He figured that the difference was my income. I have been told since that it was unnecessary to go back to January, 1918, as I did not keep a yearly inventory. How about this?—W. McD., Wyoming.

You are correct; it was not necessary for you to go back of January 1st, 1918, and give what you had on hand. Income tax blank shows that you would have to fill out space for inventory only in the event that you kept a set of books, and that you had made a regular inventory at the beginning of the year, for which the tax was being collected. In order to avoid similar trouble in future, we are mailing a booklet entitled "The Farmer and the Income Tax," and also one of our farm record books. This goes to you as a subscription premium on your renewal of paper for two years. You may start now and keep a complete account of your transactions and then be able to fill out your income tax blank next year without consulting anyone else.

Improvements Are Required

I filed on a homestead three years ago, am living on it, but have not proved up. I have $1,500 worth of improvements on it. I have taken an additional in the same section under the grazing act. Am I required to put $400 worth of improvements on this additional? —J. B. L., Pueblo county, Colo.

The law covering your case says: "Under section 4 of this act any person, having a homestead entry which shall have been designated under this act, upon which he has not submitted final proof, may make entry of contiguous designated lands, which, with the area of his original entry, shall not exceed 640 acres. On submission of proof of such additional entry he must show residence on either tract to the extent originally required, but will be entitled to credit for residence on the original tract before or after the date of the original entry; he must also show improvements on the additional tract to the value of $1.25 for each acre thereof. Proof on the additional entry must be submitted within five years after its allowance within five years after its can be shown, but not before submission of proof on the original entry.'

Oral Lease Is Good

I have rented a farm. The owner gave me my choice of either one-half the crops, or cash rent. I agreed to take the place for cash rent. He put me off from time to time and did not give me a written lease. I took possession and now he wants to impose some terms that were not in our verbal agreement. What is the status of my lease? Can he force me to change the terms now?—Subscriber, Colorado.

An oral lease is good for one year. Apparently you have a lease but that depends upon all the facts, and you have not related all of them. You do not have to agree to any terms which the owner tries to force on you later, and if he has damaged you by his insistence, you can recover for any damage suffered.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Books on Livestock

Can you recommend some good books on feeds and feeding, soils, fertilizers, stock judging, etc.?—F. N. K., Gunnison county, Colo.

We would suggest the following: "Feeds and Feeding," by Henry & Morrison; "Breeding of Farm Animals" by Prof. F. R. Marshall; "Farm Management" by G. F. Warren; "The Soil" by F. H. King; "Judging Livestock" by John A. Craig; "The Fertility of the Land" by I. P. Roberts.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Misunderstandings cause much heartache and disasters without end. Recently several stockmen in northern Colorado lost cattle through causes undetermined. They consulted two practicing veterinarians by telephone and by personal call, but were unable to get much information, as they did not take a veterinarian to the scene. They then reported the matter to Western Farm Life. This thing should be remembered by stockmen and farmers of Colorado; there is a way whereby losses of animals from infectious diseases may be investigated without expense to the owner. This does not apply to ordinary ailments such as result from improper feeding, accidents, surgical cases, etc. On these cases the college veterinarians are glad to give advice "in absentia," but if professional attendance is desired it must be paid for in every instance. A regiment of veterinarians would be required at the Agricultural College to treat all of the sick animals in the state, and this is of course absurd. However, if several animals are affected with what appears to be an infectious or contagious disease, immediate assistance may be obtained from the office of State Veterinarian, State Capitol, Denver, or by communicating with the Veterinary Department or the President of the Agricultural College at Fort Collins. The State Veterinarian at Denver has charge of the regulatory work in animal disease control and is the first one you should call for assistance if contagion is suspected. The veterinarians at the college are engaged in educational, investigational and extension work in veterinary lines, but always ready to help in every possible way. Contagious diseases among animals are a menace to the state, and ways and means looking to their control have been provided by statute.—Geo. H. Glover.

Mule Has Indigestion

I have a good mule 12 or 14 years old that has sick spells. He lies down and is easy, but when up he walks and wants to lie down. He sometimes rolls like trying to lie on his back. He is running on green alfalfa pasture. I have given him Humphrey's Specific for his kidneys. Can you tell me what to do for him? His appetite is not good.—J. M. S., Mesa county, Colo.

The mule apparently has indigestion and the green alfalfa may be the cause. See that his teeth are in condition to properly masticate his food. A change from dry feed to a whole ration of green alfalfa is dangerous for any animal but more especially for the horse or his hybrid. The symptoms given do not indicate disease of the kidneys or bladder. The fact that spasms in the intestines interfere with the normal functioning of the bladder, has led to a mistaken notion that in coliky conditions, the kidneys are affected. This mistake is facilitated by reason of the fact that the horse while suffering pain in the abdomen will always reach around with his head and place his nose in the region of the kidneys. This he will seldom do when his kidneys are actually diseased. If symptoms of indigestion become severe it may be well to withhold all feed for two or three days, after giving an active purge.—G. H. G.

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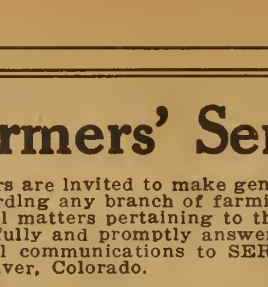

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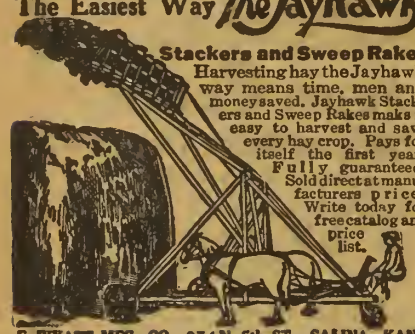

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Cushman Engines weigh only one-fourth as much as ordinary farm engines, but they are balanced so carefully and governed so accurately that they run even more steadily and quietly. They are also the most durable farm engines in the world, on account of improved design and better material and construction.

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Comment by Farmer Putnam

(Continued from Page 11)

wanted rain or sunshine was to call up the parson and say: "Brother Owens, my pinto beans is droopin' a little today and I'd like to have you order me about a half inch shower fur tonight to revive 'em." And then a little later some other farmer would call up Brother Owens and say: "Be sure and don't order no rain fur a week. I'm cuttin' hay beginnin' tomorrow."

What would Brother Owens do under them circumstances, do you reckon? Act accordin' to which brother that called him up was the most influential member of his flock? I reckon he'd leave the weather alone and preach to his flock to follow good farmin' practice, recognizin' the climatic limitations of the country, puttin' out such crops as is likely to stand the severest weather, quit gamblin' in any crop and stick to livestock—beef, milk, pork and poultry—and pray fur a clean heart, honest intentions and a neighborly interest in their fellow men. I think I hear Billy Hill hollerin' "Amen" down through the canon!

THOMAS JEFFERSON PUTNAM.

Plumbing is becoming a necessity in both city and country homes, not only for comfort and convenience, but even more for health and cleanliness. It also provides for the proper disposal of the wastes of the household, which should by no means be neglected.

STEAMBOAT GOLD

By G. W. OGDEN, Author of "The Holy Scare," "Cowardice," "The Bondboy," "The Crucible of Courage," Etc.

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CHAPTER XXIV.

THE RETURN OF COMMERCE

The little branch of river that had reached behind the store had widened during Moore's arraignment of the mob until now it ran an unfordable torrent.

Mystery Gregg stood shivering in the lantern light as if a chill had struck her. After a bit she began to cry, and would not be comforted by Juliet's brave assurances and that all would end as God might will.

"I can't stand any more; I can't bear to stay here and see—and see—" She finished her weeping protestation by a terrified gesture toward the old store. The schoolmaster put his arm around her, and calmed her, and pressed her to sit down and rest. "No, no—I want to go home; I want to go home!" she said. "There has been so much suffering today—I can't stand to see any more!"

"Hugh will take you home—he can take a horse and buggy, Juliet?"

"Of course. Rouse up one of the men, Mr. Atchison, and tell him I said to drive you over."

"I think you'd better go to the house with them, Juliet," Randolph suggested in all tenderness. "I'll stay by till—till morning."

"I'll stay with you."

"It's a long time till daylight again, Juliet—you'll be worn out."

"I'll watch here with you, Jonathan."

The schoolmaster took Mystery tenderly by the hand and led her away.

Juiet was greatly troubled over the old man's perils. She proposed many impossible schemes to lure or drive him out of the shivering old building, which was coming in greater danger of the river every hour. On both sides of it now the current was eating away the earth; each mass that slumped into the river sent waves climbing toward the ground windows, lapping the dusty panes.

Randolph assured her in some measure after a while, and drew her a little farther away up-stream, where they could watch the old man's shadow as he came and went about the preparations for the trade which his broken mind believed would come on this new flood.

"It's hard to believe, he's so clear and rational in everything else. He knew those men—didn't he lecture them, though?"

She appeared a little proud of the old man's payment of a long-standing score, and to share his triumph with him, as Randolph himself had warmed with Moore's denunciation.

"But there is no doubt, Juliet, that his mind has broken at last."

"Listen! Hear how the bank's going all up and down this side. Oh, isn't there some way to save him, Jonathan?"

"If it keeps on cutting over here, Juliet, and scouring the channel out like it is, it will recede into its own bed in a little while and leave him safe."

"The river has taken a great deal from you today, Jonathan," she said. She was sad, regretful, standing beside him, watching the beam of her grandfather's light quaver over the encroaching waters. She was calm, as if the tempest of her fear had passed.

"It's nothing to me now, Juliet. That's over; it's done."

The light of their own lantern shone up into her face. He had turned to her as he spoke, and now stood gazing as if his soul drank its satisfaction after a long thirst.

She was bareheaded, her hair had broken its bonds and fallen in lovely disorder on her neck, a strand of it shadowing her cheek.

"All your work is lost, all your brave hope wasted," she said, gazing away thoughtfully into the darkness that pressed upon the river. "Oh, Jonathan! it must have emptied your poor heart."

"It would be a poor heart," he said gently, "if that could empty it of hope. The river took a great deal away from me today, Juliet, but as your grandfather said, it left more than it swept away."

"It was there, almost in your hands."

"Yes, I'll go on believing that the treasure was there. The river's got it, but it didn't leave me poor. It left me youth and strength, courage and new hope—more ahead of me than I ever had before. Life balances yet, Juliet, as they say it always has done. I have my compensation for disappointment and spent hope; I've been paid a good deal quicker than life makes its adjustments in the general run of things."

So there came love in that sad hour, with its sweet ministrations; love, always young, and warm of touch, as death is old and sorrowing.

Moore was carrying and arranging his old wares; the sound of his labors was plain to them. It was almost midnight. The river was rising rapidly as the breach at the head of the Narris widened, letting more of the flooded stream come pouring through. It had cut so close to the foundation of the storehouse that now and then the branches of a tree scraped its weatherboarls as the current whirled it by.

Only a little triangle of land was to be seen up-stream from the building now, on which it seemed to ride like a house on a barge. Once in a while Moore would come to the door, his shadow leaning out over the water as he stood in the light. After searching the river as if for something expected, or to mark its stage, he would turn back to his work.

"The channel is deepening, but the river is rising so fast it's spreading," Randolph said. "I'm sorry now I didn't have Hugh send Arkansaw with a sqiff—we might have been able to get him off."

"If he wouldn't leave it for me at the beginning, he wouldn't come for anybody else at the end," she said. "We couldn't have compelled him to leave—he might have shot somebody."

"It would be a risk," he admitted.

"I heard something down the river a minute ago, or I thought I did. Do you suppose—there! What is that?"

"It sounds like—I think a steamboat must be coming up."

They listened to the sound, sharp above the murmur of the river and the crash of falling shores.

"It's a paddle-wheel," he said.

Moore came to the door. They could see him, the light behind him falling on his white hair, as he strained out to listen.

"He hears it, too; he's been expecting it," she said. "There—see its searchlight!"

"There's the bell—the pilot's feeling his way into strange waters."

"It's been a long time since a steamboat passed through the Narris."

"Yes. I wish Gregg could see it. That's the way the Morning Star came up fighting the flood current the morning she went down."

"But she must have been a bigger boat than this one; this is only a toy compared to some I've seen on the lower river."

"She would have made several of this one, your grandfather said. Look at that light—it's feeling around like they're lost."

The boat's searchlight, pointing like an exploring finger, wavered from side to side of the river as if the pilot sought landmarks in his confusion. Now it shot straight ahead for a little, shifted again presently from shore to shore over the widespread flood. The pilot was puzzled by his strange surroundings, and was coming on with caution.

The boat was not more than a quarter of a mile below them when there came a jangle of bells, and the sound of the wheel ceased. The searchlight was hunting frantically for some familiar mark, while the boat drifted back under the pilot's hand. Now the light struck Moore's building, wavered there, then fixed on it an inquiring eye. Bells sounded, and the beat of the wheel. On again the boat came, with more confidence and speed, as if the pilot had found a friend.

"He knows the old building—he understands that the river's back in the Narris. I'll bet he's an old-timer."

"He must be," she murmured.

Neither spoke again as the steamer came breasting the current, which ran fiercely at its work of reaming and shearing. They stood in the shadow of the old building, which fell long and grotesque from the searchlight. Juliet reached out with appealing hand, as if she feared that the passing of the boat would separate them and leave her alone in her vigil on that crumbling shore.

In the warehouse Caleb Moore was moving with new activity. He came to the door with the lantern now, its feeble candle like fox-fire in the sharp amethyst glare of that modern contrivance on the approaching boat. Old and new were meeting in the door of that house of buried recollections.

The steamer had been holding close inshore to get the benefit of the slacker water. Now the pilot swung her out into the stream, as if afraid to trust himself so near a shore where corn came down and stood in the water's edge. The searchlight flashed across the faces of Juliet and Randolph as the operator withdrew it from the warehouse, and the boat, a bundred yards out, seemed to stand a moment as it gathered strength to push on against the stiffer stream.

Moore was standing in his door, holding his ancient lantern out as far as he could reach. He waved it as the steamer came abreast, and called across to her, his voice loud and clear.

"To greet the return of commerce to the Narris! Welcome, welcome back!"

The pilot answered the old man's salute with a blast of the whistle, and the steamer pushed on. The swell came in heavily against the low shore, running up it in the roar of falling earth. It came mounting to the door of Moore's warehouse, where he stood with his feeble light held high; it thrashed against the battered weatherboards, it leaped in deep upon the floor.

Juliet moaned as if her best-beloved had trampled on her heart. The building shivered, the pale ligbts within it trembled as though a wind had come in to vex them. With that foreboding tremor the old house moved forward, slowly at the start, like a ship leaving the ways, gathering speed as it lurcbed; lifted on the swelling waters, stood a moment poised. Down then—swift as an avalanche, in a great hissing surge of falling land.

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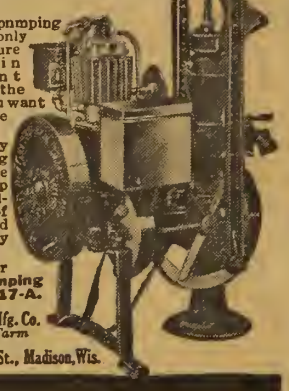

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They ran to the water's edge with wild vague cries. The building was sinking; its lights gone. Deliberate and slow it moved now, with a high solemnity in its final great displacement of the eager waters which pressed upon it to bear it away to its grave.

Commerce had come back to the Narris, but it was the commerce of a new age which laughed at the sad revival of the old. It had reached out in its proud strength and done a kindness to the last outpost of the past that stood sentinel upon those shifting shores.

Caleb Moore was gone. His hopes, and his sad distractions, and his long dusty dreams were done. The river ripped out the little gore of land where his storehouse had stood, and its waters closed over the spot. Down its funereal current, far down in the thick obscuration of night, it bore the black hulk of the old building away, hastening it with impatient whirls, crowding it forward with such haste as the heirs of a dead man who have waited long for their inheritance hurry his body to the tomb.

The watchers of the night were still there at dawn, gazing in chastened sorrow across the great river, grey under the breaking morning as if it carried the ashes of the whole world's penances down to the absolving sea.

Juliet drew away from it, shuddering, afraid of it with the daylight on its face—cruel, somber, triumphant, appalling thing. She was cold with sorrow, sick with unuttered pain. It was but a man's duty to comfort her on the part of him who had watched out the night at her side; to comfort her with the strength of his arm and warm her at the fires of his heart.

Love again; coming in the sad daybreak to triumph over the bitterness of death, as love had exulted over men's strife and life-waste, and sad wreckage of the earth's green hopes through all our centuries, which are but a day in the vast chronicle of pain. But not to exult in arrogance, not to celebrate in wild-lifted song. Nunlike and warm-handed comes love in such an hour, with the shadow of old sorrows in its eyes.

"I'll telegraph down the river and have them watch for him—maybe we can bring his body back and give it burial here," he said.

"That would be his wish, I know."

But Jonathan Randolph knew as his words sounded that it would be a vain quest. No man would look again upon the face of Caleb Moore. The creed of the imperious Missouri was deep in the young man's recollection that solemn dawn. What it gathered in such a season of its wild harvesting it hid away among its silt-heaped treasures to come into the sunlight nevermore.

CHAPTER XXV.
A MAN DENIED OF GOD

"If Mystery understood the true nature of the man, Hugh, and his hideous affliction, she'd come to her senses in a hurry."

"Yes, if she knew, Jonathan; if somebody could make her understand this awful curse, fastened on him by some unholy prenatal desire. She doesn't know, so she grieves her heart out in silence, believing him dead."

"You and I know he's not dead—others know it. He was seen after the flood reached its height, and it was Joel, and nobody else, that set that mob after us."

"It was Joel, with his devil's disposition."

They were in the schoolhouse, where the master was adding to his wall lessons and adornments, preparatory to the opening of the term, only a week away. Chalk dust had settled on his reddish hair and eyebrows, giving him a look of age.

"What do you suppose he's skulking and hiding this way for, Hugh?"

"Because the man's dead in him; he's gone back to the beasts."

"It's five days now since he blew the levee, and nothing either heard or seen of Langworthy."

"No; they've dropped the hunt for him," said Hugh.

"Well, I wish he'd waited three hours longer before he blew that levee, Hugh."

"Yes; I'd have been there with the explosive; we'd have opened the safe. The best thing to do with disappointments like that, John, is to call them dreams, and forget them."

"It hits a man pretty hard, Hugh, after he's banked on it so long, and come within smelling distance of it, as you said that day."

"It hits him right where he lives, as the man said. I know it; I know it as well as any man alive. I've tiptoed up to what I thought were some big things in my own life, just to see them turn to dust when I put out my hand to touch them. It takes those things to make a man; it takes fire, and vinegar, and gall."

Randolph got up out of the schoolmaster's chair and stood forward a little, with a drawing-up to his frame and a squaring of his shoulders as if he shook off a load.

"I know it, Hugh, I haven't got a thing to complain of or mope over. It was only a shot in the dark; I've got as much as I had when I began—yes, I've got more; I've got a great deal more."

"A treasure that cannot be weighed, counted, or even estimated," the schoolmaster said, a little glow in his face as he worked away again. "When she goes away Mystery will sink and fade, unless some other solace comes into her life, which I despair of giving."

"She may not be grieving over Langworthy; it may be only the effect of all this turmoil. Mystery is a sensitive woman; when she sympathizes with a person she lifts more than half his sorrow to her own back."

"All she needs is a glimpse of the devil in his own guise," said Hugh. "The Nar-

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ris will never be clean as long as he's left skulking in it—never safe. He was all devil that day I started him out of the corn."

"I never heard anything like it except the tales of medieval times, when they used to drive stakes through the bodies of people believed to be vampires and pour hot vinegar on their graves," Randolph said.

"Among certain Malay tribes reversions of similar nature are not uncommon, and there are many recorded instances of it among our own Indians," the schoolmaster said. "Devils always have possessed men; we have the authority of holy writ for that.

"Back somewhere, when men were nearer the beasts than they are now, it must not have been uncommon for the evil in men's souls to override them and drive them out night-prowling the way this devil has terrified the Narris community for years. The lycanthropic beliefs of ancient and medieval peoples, as well as our own Indians of the present day, and savages of other lands, must have had their foundation in some sort of fact. While the transformation in body from man to beast by any sort of magic is physically impossible, as we know, the complete reversion of a human soul to bestiality is possible, as we have seen. In my opinion this occurs when the divine spark lent every human being from the Source has been withdrawn because it has been debased by the one upon whom it has been bestowed. Divinity subtracted, man becomes a creature. He is in such state we describe as accursed.

"This spark of divinity has not been wholly withdrawn from Joel Langworthy before; only at times it has been taken from him in correction of his sins, leaving his soul intermittently dark. At such times he went out on his vicious excursions; at such times he peered in at Caleb Moore's window, his face all demon, and made the old man believe he saw something not of this earth. He came to your window in a spell like that, and attacked you in the tent. The divine gift has been taken away from him forever now; the spark in his soul is out. He is a brute, with the cunning reasoning of a human, but the raging of a tiger in his heart!"

"In other words, Joel Langworthy, in the past overwhelmed by this peculiar madness at times, is now wholly insane."

"That would be the scientific explanation for it, I suppose, Jonathan. It will do if you want to soften his devilsh behavior down and excuse it. To me he is a man denied of God."

"If the divine in a man is put out, Hugh," said Randolph thoughtfully, "it is certain that the diabolical will reign supreme. His powers of evil will not be diminished, but increased. Langworthy is a doubly dangerous creature in the state that he skulks the woods today."

"Doubly dangerous," said the schoolmaster, nodding his solemn head, "and as God is my judge, if I meet him I'll shoot him down!"

He lifted his hand in witness of his vow. Randolph felt the blood leave his face, a coldness prickle over his skin. The schoolmaster's words and bearing were in such dissonance with the placidity of the schoolroom, its peaceful birds coming and going upon its walls. But there was no question of the terrible sincerity of his declaration. Sentence of death had been pronounced upon Joel Langworthy, the man denied of God.

"Still, it may be that he's dead," Randolph reflected.

"No. I'd feel the relief of it in the air around me if he was dead; that suffering woman would be drinking the sunshine again if she was free from his machinations, too. His influence has been heavy over her since that day she warned you to leave off the work and go away."

"I thought at the time he had something to do with that," said Randolph curiously.

"He suggested it by that peculiar power that the man possesses of projecting his mind through the ethereal spaces."

"Not uncommon, well established by long scientific investigation," Randolph said.

"Yes, telepathy—to speak to from afar—a good enough name. He seems able to employ it only with women. Where he repels men, he attracts women. He calls them to him, in spite of themselves; he speaks to them over distances in the night. In the Narris they name it the 'whispering gift.'"

"Arkansaw told me he could tame horses by whispering to them, but I never heard that he could call a woman to him against her will."

"Not every woman, of course; only those upon whom he has played his devilish arts and prepared the way."

"Has he ever tried to call her—Mystery—to him that way, Hugh?"

"He has tried, but never has succeeded," the schoolmaster said with the solemn gratefulness of his heart in his words.

"What has kept her; what has held her back from him when you were absent, Hugh?"

"The strongest magic against diabolism in the universe—the voice of love!"

The schoolmaster smiled a little now as he looked up, as if some of the pain had gone out of his patient heart.

"You know the old belief that a stream of water is a barrier that no warlock can cross?" said he. "It is only the allegorical expression of a truth in a way that meets the primitive understanding. The warlock is the evil of the earth, the running stream the purity and truth."

Randolph was quiet as they walked home to Moss Gregg's. The shadows were long, and there was goldenrod beside the road, early messenger of autumn. An autumnal coolness had come into the days, also, since the return of the river to the Narris, as if that gigantic labor completed the summer's tasks, although the corn was still green and the trees in the vigor of rounded foliage. Quail were whistling here, answering far off, calling the covey together for the autumn feeding, the winter company. The hazelnut burs showed a faint whiteness, fuzzed with a down like a young man's lip.

After supper that evening Hugh brought out his guitar at Juliet's invitation. But all his entertainment was instrumental; he could not be induced to sing. Gregg sat rocking in his slingbottomed chair, Arkansaw and Randolph on the porch steps. In the background of growing darkness the white dresses of the young ladies glimmered where they sat on the porch near the musician.

Gregg moved his chair over a little nearer the steps and squared round, with much squeaking and groaning of the loose boards under the rockers.

"Well, I reckon Joel must 'a' got drownded, too," he said. "Lucky for him if he was, for I tell you they've got a rope laid up for him in the Narris if he ever shows his cussed face ag'in."

The old man's observation fell with startling discord on the ears of both Randolph and the schoolmaster, for they had put the accursed creature out of their minds for that peaceful hour.

"He was seen that evening," said Arkansaw, "on this side of the Narris. My opinion is he tried to row over, and got sucked down a whirlpool. He couldn't swim as good as me."

"There are few men that can do that, Arkansaw," Randolph said.

"She's quietin' down now," Gregg said. "I was down to your place this evenin', —Julie—it's stopped eatin' your land."

A scream from the back of the house cut off his words like the slash of a sword. The schoolmaster dropped his instrument and leaped through the vines at the end of the porch. While the others stood inactive a moment in the sudden chill of apprehension, they heard him crashing through the growth of weeds and vines along the picket fence.

Randolph and Arkansaw followed. When they came up to the schoolmaster, he was bending over Mystery, who had fallen near the little gate. The light of the lamp was streaming on her through the open kitchen door, her white dress flaring on the ground like a morning-glory. There was a sound of something running away through the corn. The schoolmaster was straining to listen after it, his arm under Mystery's head.

Juliet and the old man came hurrying through the house.

"What's the matter?" Gregg asked, turning in shocked helplessness from face to face.

Nobody answered, for one was as wise as another. Juliet was on her knees beside Mystery now, where she lay as if dead. The schoolmaster withdrew his sustaining arm and let Mystery's brown head rest on Juliet's knee. In one great bound he was gone through the open gate, like a hound unleashed, following the thing that sped ahead of him through the rustling corn.

Randolph bent a moment over the unconscious girl.

"She's not hurt—just fainted; must have seen something—"

Gregg was lifting her, calling her baby names, imploring her to tell him what it

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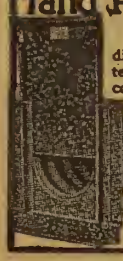

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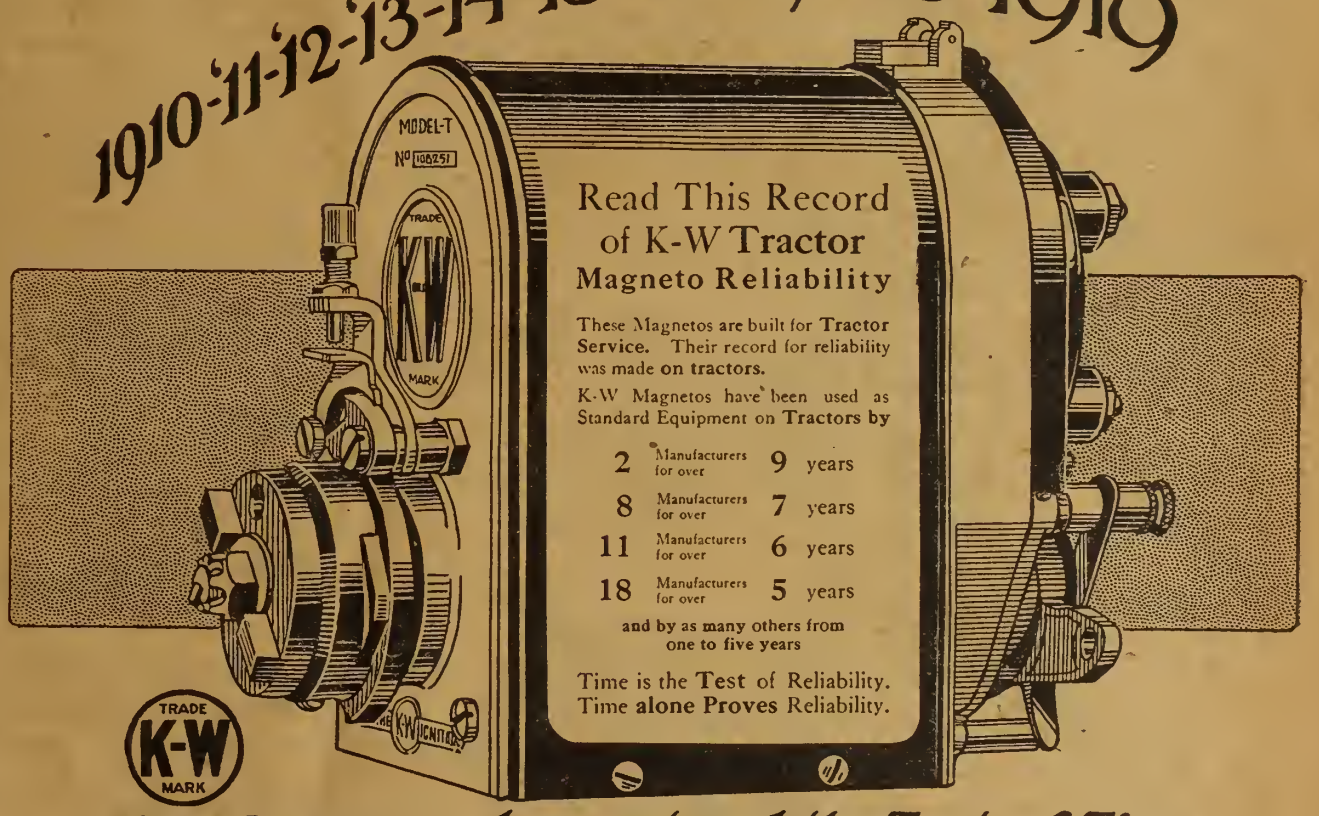

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was, pleading and exclaiming in tender incoherence.

Randolph turned to Arkansaw, who stood as if shocked out of reason and motion.

"Get your gun and come on—hurry!"

CHAPTER XXVI.
THE HOUR OF RECKONING

Randolph could hear the schoolmaster rushing ahead of him like a wind through the corn as he labored after him over the furrowed ground. The master had the advantage of length of leg and start; now and then Randolph was obliged to stop and listen for him lest he lose the trail, the sound ahead of him growing fainter every moment. Now it was lost to him, the field as quiet as if no hot pursuit had shaken the tranquility of the night.

It was so dark between the corn rows that he could not see the ground. Overhead the placid sky displayed its time-old wares of jewels, a golden brooch of moon-rind in the southwest paling downward into the mists. He struggled on, his breath spent. A shot off there under the moon, in the direction of the schoolhouse. On again, with second wind, as if he ran for the prize of his life.

At the fence he stopped to listen. There had been no more shooting, but Arkansaw was coming, true as a beagle on his trail. He waited for him to break cover of the corn; shouted to him from the shadow of the brushwood along the fence.

"It was the snappin' ghost!" said Arkansaw as he came up, gun in hand. "I tell you, John, it was the snappin' ghost!"

"I'm going on over toward—there!"

"That's Hugh," said Arqansaw.

A shout had sounded from the direction of the schoolhouse. Both of them were over the fence in a flash, running across the pasture between the cornfield and the little grove of walnut trees around the school.

The schoolmaster was standing in front of the building, the open door a black oblong in the white wall. Arkansaw was first to him.

"Is he there—you got him, Hugh?" he panted.

"Did you hit him?" Randolph inquired, breathlessly.

"I think I crippled him when he went over the fence—he broke in there," the schoolmaster replied.

"Did you see him, Hugh? Was it the snapping' ghost?"

"It was the snapping ghost," the schoolmaster replied, steady of word and unshaken of hand, but with a terrible earnestness on him and in his voice that was like the solemn background of night.

"If it was him, nothing but a charmed bullet—"

"Watch the back doors and along one side—Randolph will take care of the other," the schoolmaster directed him, not waiting for Arkansaw's views on the merit of a magic ball.

Arkansaw didn't stand to argue, for fear was not in him, having a double score now to settle with his old enemy, the snapping ghost of the Narris. He ran round the corner of the house, trying the shutters as he passed.

"Stand over there where you can sweep the other side, John—he might try to get out by a window."

Randolph stood at the corner, where he could command the windows on that side. The schoolmaster could be seen but dimly from his post; he appeared to be stripping up his shirt sleeves, laying bare his arms.

"What's your plan, Hugh—what are you going to do?" Randolph asked.

"I'm going in to wring that devil's neck!" the schoolmaster replied.

Randolph protested against the folly of such a blind risk.

"You'll have no chance without a light, even with your gun," he said.

The schoolmaster was set in his heroic determination, unreasonable, self-sacrificial as it was sure to prove. He said no more, but started forward. Randolph intercepted him before the open door.

"You're not going in there, Hugh," he said.

"Don't try to stop me! Stand aside, I say; stand aside!" The schoolmaster's voice trembled with passion as he took hold of Randolph's barring arm.

"Listen to reason, man! You've got nothing to gain by going in after him; he can't escape."

"I've got nothing to lose but my life, and what does that matter? He's killed her!"

"He didn't hurt her, Hugh—he's only cured her, man—cured her—don't you understand?" Randolph drew him away and aside from the dangerous vicinity of the door.

"She was dead," groaned the schoolmaster—"dead in my arms!"

"She'd fainted; she wasn't hurt. I tell you, Hugh, it's the luckiest thing for both of you that could have happened. Her eyes are open now—she's cured."

"If she saw the devil in him, if she knew him."

"She was expecting him. Hugh. Couldn't you see her uneasiness all evening. He called her, I tell you, the way he has spoken to her over distances before."

"That may be so," the master admitted; "but I thought she was dead!"

"She's all right again by now. The sight of him was a shocking revelation, but I'll bet you a dollar it's cured her."

"Thank God if it proves true!"

Something clattered to the floor in the schoolhouse, falling sharply, like a slate. The master started, leaping forward. Again Randolph interposed, holding him back.

"He's there. He can't get away. Wait till daylight, Hugh."

"What do you suppose the devil's doing in there?" Randolph felt the schoolmaster's hand tremble on his arm. "Do you suppose it can be that he's destroying my work?"

The question came with such simple sincerity, such gravity of apprehension, that the triviality of the offense conjectured by the schoolmaster seemed to take its place along with that other dark event of the night. Ordinarily it would have been a question to provoke a smile.

"Surely not," Randolph returned with a soberness scarcely short of the schoolmaster's.

"His life is forfeit to me already; he'll never leave that building alive!"

"I thought I smelled coal oil—is there any in there Hugh?"

"Only in the lamps."

"That's what he's doing; he's taking them down, emptying the oil on the floor."

"Preparing to burn it!"

"I think he intends to burn it; but what he expects to gain—"

The bell hung in the school yard, on a white-painted framework. As the schoolmaster reached it and began to sound a clamorous alarm, a light flashed in the schoolhouse. Randolph ran forward, discharging his revolver at the light, which flickered and burned low a moment, like a match, then leaped in sudden flame beyond the inner door.

Arkansaw came running. In a moment the fire was roaring in the schoolroom, the light of it reaching out in a red beam through the open door, falling on the schoolmaster at his frantic work. His own claim of vengeance was set aside; the anxiety, the dread, the deepening pain of his heart, sounded in the loud peal of the fast ringing bell.

"Watch the windows, Arkansaw; he's going to try to get away!" Randolph shouted.

They drew back from the door, each taking a corner of the building to watch along the sides. Remembering the back doors, Arkansaw ran to a point from which he could command them. There was no sound of life from within; no sight of the wretch who found himself driven at last to face arraignment on his unspeakable crimes.

Far-away shouting sounded above the crackle and roar of the fire. The schoolmaster gave off his ringing at the bell and came running, his revolver flashing in his hand.

Here and there armed men broke out of the night into the light of the fire, stopped a moment as if struck inactive with amazement and alarm, then ran shouting and mingling, lifting their helpless hands.

Then men, seeing that the fire was beyond them, began to ask how it kindled on a clear and calm summer night, no brand of fire within half a mile of it. The question came to Randolph presently, and he answered it.

Grimly the armed farmers drew a waiting line around the burning building.

"He's in there—that devil that cut the levee—he's the one that done it!" they told each other as they stood with ready guns.

The fire had burst the windows and was reaching up to the cornice, lunging at the overhanging trees. The schoolmaster seeming to feel that the tragedy would not be finished by fire alone, stepped forward and approached the door. His garment was open, his chest was bare; the sweat of his labor glistened on his face.

"Men, if he shows himself, I ask you to leave him to me," he said. "I've registered a vow with God Almighty that I'll put an end to his black and bloody life if I'm favored with the chance. Help me to keep that pledge, men; leave him to me!"

They drew back a little, giving him room and a fairway to the gaping door.

Crouching like a wrestler, the schoolmaster waited. In a moment the indraft sucked the smoke out of the vestibule. A tall, gaunt figure, naked to the waist, stood there against the curtain of fire, his sinewy, knotted arms outstretched as one crucified, his wild hair blowing in the fiery blast.

"It's Joel Langworthy!" said Arkansaw, clutching the schoolmaster's arm. "It ain't no—"

The schoolmaster flung away his hand, fired; leaped nearer, fired. Joel Langworthy stood unshaken, as if the shots had passed through him like a shadow. The fire leaped around him, lighting his face, black in the evil of his inheritance, distorted out of human kinship, as Randolph had seen it once before. His teeth were gleaming, as if his farewell to the world was a snarl.

A glimpse of him so—sharp, terrifying. An exclamation like an explosion of horror broke from those who hemmed

(Turn to Page 21)

HAY CARRIERS FOR STEEL TACK AND CABLE
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FRED N. PLATTNER

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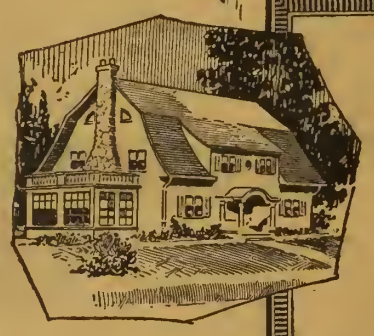

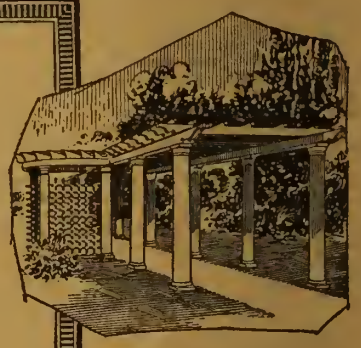

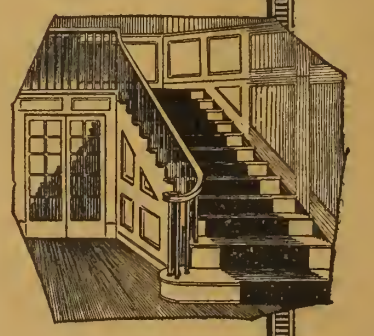

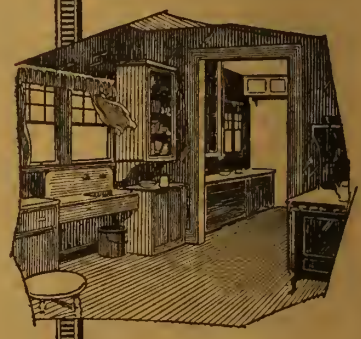

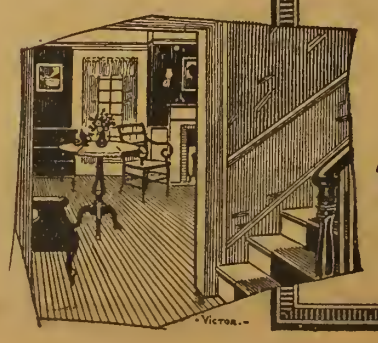

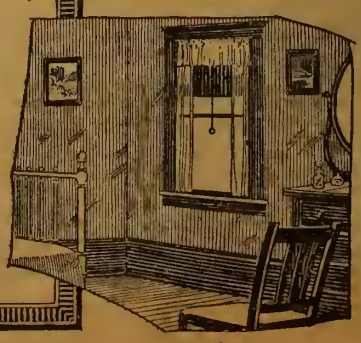

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The Big Type Hog

Some beginners in the breeding business as well as some producers of commercial hogs for the market are not clear as to what is looked for in the new type of hog, and others are not yet ready to accept the new type as an advantageous type for a farmer to have in his herd. Therefore it may be well to sketch briefly the reason why a new type has developed; show how the development has taken place, and its present status.

Most men who are growing hogs know that ten years ago the corn belt hog was becoming very fine in quality, small boned, and small in size. This was brought about chiefly by two things; first, by the method of feeding with corn not properly balanced by other feeding stuffs, and, second, by the demand on the part of the farmers for an easily fattened hog.

For a number of years one very important fact with regard to the market was lost sight of. The difference in price between a high quality, well finished hog and one of poor quality or not well finished was comparatively small and much less than the corresponding spread between the good quality and poor quality animals in the other classes, such as beef steers and mutton sheep. When a few men awoke to this fact they realized that they might much better have heavier hogs, giving more pounds to sell, even though they were coarser framed and not quite so easily fattened. The value of the extra pounds of live weight would offset the cut in price for this larger type of hog.

The movement started in the Poland-China breed and Peter Mauw of Iowa has credit for being the pioneer in this field. He went on breeding big hogs in spite of their being turned down by fellow breeders and judges in the show ring, and neighboring farmers took his output. Gradually more of the larger type of animals began to appear in the show ring at the various fairs in the corn belt, so that more and more breeders saw them and began to think about them. Eventually the type began to gain headway. The tendency of established breeders and of judges in the show ring is to be conservative, and while this may hold back the development of a new type for many years, it is well that this is the tendency, because otherwise types would be constantly shifting and there would be nothing toward which the great body of our breeders could build. Eventually, the big type which was at first coarse as well as large, gradually gained recognition in the show ring, and from then on their progress was rapid.

The demand for big type hogs became so keen that breeders sought for size at the expense of everything else that goes to make up a hog. The largest animals in the herd were always selected for breeding stock, regardless of their other characteristics. As a result, many long, leggy, high backed, shallow bodied, light hammed, and hard feeding hogs were produced and secured recognition simply because they were big. We are not out of that part of the woods yet. For a number of years the writer was opposed to this weedy type hog, because it did not seem to me sound sense in breeding to select for one character alone, forgetting all the others, and then when you secured high development in this one character, go back and pick up the lost threads.

A remark made by Lord Ogilvie some time ago in one of his articles, set me thinking with regard to the problem. He said that the growth of a breed was like the growth of an animal, not well balanced, but one end at a time, and I believe he was right. As one thinks of the development of various breeds of livestock, it is easy to see that the attention of breeders was focused on improvement in one or two directions at a time. Granting that argument, I can now see some sense to the long, lean, lank, big type of hog as a start in development of a big type hog, which shall have depth of flesh, meat in the ham, and other characters that we want, as well as bigness. It should be held firmly in mind that the lean, lank type of hog is a breeder's type of hog representing an intermediate stage of development and is not in itself the type of hog we are after for the feed lot.

Some one may ask how we know that we can go from this large lean hog to a large fat hog. I had some question with regard to that myself until I saw the Poland-Chinas at the National Swine Show at Cedar Rapids last fall. The Poland-China breeders started with the big type first and naturally have gotten a little farther with it. The Poland-China men have hogs that are not only big, but big, good, and smooth. The Duroc men are coming along rapidly on the same lines, and the best of the Durocs are similar to the best of the Polands in this respect. There are not quite so many of the big, well balanced Durocs as there are of the Polands, and there are more of the weedy type, but in a very few years the bulk of the breed will have caught up with the present best type of the breed and the big type will have come into its own. In the meantime, the man who is beginning with pure-bred stock, or who is a small breeder selling directly to the farmer trade, and the farmer feeder himself, should not try to take over for commercial production a type of hogs which is a transitory breeder's type.

The feeder of pork hogs must have substance and fleshing ability in his hogs. If he is to retain that, he must go a little slower in getting size, which is one of the advance guards in breeding operations. It is the feeder's business to take the best type of hog for his own purposes and use that, waiting for the breeder, who sets the pace, to develop a still heavier and better type for him.

The best breeders in every state breed an advanced type of hog. The sires from these herds they sell to smaller breeders to be used in herds of sows of not so extreme a type. The progeny from this second herd are scaled down somewhat in size and stretch towards a smaller type of hogs, and in turn go either to still smaller breeds or directly to the farmer. The advanced breeder must not allow himself to think that bigness is everything, although there has been a tendency for breeders to adopt that kind of a narrow-sighted policy. We want not only big hogs, but hogs that are easily fattened, and if we have only the bigness, we are only one step on the road. Where two characters are demanded in a hog, the results must necessarily be a balancing of the two; in other words, a compromise.

Two characters cannot be developed as rapidly as one, because some animals possessing the one character to a remarkable degree must be thrown out, because they do not possess the second character. We must then look at the present situation with regard to big type hogs in this way. We want bigness and we want other good qualities, but we are going to take bigness first according to present standards. Bigness is coming and the other things will follow. The man who can produce good big hogs is a long way in advance of the man who is producing poor big hogs, while the breeder, particularly the breeder who is in the vanguard, may jump to an extreme in getting size and eventually balance up.

The feeder of hogs must carry his balance with him more or less as he goes. In all breeds now development towards big type has gone far enough, as hogs that are both big and well balanced can be secured, but the development of such hogs has been so recent

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that there are comparatively few of them. The bulk of the big hogs in any of the breeds are still lacking in balance, and that partially accounts for the enormous prices that are being paid for the best hogs in all the leading breeds.

One of this spring's sales in Nebraska averaged over a thousand dollars per head on fifty head of hogs, a price that would have been a big one for pure-bred cattle some years ago. When the merit is there a man who is breeding hogs can so quickly raise the level of his own herd by securing the blood of a great sire that breeders are going to pay the price, because they know they will get return from it in the quick jump up in quality of their own herds.

The big type has come to stay and is growing bigger. But anyone who deceives himself in thinking that bigness is all of it will be following instead of leading in the procession a few years from now.—G. E. Morton.

Keeping Qualities of Silage

I am having my first experience with silage and find it an excellent feed. I have seen it recommended for summer feeding and have been wondering just how well it will keep over from one season through the next. I might as well have two silos, because I can raise plenty of feed and if there is no danger of spoiling I can provide myself with a good reserve supply in case of a bad drouth. What can you tell me about the keeping qualities of silage?
—W. S. E., Wyoming.

Silage made from well matured corn or sorghum, properly cut and well packed into a good silo will keep several years. In fact there are authentic records, according to Henry's Feeds and Feeding, where silage made from 12 to 14 years before has been found to be of excellent quality. Forage put into a silo undergoes a process of fermentation during which the sugar is converted into acids, chiefly lactic acid (the acid of sour milk), and some acetic (the acid of vinegar). This fermentation continues a few days and then, if the silo is air tight and the silage well packed, no further changes occur; the silage is then practically spoil proof. However if the silo walls should not be air tight and oxygen should find entrance, fermentation will continue and molds will develop, spoiling the ensilage. Naturally the top of the mass is exposed to the air and there spoilage takes place, but this soon forms an impervious layer which prevents further entrance of air. In upright silos it is important to have tight fitting doors. The early silos were usually rectangular structures, in which it was difficult to prevent spoilage because of inability to pack the silage tightly in the corners. The invention of the round silo, credited to King of Wisconsin, obviated this. Another precaution necessary is to provide absolutely smooth and perpendicular walls. Where there are any depressions or cavities in the walls mold will form. Silage must be tightly packed and well tramped, hence it is important to have good depth, so that the mass compacts itself by its own pressure. There is always considerable loss of dry matter in the top portions of any silo, because of lack of pressure at the surface.

Garget Is Serious

I would like to get your advice about one of my cows. She is just fresh. She has little bumps in the teats and some say it is goiters. She gives blood out of them once in a while. One teat is swollen from the bumps. I would like to get a cure for them.—C. V., Las Animas county, Colo.

The cow is apparently affected with mammitis (garget) and should have professional attention. This condition has been described in the columns of Western Farm Life recently. The inflamation of the udder, which is usually due to infection, causes curdling of the milk (stringy milk) and if the irritation is great there will be some hemorrhage (bloody milk) or if the condition continues for long there may be formation of nodules which can be felt at the upper end of the teat and which may completely obstruct the milk duct. As to the best treatment to adopt under the circumstances I am unable to say at this time. Many cows have been ruined by the presence of these growths in the lower part of the milk well. Attempts at removing them surgically have mostly failed. It is quite necessary to understand this case thoroughly before undertaking treatment. Better consult your local veterinarian.—G. H. G.

Stock Hogs From New Mexico

Two years' steady work by the Mesilla Valley Swine Growers' association—a subsidiary organization of the Dona Ana County Farm Bureau—is now bearing fruit. Representatives of the association visited the Kansas City livestock market over a year ago and gained first hand information relative to the markets for stock hogs which offer the best prices. Since then, direct connections have been established with a number of the largest purchasers of stock hogs in Iowa, Nebraska and Kansas.

The officers of the Swine Growers' association have always maintained that the most profitable field in hog raising in the Mesilla Valley was to raise stock hogs on pasture and light grain to a weight of 75 to 90 pounds per head, then ship them to those feeders who make a business of buying stock hogs and finishing them on cheap grain close to a central market like Kansas City. This section, with high-priced grain and a long distance from a market, cannot expect to compete with those who finish their hogs in localities where cheap grain is raised. There is also less shrinkage on shipping stock hogs than on fat hogs.

Recently the Swine Growers' association took up with eastern purchasers the matter of marketing about three carloads of stock hogs. A much better price than could possibly be secured locally was asked and within forty-eight hours the secretary of the association received telegraphic orders for six carloads. Three carloads went out April 10 direct to one of the largest individual purchasers of stock hogs in the state of Kansas. The purchaser sent a representative to receive them, paid cash on receipt, and assumed all risks in shipment, so that the deal amounted to a spot cash market at top price.

This is just one of the beneficial results that have been brought about in a short time by a spirit of true co-operation among the members of the Mesilla Valley Swine Growers' association. Not one cent of commission was paid on the three cars of hogs and the man with two or three stock pigs got top price the same as the man who had a hundred.

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The Holstein-Friesian Cow is large, strong and vigorous, full of energy and abounding vitality. It is able to turn to best advantage the roughage of the farm, converting it into large quantities of excellent milk for all purposes. She perpetuates herself through strong, healthy calves, and when useless in the dairy fattens readily and makes excellent beef. If interested in

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La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494958, a grandson of Whitehall Sultan. Correspondence solicited.

$22.00 Sweep Feed Grinder | $28.00 Galvanized Steel Wind Mill.

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Viewed from every angle the installation of an Empire Milking Machine on any dairy farm is a business-like proceeding. It improves the standard of your milk. It changes the trying and laborious job of hand milking to a simple, easy system. It releases labor for field work or permits you to do the same work with less help—for with an Empire, one man can milk as many cows as three can milk by hand. It improves the flow and quality of milk, because its action is always gentle, soothing and uniform. It gets the most from "hard milkers" and the nervous cows; cuts dairy costs and pays for itself many times over in increased milk profits.

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Watch your newspaper for this advertisement telling where you can see the United States Separator. Agents and dealers wanted in some localities.
107

Bates Cattle Sold Well

That there is a keen demand for milking Shorthorns especially of the straight Bates and Bates topped strains, was evidenced by the sale of the Carpenter Cattle Company at Greeley, May 24. The limited list of 14 females and 10 bulls was exhausted in a short time, the sales figures being moderate, in line with the policy of Delph Carpenter, the breeder, to keep his cattle within reach of the farmer on the plains. Senator Carpenter, in opening the sale, spoke of his visit to the only other herd of pure Bates cattle in the United States, that of O. N. Healy & Son, at Muscatine, Iowa. who have but 16 of these cows of rare breeding. Two years ago several of the cows in the Healy herd were put on milking test, one of them producing 8,225 lbs. in 11 months, another 8,176 lbs. and still another 11,009 lbs. in 289 days, besides bringing two calves in less than 13 months. He explained that his cattle had never been milked for records. The milk has been used to produce calves, all the attention on the Carpenter farm having been devoted toward maintaining the dual purpose type.

Among the heaviest buyers was J. B. Benedict, of Denver, who is well known as a cattle and hog breeder. He took Baron Bates, one of the choice bulls, and over half of the cows offered, coming away with 9 females, several of them with calf at foot.

The buyers list includes a number of dry land farmers from the country east of Greeley, among them W. B. Mate of Briggsdale, who has a milking Shorthorn bull at the head of his dairy herd and expects to develop this herd on the foundation of two good cows taken at the Carpenter sale at $360 and $400.

Col. P. M. Gross of Kansas City, the auctioneer in charge, told of recently having handled the H. C. Lookabaugh Shorthorn sale at Watonga, Oklahoma, where a new record for Scotch Shorthorns was established. He pointed out that although the high average of $2943 on 38 head was the record for Scotch cattle in America, it did not approach the famous New York Mills sale of Bates Shorthorns, which has never been equaled in this country.

Following is a list of the sales:

BULLS

Wildeyes Baron 6th 769357, J. P. Klug, Greeley, Colo., $390.
Baron Bates 777290, J. B. Benedict, Denver, $320.
Wildeyes Star 769358, P. C. Benson & Son, Loveland, Colo., $225.
Red Wildeyes 769355, J. M. B. Petrekin, Greeley, Colo., $280.
Duke 769353, A. J. Campbell, Greeley, Colo., $210.
Valley Chief 771774, P. C. Benson & Son, $210.
Brighton 771769, Ed Decker, Gill, Colo., $205.
Maxwell 771772, Jack Kingsbury, Greeley, Colo., $275.
Red Chief 2d 769354, Joe Borgeson, Greeley, Colo., $230.
Royal 769356, Oliver White, Greeley, Colo., $200.

COWS

Valley Queen 5th 771779, J. B. Benedict, $200.
Valley Queen 4th 576102, J. B. Benedict, $285.
Valley Queen 3d 200972, J. P. Klug, $310.
Valley Lady 2d 769365, J. B. Benedict, $225.
Valley Lady 519021, J. M. B. Petrekin, $410.
Unis 4th 519020, J. B. Benedict, $250.
Unis 5th 576101, J. B. Benedict, $200.
Unis C 769364, J. B. Benedict, $235.
Greeley Belle 4th 769361, J. B. Benedict, $305.
Lone Tree Queen 2d 769363, Wm. B. Mate, Briggsdale, Colo., $360.
Blossom Cliffside 5th 576098, J. M. B. Petrekin, $360.
Blossom Cliffside 6th 576099, W. B. Mate, $400.
Blossom Cliffside 7th 769360, J. B. Benedict, $260.
Blossom Cliffside 8th 771777, J. B. Benedict, $245.

The Livestock committee of the Madison county, Idaho, Farm Bureau makes a report of a steer feeding project carried out by two farmers with two carloads of steers. They were fed 90 days on alfalfa at $15 a ton, beet pulp 80 cents a ton and syrup at $30 a ton. The farmers made $1,200 for their time.

While the farmer bit off a chew of tobacco in 1918 from a plug that cost him 71 per cent more than 1914 he wore a flannel shirt that cost 130 per cent more in 1918 than in 1914; a felt hat, 70 per cent more; shoes, 76 per cent more; and a suit of clothing, 96 per cent more.

I-Am-A-Pathfinder, the Duroo Boar sold for $3,000

Brauers' Boar Brings $3,000

A new record for Duroc Jersey hog prices in the mountain states was established recently when Mr. J. W. Brauer of Colorado Springs, owner of the El Paso herd of pedigreed Duroc Jerseys, sold I-Am-A-Pathfinder for $3,000. The buyer is William J. Farley of Aurora, Nebraska. I-Am-A-Pathfinder was grand champion boar at the 1919 National Western snow. He goes into one of the best herds of Nebraska. He will be heard from again in the show ring, as he is a great young boar as well as a wonderful producer. A good many sows bred to him are held by Colorado farmers, to whom news of this sensational sale will be quite welcome.

I-Am-A-Pathfinder 248723 was farrowed June 1, 1917, in a litter of 11, 7 boars and 4 sows. He was bred by Hanks & Bishop, New London, Iowa, sold to J. H. Carney, Steward, Illinois (in dam), March 6, 1917, resold to J. W. Brauer, Colorado Springs, Colorado, December 29, 1917. Sire—Pathfinder 181615. Dam—Model Lady 592544.

LIVESTOCK FIELD NOTES

Mr. H. Bert Cave has 175 native yearling heifers for sale. These heifers are from large Durham cows and Hereford bulls. See his announcement in this issue.

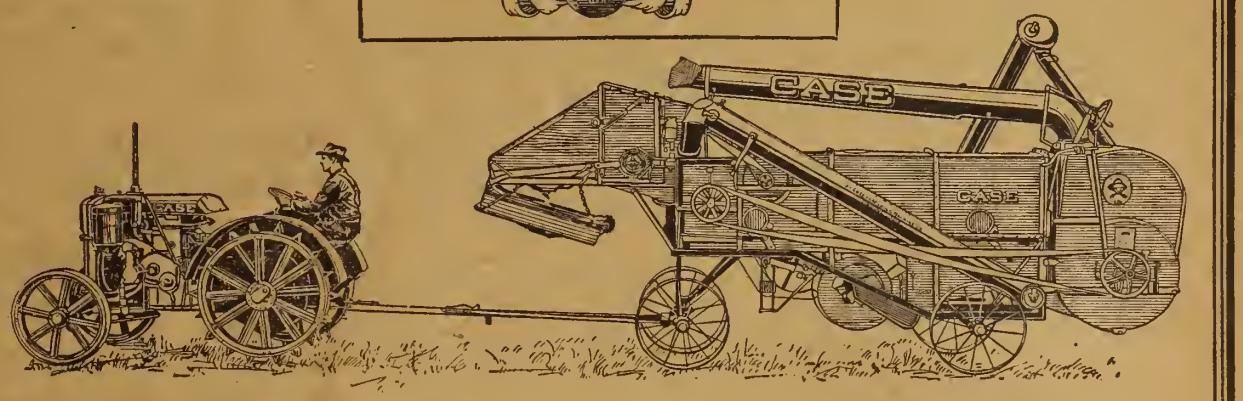
Mr. J. D. Canary, proprietor of the Canary Repeater Hereford ranches in Colorado, Wyoming and Oklahoma, announces in this issue two car loads of yearling bulls and heifers for sale. All of them are sired by the famous bull, "Repeater 63rd." This bull was purchased from Harris & Sons of Missouri in 1916 when 14 months old. He brought the highest price ever paid, $8,100, for a bull of his age.

Elsewhere in this issue is the advertisement of A. J. Ehrhart & Sons of Ness City, Kan. They have at this time about 100 spring pigs sired by Big Sensation and other noted boars, and out of sows that weigh better than 750 pounds. These are Big Type Poland-China. On August 6 they will have a bred sow sale, at which time they will offer a choice lot of about 40 head of sows and gilts, most of them bred to the 1,204 pound Big Sensation.

V. A. Phillips, owner of Onamesa Farms, Cedaredge, Colo., will hold his third annual sale of Durocs in July. The sale will be held at Delta, Colo. Forty bred sows and gilts will be sold at public auction. Mr. Philips' Onamesa King Defender was first prize Junior yearling, 1917. His other herd boar is Onamesa King Orion, and is a fit running mate to King Defender. He is a boar that weighs approximately 1,000 lbs. Both of these animals are big type Durocs, with the best of big type breeding backing them. Full particulars regarding Mr. Phillips' sale will be in our issue of July 1st.

Let Western Farm Life Service Bureau help you solve your farming problems.

CASE



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For Quick and Satisfactory Threshing

The Case 10-18 Tractor and Case 20x28 Thresher

For a reliable, small threshing rig use a Case 20x28 Thresher driven by a Case 10-18 Kerosene Tractor. This well known combination will save you valuable time in the rush of threshing days. It will do a thorough, economical job and enable you to thresh at a time most convenient and profitable to you.

The Case 10-18 Tractor provides the even power to run a thresher steadily, as it should be run. The friction clutch belt pulley (fitted with brake) is mounted on crank shaft, the logical place for it.

It is equally well adapted to all drawbar work — such as plowing, disking and seeding, hauling, road grading, etc.

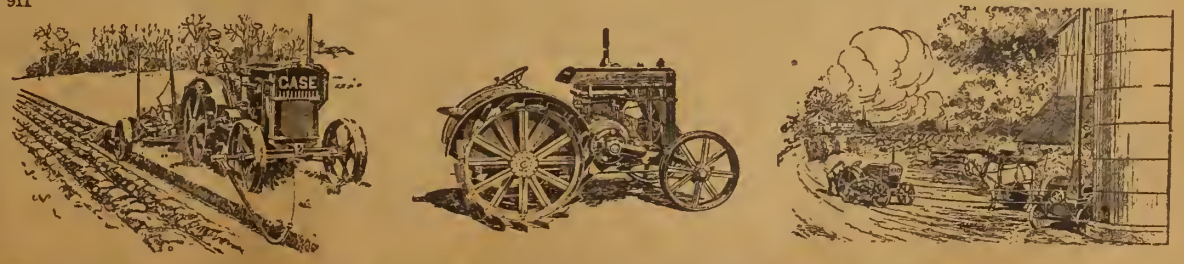
A governor-controlled, four-cylinder valve-in-head Case Motor is mounted crosswise on a one-piece main frame. This engine can develop at least 20 per cent more power than its rating.

The Case 20x28 Thresher pictured above is built of steel. It is a simple, easy-running machine, noted for perfect separation, cleaning and saving. Operated with a Case Tractor it is an ideal rig.

This outfit in your hands will enable you to do your threshing at your own convenience without loss from delay. Ask any Case dealer about it now. We will send you a catalog free at your request.

J. I. CASE THRESHING MACHINE CO., Inc., FOUNDED 1842 1907 Erie St., Racine, Wis., U. S. A.

911



The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

"If thou seest the oppression of the poor, and the violent taking away of justice and righteousness in a province, marvel not at the matter; for one higher than the high regardeth and there are higher than they. Moreover the profit of the earth is for all; the king himself is served by the field."—Ecclesiastes 5:8, 9.

A Made at Home Water Cooler

An interesting story of what may have been the origin of our modern automobile water bag came in not long ago. In talking with an acquaintance about the usefulness and possibilities of the canvas water bags we carry on our trips, he said: "People have gone quite mad about these modern bags; but we made them every whit as good and all sizes, twenty years ago when I was in military service in the Philippines. We were moving some and couldn't carry those big porous 'oyahs,' as the Spanish call their water coolers. So we fixed up something which carried better and cooled as well."

Then he described the oyah after this fashion. They were made of two good sized pieces of canvas, for these were left hanging out on the verandas of the quarters. They were usually rounded at the bottom or pear shaped, and stitched carefully with wide overlapped seams, and a hole left at the top for the opening. This opening was carefully turned back and finished so as to leave a "collar" a little heavier around the hole. Two wire loops were run in each side of this hole and a rope fastened to the loops in order to hang the bag up. A cork or other plug was used to close the hole.

Before using, the bag was well waxed with ordinary bee's wax and then soaked. It was then ready to fill with water and hang on the open veranda. The satisfaction of a good cool drink was always ready even when other sources of drinking water became warm and brackish.

Perhaps our water bags are only outgrowths of these old "oyahs". At any rate a clever boy with a curiosity to try fixing home devised comforts might make one as an experiment.—E. D.

Strawberry Sun Preserves

Home grown strawberries coming in every day, extra work in the garden and an aversion to stirring hot jam and watching equally hot beautiful preserves through their critical clearing. Then try this delicious recipe and let the sun do the hot work for you.

Take a heaped up measure of ripe but firm strawberries and the same measure, scant, of sugar. Heat the two together and let boil five to eight minutes. The berries must not come to pieces. Then pour the sauce, for it is little more, out into platters or shallow pans and set them where the sunlight can do its work, undisturbed by dust or flies. Heavy pieces of glass which can be placed tightly over the pans or platters, make it possible to put these fireless preserving kettles out in the yard where the sun gets an unimpeded sweep at them. Or your cold frame is idle now so you may use that. At any rate give these preserves sunlight and plenty of it.

Stir them once or twice a day, and when they have thickened well, put them in sterile jars and seal with paraffin. They should not be allowed to thicken too long, as the sugar is apt to crystallize. This method of preserving may be used with any of the small fruits.—E. D.

Fig Jam

As an actor upon the stage of our fruit shelves, rhubarb is far from having any distinction as a star in delicate distinctive flavor. As an understudy, to take the part of almost any sort of fruit, from figs to pineapple, it has only one rival, the apple. Our California friends would probably scoff at this for real fig jam, but to those of us with the liking but not the figs, it has a truly deceptive and very pleasing resemblance.

Take a pound of the dried figs, cut fine and place in the bottom of a preserving kettle. Then cut three pounds of rhubarb into inch lengths and put over the figs. Sprinkle 1 pound of sugar (two cups) over the top and let stand over night. Cook slowly the next morning until the jam thickens. then add two more pounds of sugar and cook until it clears. About five minutes before taking from the stove add the juice and rind of one lemon. Pour into hot sterile glasses and seal or cover tightly with paraffin.—E. D.

What Mary Wants

Dear Sarah:—

You were surely in an exalted mood when you began quoting in that last letter about "lifting up mine eyes unto the hills." I know the feeling, it takes June and the country to make the Scripture flow like that.

But the Bible isn't all David and his glories,—neither is the country. Sometimes I am so far behind the exaltation that it takes the wit of Solomon and the sarcasm of Job to make me appreciate the lines of this many sided life. You will gather from this that I am going to quote Scripture, but not of the psalmy sort.

Right-o, Sarah. and it's because you are just beginning your first summer in the country and are getting acquainted with that eternal round of pleasure they call a picnic, from the farm woman's standpoint. You will discover that many people think that fried chicken and whipped cream cake grow on a peculiar sort of a banyan tree whose location is known to every country wife. And it comes about that these are suggesting "driving out and picking you up for a little outing in the hills next Sunday," always considering that your hamper is invited also.

Now I know that Solomon had all these experiences, for he even put in the Good Book that "all the labor of man is for his mouth, and yet the appetite is not filled"! Don't tell me that my ancient friend never tucked a loaf and a cake into his chariot hamper and then went out in the wilds to eat it! Only a picnic and its resultant limitations ever drew that remark from any man.

Don't get the idea that I think picnics are a total bore. That isn't it. I love to go on one, or—I love to pack a lunch basket. But no one day was ever long enough for me to enjoy the two processes consecutively.

A group of us were talking the other day and some one dropped a bomb by asking us each and all what we considered real luxury. I never batted an eye, but answered up real loud and clear, "An automatic picnic." That would be one where the sandwich fillings thought themselves up, where absolutely fresh and crisp salads and pickles came ready packed like one of these telescoped coat hangers, and the place presented itself with tables and utensils all sitting out ready the minute your party hove in sight. That is real luxury, because there isn't any such thing I suppose.

Like Job you will be wondering, "will vain words ever have an end?" But they do. Only send me all your ideas for sandwich fillings, we are going to a perfectly "new place" for the Fourth and I must have new insides for my bread and butter.

Lovingly but distractedly,
Mary.

A New Wrinkle

Minister to prospective bride: Shall I put your age down as thirty?

Bride: Oh, no; please put it down as twenty-four. I'm a stranger here, and who'd give me away?

Minister: Oh, your face will do that!—Cartoons Magazine.

Mr. T. L. Wheeler Likes "Champion" Mowers Best

Many a farmer is fairly well satisfied with an inferior implement because he has never used a better one. A recommendation of a mower, for example, by a man who has had experience with only one make does not count for much, because there is no basis for comparison.

Mr. T. L. Wheeler, manager of New Hope Farm, Hughes, Ark., who has used five different makes of mowers, wrote us on May 6, 1919:

"The two 'Champion' mowers bought for New Hope Farm are the best I have ever run, and I have used five of the leading makes. The 'Champion' is the lightest running of the five and never chokes up.

"I have been cutting alfalfa that had lots of dead hay in it and was also badly bedded down. The Champion finished the job without choking once."

Investigate the "Champion" before you buy. If there is no "Champion" agent in your town, write

B. F. AVERY AND SONS

FOUNDED 1825 LOUISVILLE, KY. INCORPORATED 1877

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2803—Pretty Style for Slender Figure—Shanting, serge, voile, duvetyn, gabardine, or taffeta would be nice for this model. The tunic may be omitted. The sleeve may be finished in wrist or elbow length. Width of skirt at lower edge is about 1½ yards. Cut in sizes 16, 18 and 20 years. Size 18 will require 6¼ yards of 40 inch material. Navy blue serge with braid trimming, or brown gabardine, with trimming of sand color satin, would develop this style effectively.

Blouse 2831, Skirt 2830—A Smart Summer Costume—Composed of blouse pattern 2831 and skirt 2830. The vest is of white organdie the skirt of silk jersey cloth and the blouse of striped washable satin. This design is nice for combinations in gingham, shanting, serge and satin, linen and batiste. The blouse pattern is cut in 7 sizes, 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 3¼ yards of 44 inch material. The skirt requires 3⅜ yards of 36 inch material. It measures about 1¾ yards at the foot, and is cut in 7 sizes: 22, 24, 26, 28, 30, 32 and 34 inches waist measure. This illustration calls for two separate patterns.

2804—Popular Dress for Little Miss—This model is fine for all wash fabrics, and nice for gabardine, serge, voile, repp and poplin. The sleeve may be cut short, or finished in wrist length. Cut in 5 sizes: 2, 4, 6, 8, and 10 years. Size 6 will require 3¼ yards of 27 inch material.

2815—A Comfortable Play Suit—This style comprises a kimono waist, with wrist or short sleeve finish, and sleeveless rompers, which close on the shoulders. Gingham, percale, drill, khaki, seersucker or galatea may be used for this style. Cut in sizes 2, 3, 4, 5 and 6 years. Size 4 requires 1⅝ yards for the waist, and 2¼ yards for the rompers, of 27 inch material.

How Heredity Crops Out

These young people are the son and daughter of Mr. and Mrs. Roy Marple of Cope, Colorado, Claudia Grace and Kenneth Hial by name. What are they up to? Look closely and you will see that Dolly, lying on the chair, has met with an accident. Little Miss Marple is adjusting Dolly's leg, while Kenneth

Two Juvenile Surgeons

has his knife ready for a very necessary emergency operation. It would be remarkable to find these youngsters playing "operation" if it were not for the fact that there is something in heredity, and that they are the favorites of their grandfather, Dr. Wheeler of Cope. Perhaps the good Doctor is watching the operation from a safe distance outside the focus of the lens?

Steamboat Gold

(Continued from Page 16)

him there to meet death in the fire of his own kindling.

Slowly Joel Langworthy turned his back upon them, as if in disdain of the schoolmaster's bullets, as if in contempt of death. He stretched his arms wide as if to embrace the flames, as a man might open them to receive his bride.

There was contempt, majestic even though so diabolically mocking, of them in this slow turning upon their anger. Contempt for their present knowledge and past ignorance; for their awe and silence as they watched him rise to the last appalling act of his dark life's tragedy.

A burst of flame swept the roof from eaves to comb, crackling the shingles like dry forest leaves; a welling cloud of smoke drew round him, hiding him for a moment from their eyes. Now the roof gave way, sinking in the shriek and wild exultation of high-lifting fire. They saw him again briefly, like a figure discovered by a lightning stroke, as he leaned with arms still spread and flung himself, face downward, into the flames.

THE END.

Club Work in Larimer County

On the first of March Larimer County, Colo., put on a full time club leader. Since then the club work has taken a great hold in the county. Six different clubs were organized; pig, poultry, corn, sewing, cooking, and canning. The clubs are to finish their work and show their exhibits at the county fair at Loveland. The plan is to entertain free all the boys and girls that finish the work for at least two days at the fair. Tents and food will be supplied by the Fair Association, while local leaders will assist the County Club Leader in chaperoning the boys and girls. The county winners will be given a free trip to the Stock Show in Denver next winter.

Pig clubs seem to be heading the list for boys, while sewing is the favorite with the girls. Many leading hog raisers of the county are acting as local leaders for the Pig Clubs and a great deal of practical good will result from such association. A number of purebred gilts will be shipped into the county to fill orders for the club members. Mr. Tingle of the college will personally select these pigs and only good ones will be chosen.

One of the largest sewing clubs of the state is located at Wellington in Larimer county; it is composed of 51 members and has three leaders. The class is divided into three sections and they are running a contest on stated points at the end of which an entertainment will be given. The local leaders had an exhibit of club sewing at the school house on school meeting day which created much interest and comment.

Canning teams are being formed and much enthusiasm is manifest over the free trip to Ames, Iowa, from Colorado this fall; each canning team wants to compete for this prize.

Forty-five boys will raise an acre of corn (Minn. No. 13), seed for which the County Farm Bureau is loaning the boys. Some good seed will be raised in the county it is hoped for next year's planting.

Poultry clubs are reporting some good hatches. The best of eggs were located for this club work and some fine chickens will be exhibited at the county fair.

Over 550 boys and girls are actively engaged in the club work now and it begins to look as though Larimer county would have some real things to exhibit at the state fair and stock show this coming fall and winter.

Drying Fruit in the Loft

I use the loft of the house. Lay rough planks down and spread a sheet over them and lay the fruit to dry. It dries better than out in the sun. Besides, it is away from the flies, out of the way of chickens and magpies, and should it rain the fruit is in the dry. Just spread it out and when dry take it up is all there is to it. Should I ever build another house the loft will be floored just for a fruit dryer. This may be of advantage to some reader.—Henry Towner, Council, Idaho.

Wasted Talent

"There is nothing sadder than wasted talents."

"You're right!" exclaimed Farmer Corntossel. "Think of what these miserable cutworms could accomplish if they'd organize as lawn mowers."—Washington Star.

Such a Little Thing!

TEA is such a little thing that we never stop to think how intimate a part it plays in our daily lives and what a wholesome influence fine tea exerts upon our restful moments.

Would you like to get more enjoyment out of tea? And if that greater pleasure can actually be enjoyed for less money than you are now paying for tea, would you like to know about it? Isn't this worth a little thought?

When people think about tea, they forget that tea-leaves contain tannin as well as tea-flavor. *Tannin*, you know, is an acid found in all kinds of leaves and is used to tan leather. Tannin may be all right for leather, but not for the delicate tissues of the stomach. It injures digestion and is hard on the nerves. Besides, it isn't tea—that harsh puckery taste isn't tea.

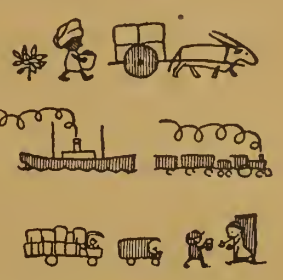
People don't want tannin of course. They want tea-flavor which gives enjoyment, gentle stimulation, rest and cheer. That is the charm and value of tea—and the only thing worth buying.

Common tea, which comes from the older leaves of the tea-plant, has only a small amount of tea-flavor—and coarse flavor at that. The main strength of common tea is tannin.

Fine tea, which comes from the young tender leaves of the tea-plant, is rich in sap and fine tea-flavor. It has only a very small proportion of tannin, and even that is avoided by proper making at home.

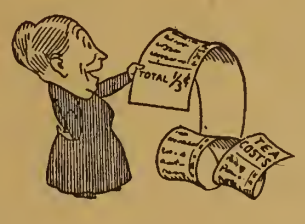
Now the tea in the cup can't be any better than the tea on the bush. A coarse leaf makes poor tea; and all the money you pay to bring it over here doesn't make it a bit better.

The costs of getting tea from the tea-plant to your kitchen are heavy; there is picking, grading, firing, packing, sending over in ships, and a lot more—20 or 30 things to be done, and each one costs money. All together these costs are more than two-thirds of the price you pay for common tea.



You are now ready to understand something that we have not dared ask you to believe before—and that is:

Fine tea is actually cheaper than common tea. It is much stronger in real tea-flavor, and makes a great many more cups to the pound. The result is that a cup of fine tea, like Schilling Tea, costs less than tea selling at 15 to 20 cents less.



This is astonishing but true; and the thing that makes it true is the great cost of getting tea to you from the tea-plant. You have to pay this cost for common tea, with half tea-strength, just the same as you would pay it for fine tea with full tea-strength. In buying common tea, you pay these expenses twice over for the tea-strength you get. It isn't worth this high cost to bring over poor tea with so little tea-flavor.

So you see that after all, getting full tea-enjoyment is more a matter of knowledge and good judgment than it is a matter of money.

Schilling Tea is the fine economical practical tea of this country. It is rich in tea-flavor and costs only ⅓ of a cent per cup. It is the cheapest drink next to water.

Isn't it pleasant to know that the comfortable social pleasure of enjoying fine tea is open to everyone?

A Schilling & Co San Francisco

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

S. C. BLACK LEGHORNS; STOCK AND EGGS for sale at all times. Harry Grimes, Chula, Mo.

SINGLE COMB WHITE LEGHORNS—YESTER-laid-Young strain; 108 eggs $5.00; chicks 15c. Mrs. C. C. Cole, Levant, Kansas.

EGGS, S. C. WHITE AND BROWN LEGHORNS; 15, $1.50; 50, $3.50; 100, $6.00. H. N. Holdeman, Meade, Kansas.

CHOICE YEARLING S. C. WHITE LEGHORN hens. Extra layers; reasonable. Mrs. Geo. Stephens, Overton, Neb.

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 8, La Junta, Colo.

WHITE LEGHORNS SINGLE COMB, EGGS $.06 each for 30 or more. Wm. A. Draves, Lemoyne, Nebr.

ROSECOMB BROWN LEGHORN EGGS, 6½ cents. State winners. Rufus Standiferd, Reading, Kan.

HATCHING EGGS FROM SINGLE COMB WHITE Leghorns, heavy layers. Barron stock, $1.50 per 15; $3.50 per 50; $6.50 per hundred delivered. Robert Shumway, Fountain, Colo.

WILKINSON'S S. C. W. LEGHORNS—BRED to lay. They also won all firsts and specials at Eastern Colorado show, January, 1919. Eggs, $1.50 to $5 per 15. E. C. Wilkinson, Box 94, Fort Morgan, Colo.

BUFF LEGHORNS, BEST LAYERS ON EARTH. Baby Chix, not the cheap kind. 25c each. One or a hundred. Hatching eggs, $1.50 for 15, prepaid. You will be pleased with my stock. Champney, 25 So. Logan, Denver.

SINGLE COMB WHITE LEGHORNS. THE LAY-ing kind; the paying kind. No hucksters, but genuine business birds that fill the egg basket all seasons of the year. Standard bred, line bred and trapnested continuously. I breed from nothing but the best. Selected for prepotency, size and vigor, and verified the trapnest route. Eggs, $2.00 per setting. Incuhator lots 8c each. Send for folder. J. S. Stever, Rock, Kans.

TOM BARON ENGLISH WHITE LEGHORNS, world's best laying strain. Baby Chicks. Hatching Eggs. Stock tested nine years for heavy egg production. They lay and pay. They make money for us; they will for you. Why not come to headquarters for the best bred-to-lay Leghorns? They will cost you no more. Write us for our circular, prices and facts from those who have tested our stock. It's free. Write. Fowler Egg Farm, Fowler, Colo.

PLYMOUTH ROCKS

PUREBRED WHITE ROCK EGGS FROM PRIZE-winning stock. Fishel strain. $1.50, 15; $4, 50; $7, 100. J. S. Cantwell, Sterling, Kans.

BARRED PLYMOUTH ROCKS; EGGS FOR hatching from pens now $1.50 for 15; from uock. 5c each, any number. Chester Blunt, Rt. 1, Greeley, Colo.

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; expresa prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

PARK'S BARRED ROCK EGGS, $1 to $2, 15; $6 to $7, 100; bahy chicks 15c. Bourden Red pure hred turkey eggs, $5 for 12 prepaid. N. P. Jones, Speed, Kans.

BARRED PLYMOUTH ROCKS. EGGS FOR hatching from four mated pens and range flock; from pens, $3.00 and $5.00 for 15; from flock, $5.00 per hundred. Send for mating list Chester Blunt, Route 1, Greeley, Colo.

LAYMORE BARRED PLYMOUTH ROCKS Eggs, $3.00-$5.00 for setting (15); $12.50 per 100. Prize winning stock. Buy eggs of this stock and you buy the best. I can furnish a few hundred Rhode Island Red bahy chicks at $20.00 per 100. J. R. Anderson & Son, Fort Morgan, Colo.

ORPINGTONS

"SHANK'S ORPINGTON'S S. C. BUFF." YOUR chance to get great layers from Madison Square Garden Blood. After this date I will sell hatching eggs at—utility $1.75 for 15; $5.25—50; $10.00—100. Pen 1 eggs, $4.00 for 15; $7.50 for 30. Pen 2, $3.00—15; $5.75—30. A pleased customer is my motto. F. M. Shank, Route 2-A, La Junta, Colo.

WYANDOTTES

WHITE WYANDOTTS, LARGED BONED; EGGS $.07 each for 30 or more. Wm. A. Draves, Lemoyne, Nebr.

RHODE ISLAND REDS

HIGH-CLASS SINGLE COMB REDS. GET MY price on hatching eggs. Three pens 250-egg strain. Nels W. Peterson, Mason City, Neb.

EGGS FOR HATCHING—ROSE COMB REDS exclusively; prize-winning, heavy laying strain Write for mating list. E. A. Miller, Alma, Nebr

CORNISH

INVINCIBLE DARK CORNISH, UTILITY AND exhibition; mating list. R. H. Jandeheur, Alma, Nebr.

SEVERAL VARIETIES

HATCHING EGGS—GET FREE CIRCULAR Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

BEAUTIFUL SILVER CAMPINES — 240 EGG strain—$8.00 for 100; $5.00, 50; $2.00, 15; large white eggs. Culvendale Farm, Red Oak, Iowa.

BABY CHICKS

COLUMBIA HATCHERY — ALL LEADING VA-rieties of Baby Chicks, Cockerels and hatching eggs. Our aim this season will be service and quality. We have increased incuhator capacity to take care of our growing business. Live delivery guaranteed to your express or postoffice; it is our loss if chickens do not reach destination strong and healthy. Write for price list and particulars. P. O. Box 1102, Denver, Colo.

BABY CHICKS THAT WILL LIVE—WE hatch chicks that will live and thrive in the Mountain territory. Have heen making the Denver Incubators and hatching and selling chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 25 or more. Selected Barred Rocks, Reds, White Wyandottes, $18 per 100; extra fine laying stock, $20. White Leghorns from the hest in Colorado, $16 per 100. Why not buy direct from the firm that does the hatching in Denver. No reshipped chicks from us. Denver Incubator Co. and Hatcbery, 175 South Broadway, Denver, Colo.

DUCKS

RUNNER DUCK EGGS — $1 SETTING OF eleven; $3.50 for 50. Mrs. Baker, Arvada, Colo., Rt. 1.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—REGISTERED JERSEY BULL calf, dam granddaughter of Noble of Oakland. Shirley, 3934 So. Bannock St., Englewood, Colo.

MONEY TO LOAN ON CATTLE—IF INTER-ested call or write F. E. Wrockloff, Merchante Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELL-bred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the laat Stock Show, Denver. Price $150 per head. All hest Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HAVING SOLD THE FARM, I AM OFFERING nine registered cows three to eight years old, of Segis Pietertje and Abbekerk breeding, and the herd hull just past two years old, sired by a half brother to Tillie Alcartra, the world's record milk cow, a granddaughter of King Segis and Hengerveld De Kol, at a price which is 25 per cent under their value. This is a grand opportunity for some one to get a start in good stock at the right price. I also have some young hulls hred in the purple at farmers' prices. N. A. Rand, Fort Lupton, Colo.

HOGS

BIG TYPE POLAND CHINA; BOAR PIGS, OLD enough for service; correspondence aolicited. Gad Barney, Haswell, Colo.

FOR SALE—A FEW BIG TYPE POLAND-China hoar pigs. Weaned. Write or come and see them. W. J. Peterson, Seibert, Colo.

BIG TYPE POLAND-CHINA PIGS, APRIL AND May farrow, for sale at weaning time. Correapondence solicited. Gad Barney, Haswell, Colo.

CHOICE REGISTERED HAMPSHIRE GILTS. The range hog. Best of hlood lines, bred to National show winner or other splendid individuals. Reasonahle prices. L. F. Newhold, Minden, Nebr.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

DUROC JERSEYS, CHAMPION STOCK. I have on hand a few boars, age nine months, sired by 1918 Colorado Champion, that I will sell for $75 each. Improve your herd with some pedigreed hlood. J. N. Caldwell, Willow Grange Farm, Littleton, Colo.

THREE EXCEPTIONALL FINE DUROC JER-sey hoar pigs, 2½ months old, sired by Cherry Chief of Edgemoor, Grand Champion of Colorado 1918, out of Gano's Chief Lady, a fine 600 lb. registered sow. If it is class you want, here it is. Z. M. McIntosh, 3219 W. 44th, Denver, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND AN-other registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo. On U. P. R. R.

SHEEP

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamh, $35.00 each, one or 50. Lambed in March, ready for service, in Septemher. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 398J.

FOR SALE—400 HEAD PURE BLOOD COTS-wold breeding sheep, one to four years. Reason for selling, lady owner and poor health. Price $25 per head. An income of $8,500 per ycar can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 398J.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

RECLEANED SEEDS—ALFALFA, 98 PER cent pure, $10.00; Amber cane seed, $1.75; red amber or orange, $1.95; Sumac or sourless. $3.00; common millet, $2.25 hog millet, $2.25; Golden or German millet, $2.65; Siherian millet, $2.75; African millet, $3.00; Schrock, $3.00; Feterita or Milo maize, $2.50; white kaffir, $2.25; red kaffir, $3.25; Reids yellow dent, Boone county white, silver mine, or red cob white corn, $3.25; Bloody Butcher, $3.50; Calico, $4.00 Sudan, 25c pound, $23.00 cwt., sacks free. Order right from this ad. Satisfaction or your money hack. We ship from four warehouses and save you freight. Liberty Bonds accepted at par. Meier Seed Co., Russell, Kan.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

640-ACRE HOMESTEADS—STOCK, GRAIN. Duff, Casper, Wyo.

MONEY TO LOAN ON DRY LAND FARMS AND stock ranches. Write Shanholtzer, Brush, Colo.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

TRACTOR DEMONSTRATION LAND, EITHER 80, 160 or 640 acres at $50.00 per acre; some terms. A. J. Simonson, 314 Cooper Bldg., Denver, Colo.

REAL ESTATE WANTED—SELL YOUR PROP-erty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

WE LOAN OUR OWN MONEY ON NON-IRRI-gated land. Write for particulars. The Eastern Colorado Farm Loan Company, 410 First National Bank Bldg., Denver. Colo.

320 ACRES 1½ MILES FROM INTERURBAN station, close to Lincoln Highway; 13 miles from Denver; fine water right, 3 good lakes; 7-room house, good barn; 120 acres alfalfa; fine thorough stock farm close to loading station; only $140 per acre. B. J. Hockabout, 527 17th Street, Denver, Colo.

HELP WANTED

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MASON SOLD 13 SPRAYERS AND AUTOWASH-ers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

NEGRO SOLDIERS IN WAR. BOOK CONTAIN-ing many pictures colored troops; everybody buys; agents making $25 day; hig hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

HUNDREDS GOVERNMENT JOBS OPEN TO men-women, $1,000-$1,600 year. Pleasant work. Paid vacation. Common education sufficient. Write immediately for free list positions now open. Franklin Institute, Dept. G 171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 200 mailing expenses. Best terms, credit given. Order outfit without delay. Address The S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

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INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

BUTTERFLIES WANTED FROM ROCKIES. Good pay. Full instructions to persons willing to collect. Theodore Lehmann, 220 West Sola, Santa Barbara, Calif.

TORIC EYE GLASSES $4.75. GUARANTEED gold filled with deep curved special Toric lenses. Complete $4.75. Mail orders a specialty. Toric Optical Co., 1515 Stout St., Denver, Colo.

IF YOU WANT TO MAKE A SATISFACTORY job of Canning all kinds of Vegetables, Fruits and Meats, by all means use an Alexander Home Canner, and you will never be disappointed. Thousands of people are delighted with the superior quality of the canned products. Canning Experts and Demonstrators say the Alexander Home Canners are the best Family Canners on the market. For prices and description write G. W. Alexander & Co., Plattsmouth, Neh.

PIPE — PIPE — PIPE — CASING. 4,500 FT. 2-inch std. second-hand black pipe. 6,000 ft. 1½-inch s. h. light weight black pipe. 1,000 ft. 3¾-inch s. h. casing. 2,500 ft. 3¼-inch s. h. casing. 1,000 ft. 10-inch s. h. casing. 1,000 ft. 9-in. riveted pipe. 600 ft. 18-inch riveted pipe. 3,000 ft. 22-inch riveted pipe. 1 mining whim, 1 Spence heater, 1 boiler feed pump. Get our prices on pipe not listed above. Havens Bros., 1622 Wazee St., Denver.

AUTO TIRES

TIRES, FORD, $6.75. LARGER SIZES equally low. Lowest tube prices. Booklet free. Economy Tire Co., Kansas City, Mo.

GROCERIES & SUPPLIES

100 LBS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1528 Nineteenth St., Denver, Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

KODAKS

KODAKS, CAMERAS, PHOTO SUPPLIES—Ford's the best kodak store, 1029 16th St., opp. old P. O., Denver, Colo., for Eastman Kodaks, all makes cameras, films, photo supplies. Develop any size roll films, 10c; print pictures, 3c each and up; mail orders solicited; kodak and camera catalog mailed free upon request. Mention thia paper.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

FARM MACHINERY

FOR SALE—ONE 14 IN. DOUBLE CYLINDER American bean huller, $35.00. G. L. Nixon, Box 341, Castle Rock, Colo.

TRUCK-DERRICK. ONE MAN EASILY changes heaviest hay racka and wagon boxes onto and off the wagon—price $9.00. Satisfaction or price returned. F. Lovering, Fremont, Nebr.

CABBAGE CUTTER SIX KNIVES—SLICES ALL kinds of vegetables rapidly. Fine for Saratoga chips. Prepaid $1.00, three for $.200; Agents wanted. Lusher Brothers, Elkhart, Ind.

CORN HARVESTER, ONE-MAN, ONE-HORSE, one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25 with fodder hinder. Free catalogue showing pictures of harvester. Process Corn Harvester Co., Salina, Kan.

175
NATIVE YEARLING HEIFERS
Hereford & Shorthorn
From large Durham Cows and Hereford Bulls. All in fine condition.
H. Bert Cave Littleton, Colo.

FRANK P. HEALY
Breeder of Shorthorns
Forty years in Iowa, now has for sale a Yearling Scotch Bull and some heifers. Write, or come and see them.
Fort Collins, Colo.

HOLSTEIN BULL CALVES
We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.
PAHGRE VALLEY RANCH
Montrose, Colo.

BIG TYPE POLAND CHINAS
I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.
GEO. E. GILMORE, Ft. Morgan, Colo.

YOUNG HOLSTEIN BULLS
Two extra good bulls coming two years old; and hull calves under one year old; all nicely marked; good type—King Segis, De Kol, Ormsby, and Pontiac breeding.
For further information and prices write,
W. A. PURVIS, Johnstown, Colo.

Canary Repeater Herefords
Sired by
Repeater 63rd
FOR SALE—A carload of 1-year-old Bulls and a car of 1-year-old heifers.
Also a Few 2-Year-Old Bulls
J. D. Canary Denver, Colo.
720 Majestic Building

MAJESTIC SUNBEAM

HEREFORDS

Herd headed by "Majestic Sunbeam" by "Majestic 24th" by the Imported Bull "Majestic," he by "Argon" by Prospero" by "Statesman"; dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

BEAU ANDREW

By "Beau June" by "Beau Mischief." Beau Andrew is a grandson of "Beau Mischief" and one of the biggest boned bulls sired by the great "Beau Mischief."

MAJESTIC SUNBEAM HEIFERS

All bred to Beau Andrew

Have several head of yearling coming two year old bulls sired by "Majestic Sunbeam" and "Beau Andrew" for sale.

Would also sell 18 to 20 head of "Majestic Sunbeam" heifers and young cows from 2 to 4 years old.

If you are looking for the best blood, quality conformation and the biggest bone bulls in the West to put size and weight in your herd of cattle, come and look my cattle over. I am pleased to show them at all times.

I also have for sale 30 head of full-blooded Poland China gilts, sired by my great herd boar, "Wonder King." These gilts are bred to my next herd boar, "Standard Darkness." These two boars are the biggest Poland China boars in Colorado or any place in the West. Gilts are due to farrow in the next three to five weeks. Price, f. o. b. cars, Wellington, Colorado, $55.00.

A. J. CAMPION

Union Stock Yards DENVER, COLORADO

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE-BRED

Hereford

BULLS

We Have on Hand and For Sale

250 Head Yearling Bulls

100 Head Two-year-old Bulls

Good Bone, Colors and Markings
Fine Condition for Service

Write or phone us regarding these Bulls. It will be worth your while

715 E. & C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Durocs am sold down to November pigs. They are sired by a son of Top Sensation.

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

We Will Hold a Bred Sow Sale, August 6th, 1919

Registered Hereford Bulls

Very Attractive Prices
Some good Registered Hereford Bulls of our own raising, and ready for immediate service.

Any Number From One to a Carload

Write your wants, or come and see them. Everything we sell is fully guaranteed.

JOHN E. PAINTER & SONS
Roggen, Colo.

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

Holstein Cattle

Five Registered Bulls All but one from A. R. O. Dams by a grandson of a World's Record cow. Strong in Johanna and King Segis blood—good individuals and nicely marked. A hargain.

18 Holstein Cows and Heifers

Of very high grade, all fresh or in calf to a bull of World Record breeding — a money-making herd. For sale on account of our policy of keeping only registered cattle in the future. We also have for sale six yearling heifers out of these cows. You can pick a young registered bull for service with this herd at a reasonable figure.

Use a bull that will raise the average of your herd. A cow of our raising topped the sale at Englewood recently.

Calves taken now will be delivered FREE to Colorado Springs.

R. G. Douglas, Rush, Colo.

WYNNEWOOD RANCH

BIG TYPE POLAND CHINA HOGS

Junior Champion Gilt, Denver Stock Show, 1919, exhibited by Wynnewood Ranch

FOR SALE—Two young boars, sired by the Sensational BIG BOB WONDER No. 252987, dam Master Queen 2nd No. 696650, weight 600 pounds.

These boar pigs are out of a litter of ten, their color and marking are perfect. They are six months old and weigh 200 pounds, not fat. They are of the best Poland China blood lines.

Also have weanling pigs of both sexes same breeding as above.

L. G. DAVIS, Owner
Address C. E. GORDON, Manager, Overland, Colo.

THE CITY PARK DAIRY FARM

We breed and always have for sale

High Grade Holstein Cows

Our herd is sired by registered bulls of reputation.

Visit our farm—only 1 mile from Denver, on Leetsdale Drive.

OUT OF TOWN ORDERS FILLED

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

Lakeside Herd Registered Durocs

We can offer you tried sows and gilts, of Sensation, Kings Col., Defender, Orion Cherry King, and Golden Model breeding, bred to farrow in August and September, to our BIG TYPE BOARS, Diamond Orion and Diamond Model Supreme.

All hogs immuned. Write us your wants.

DR. F. T. DALY, CAMBRIDGE NEBRASKA
The Greatest Pure-bred Live Stock Center in the West

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion.
Chicago, 1917
Denver, 1918
and 1919

Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.
Elbert, Colorado

HOLSTEIN CALVES We offer a few choice high-grade calves from heavy milkers. Write W. C. KENYON & SONS, Holstein Stock Farm, Box 39, Elgin, Illinois.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

Registered Hereford Cattle

Prince Domino—199611 Sire of the Champion Futurity Bull and Heifer

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER
Holyoke, Colo.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.
DENVER, COLO.

2055 Humboldt St. Phone Main 5713

Why It Pays the Farmer to Buy Purebred Bulls

(Continued from Page 5)

steers around for three or four years, as can be done on the open range. And baby beeves are profitable. The Nebraska Experiment Station ran some tests a few years ago in producing feeders for market. They also carried on some experiments in producing baby beef with steers of the same type. Even with the cheapest rations, none of the feeders sold proved profitable. When the same kind of calves were fed out as finished baby beef, all lots made a profit. These experiments were not made at the same period of time and so might have struck different market conditions; but it is extremely likely that the same result would be obtained under equal market conditions. Baby beef is the most profitable beef type for the small farmer and baby beef cannot be produced except by the best type of purebred beef bulls.

We were out 40 miles east of Colorado Springs recently. Mr. Wm. Duncan of Yoder, a Civil War veteran, has a dry land farm there on which he keeps a few grade Shorthorns and scrub cows. But the calves he was raising would be worth $30 to $50 per head more at muturity than the cows. Why? Because the herd bull was a son of Avondale out of a daughter of Victor Sultan, both great sons of the greatest of Shorthorn bulls, Whitehall Sultan. He was thin, had never had any grain, and had wintered on straw. but the calves he had produced were so far ahead of their dams that there was no comparison.

The scrub bull should have no place on the farm, whether for producing baby beeves, dairy cows. or dual purpose stock. If a man wants the latter he ought to buy a dual-purpose purebred bull. There is nothing more hopeless than to see a farmer trying to raise both dairy cows and beef steers with a knot-headed brindle bull that came from crossing a half blood Jersey sire with a buckskin, colored longhorn.

You will hear that kind of farmer tell how "Jim Jones bought one of them highpriced Herefords at the Stock show and turned him on the range and the critter went all to pieces."

Certainly. We have seen a lot of other highpriced things from autos to trotting horses get into the hands of people who could not, or would not, take care of them. Probably Jim Jones should have picked a less highly fitted purebred bull to start with. Yet it is not necessary to pay big prices to get serviceable purebred bulls.

Building Hereford Type for Western Conditions

(Continued from Page 3)

farmer and the feeder who uses the surplus from these breeding herds, or buys the sires and choice females to bring up the blood in his own cattle? It means steers in the feed-lot that will take on flesh quickly and that will provide the biggest percentage of choice cuts and the least waste on the block. It means, on the farm, a class of herd improvers that will pay for high priced feed produced on three hundred dollar land—stuff that reaches beef proportions in the quickest possible time and provides good beef.

No finer beef is produced anywhere in the world than right here in these western range states. Thirty years ago that was not true. It is the work of such men as L. G. Davis and other careful breeders and improvers of the type, that has brought about this change. They are not the men who make the big money; that often goes to the trader and the feeder. The breeder is the man in the background who stakes everything he has on his judgment and then follows his ideal with the patience of Job. Sometimes he is rewarded with the ribbons in the show ring; occasionally he sells a bull at a sensational price, but his real results come through the constant dispersion of good blood out among the men who carry on commercial cattle production.

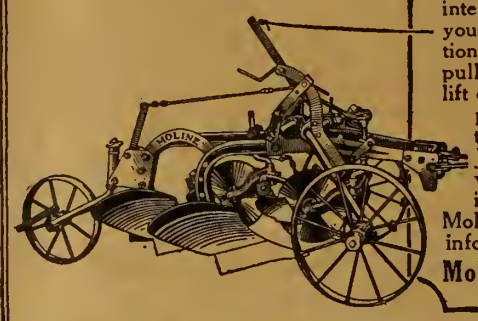
Build a silo this summer.

Need of Apple Grading

In a comprehensive review of the "Why and Wherefore of Present Market Conditions," Stuart L. Sweet, Colorado Field Agent in Marketing for the U. S. Bureau of Markets, makes pointed comment on the matter of proper grading of Colorado apples as follows:

"Grading has an important bearing in our marketing problems today. It is because of careful and proper grading that the consumers prefer to buy the apples shipped into Denver from Oregon and Washington and pay a premium for them above the apples of the same variety produced in Colorado and shipped but a few hundred miles to this market. They have found by experience that the northwest apples are uniformly graded, that one box is a duplicate of another, and that a box of the same apples of the same grade is identical with that purchased by them the previous year. They know that all the apples are bright and sound and of good edible quality. As such products can be depended upon and as there is no waste, they prefer to buy these apples despite the fact that they demand a premium over a Colorado product. This is just one of the many effects of proper grading and standardization."

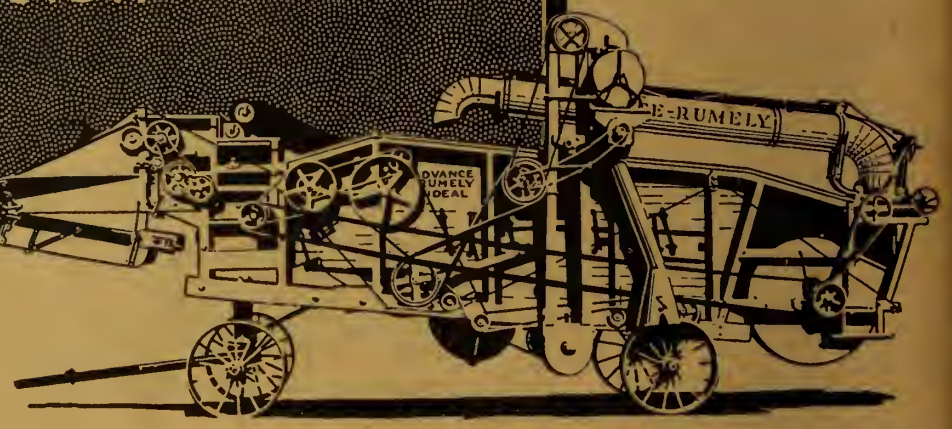
MOLINE Power Lift GANG NO.11



YOU get real satisfaction from your tractor and a real job of plowing when you use this Moline Plow. It has improved positive power lift device which saves power, time, and enables better work to be done. To raise the plows pull the cord until the power lift lever locks, and the plows are raised without further attention. If you want to raise your plows, just an inch or two or any intermediate distance, to relieve your tractor or clear an obstruction, you can do so by a slight pull on the cord. This is the only lift on which you can change the plowing depth without raising the plow out of the ground. Just one of many features which will make your plowing easier and better. See your Moline Dealer or write for full information.

Moline Plow Co., Moline, Ill.

The Best of 80 Years Experience in this New Small Ideal



THE accumulated manufacturing experience of over three-quarters of a century—and the judgment of over 20,000 Ideal owners — is back of the new, small 22 x 36 Ideal Thresher.

You know the record and reputation of the larger sizes of the Ideal—there's no farming community that hasn't its Ideal outfits with their satisfied customers. When we were called upon to build a smaller size separator, we didn't just "turn one out"—we built along the same lines as the Ideal, determined that our small threshers would be leaders in their class just as are the larger.

So in the small as well as the larger Ideals you will find those features that mean the difference between a "sure" and a "guesswork" job. Ideal thresher owners will tell you that.

Bunching, or cylinder winding is unknown in the Ideal—because the Ideal is designed on the principle of *a steady, even flow of straw through the machine* from the time it enters the cylinder until, free from all grain, it leaves through the stacker.

First of all, we placed the Ideal grates exactly right in relation to the cylinder. Then we designed the Ideal travelling slatted rake to take the straw from the cylinder and carry it to the straw rack. Result—more grate surface and a steady even flow of straw, making choking impossible.

Shaking alone wasn't a guarantee of complete separation, so we put sets of lifting fingers on the straw rack, that tear the straw open—rake it—beat it from beneath. Result—complete separation and no waste.

Then, to take care of the increased capacity due to these inventions and to make the Ideal do a perfect job of cleaning, we put in extra chaffer area. The chaffer in the cleaning shoe, with the adjustable sieve and our special system of wind control, guarantee a perfect job of cleaning without waste. Result—the kind of cleaning that gets "no dockage" at the elevator.

Such construction shows why the small 22 x 36 will handle up to 900 bushels of wheat in a day's run—the 28 x 44 up to 1,500 bushels.

The Ideal is built in four sizes—22 x 36, 28 x 44, 32 x 52 and 36 x 60—standard in design and construction, and meeting all needs, from the man who owns his own power and wants to do his own threshing, to the custom thresher.

Write for a special Ideal catalog.

BACKED BY WRITTEN GUARANTEE

The guaranteed oil-burning, oil-cooled OilPull Tractor is built in sizes to fit every size Ideal.

ADVANCE-RUMELY THRESHER CO., *Inc.*

La Porte, Indiana

Kansas City, Mo. Portland, Ore.

ADVANCE-RUMELY

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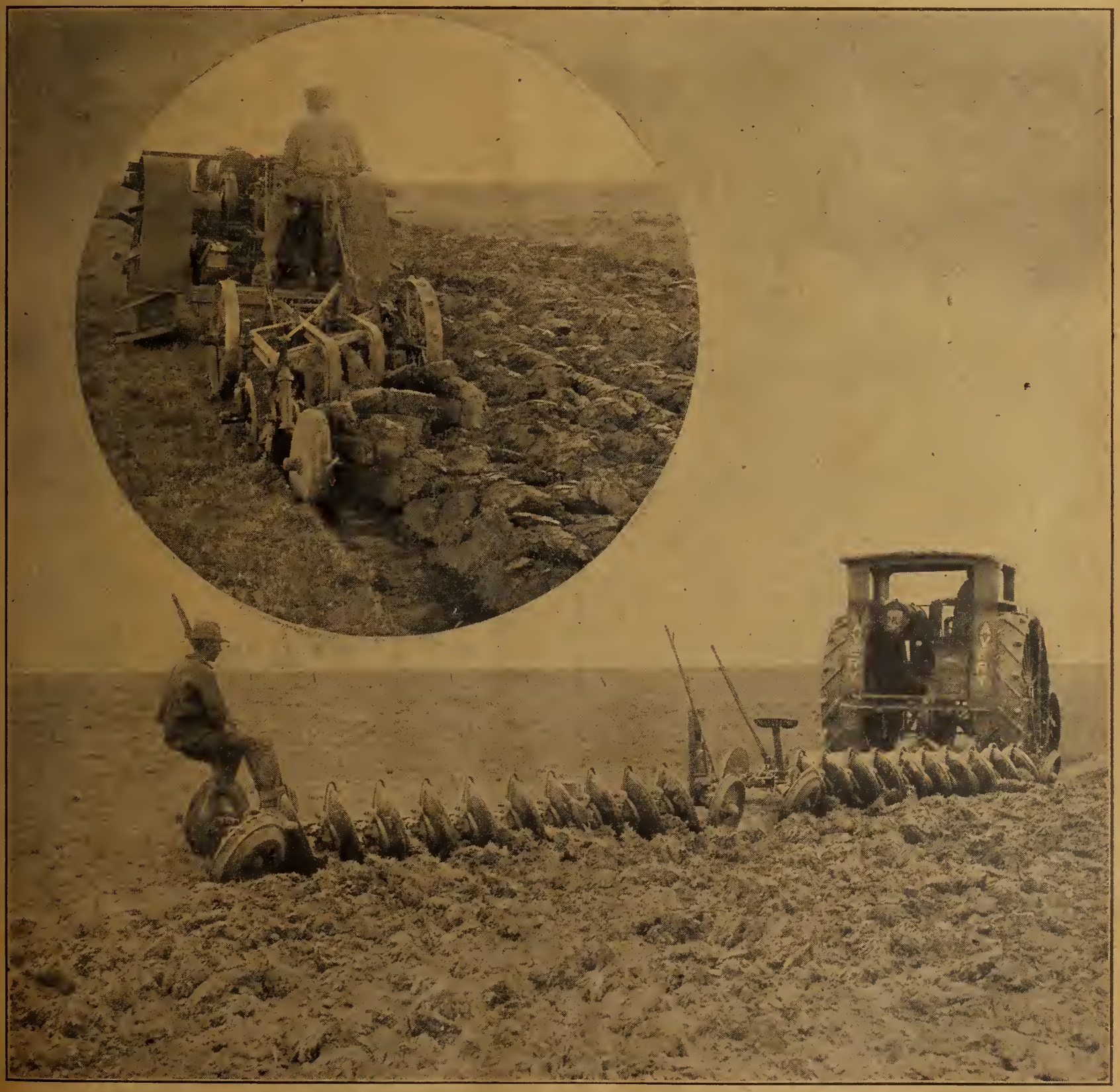
JUL 12 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, July 1, 1919 Semi-Monthly



MOLDBOARD AND DISK PLOWING AT MOUNTAIN STATES SHOW

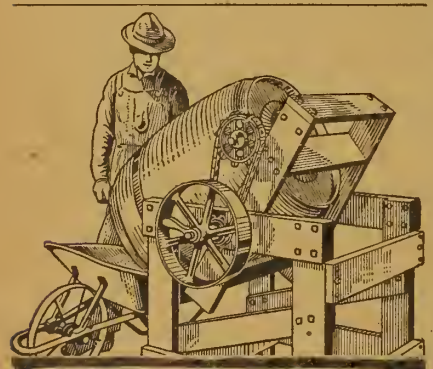
The Test of Time

A Shingle Roof Painted With

Bituminous Waterproof Roof Paint

Will last for years without repairs.
The rich black color does not fade.
For sale by leading dealers in Denver, Colorado, Wyoming and Nebraska.

CROWN TAR WORKS
DENVER
Operated by the
Denver Gas & Electric Light Co.



PUT THIS CONCRETE MIXER ON YOUR FARM

You can save many times the cost of a Sheldon Farm Concrete Mixer on a few small jobs. What is more, you can do the work when you please, in otherwise idle time. It is made especially for farm use, and will handle large jobs as well as small. With a

SHELDON BATCH TYPE CONCRETE MIXER

you can, at lowest possible cost, build your own Concrete Feeding Floors, Foundations, Walks, Posts, Tanks or Silos. Sheldon Mixers mix 3 cubic feet at a batch; have continuous chain drive, clutch pulley, easy tilting discharge, handy dumping lever and sand-proof bearings. No other mixer excels its quality of work. No other mixer approaches its wonderfully low price.

SEND FOR FREE CATALOG TODAY
It fully describes all types of Sheldon Mixers, and gives all of the remarkably low prices. It's *free*. Get copy today. A postal will bring it.

Manufactured by
SHELDON MFG. CO., Nehawka, Neb.
Sold by
H. W. MOORE & CO
1753 Wazee St. Denver, Colo.

BIG CUT
IN ENGINE PRICES
KEROSENE — GASOLINE

2 to 30 H-P.
Immediate Shipment

Stationary, Portable or Saw-Rig—all at greatly reduced prices. Best Engine—longest record—strongest guarantee. Choose your own terms. No cut in quality, but a big cut in price for quick action. Write for new **cut-price** catalog—**FREE**, postpaid—ED. H. WITTE, Pres.

WITTE ENGINE WORKS
2645 Oakland Avenue, Kansas City, Mo.
2645 Empire Building, Pittsburgh, Pa.

A Russian Thistle Warning

It seems to be necessary, time and again, to refer to the fact that the Russian thistle is a pernicious weed. Doesn't the farmer know it? He does. Do the experiment stations know it? They do. Then why mention the matter again? Because the farmers of the plains country are not awake to the danger that threatens agriculture from this source. Russian thistles are so common that we have come to accept their presence as a matter of course. Some dry land farmers use them as feed. Cut in the green stage and carefully ricked, they make a satisfactory roughage, when nothing better is available. They are often ensiled, usually in combination with a weedy crop, their unwelcome presence forcing the farmer to cut them with the corn.

Because they are being so utilized and because here and there a county agent, or an experiment station, has undertaken to show their value as a feed, the danger of giving them formal recognition as an asset to farming in the semi-arid regions becomes imminent. It is a serious mistake to say anything good for the Russian thistle. It is an unmitigated evil. Most any weed that grows has some food value for stock. Our ranges are covered with weeds that play a part in making up the natural ration of our cattle, yet no one wishes to make any attempt to cultivate even the best of them, because we have our hands full in improving our present list of cultivated food and feed plants. However because the Russian thistle is ubiquitous we look for the easier way out of a bad mess and want to fool with it to see how well it will winter our herds.

At the Fort Hays Experiment Station in Western Kansas work was carried on last season, simply as a side line, to show how the plains farmer can utilize even his weed enemies in an emergency. The intention was good, but the effect is not, for now come requests from eastern seed houses to Superintendent Weeks of the Experiment farm for information as to where they may obtain Russian thistle seed. Of course these seedsmen will be set right, but what is to prevent some who are not informed procuring seed and putting it out among farmers in the east who are not familiar with "this new and valuable forage plant?" Seedsmen are constantly scouting for new and untried plants to increase their catalogue lists, because farmers are often more eager to try out something new than to study and improve established plants.

To offset this possibility Superintendent Weeks has issued a circular letter setting forth facts about the Russian thistle; that they do not yield as much as our cultivated forage plants; that it is extremely difficult to cut them at the only time when they can be used at all for feed—before the spines and stems harden—and that they become a tumble weed during the winter, scattering seeds everywhere, thus infesting the "entire country around with one of the worst moisture using weeds that exists."

Mr. Weeks explains that the reason for making tests in feeding Russian thistles was merely to prove that "this weed crop, that takes possession of many acres of Western Kansas land, may be utilized as stock feed, but if the farmer is going to plant a forage crop the last thing we would recommend would be Russian thistles."

The truth about the Russian thistle is that it costs the farmers in half a dozen Western plains states millions of dollars annually in reduced grain yields through the sapping of moisture and in dockage for weed seeds. The pest is growing worse every year. What we need is combined action by the affected states, through their agricultural authorities, mapping a program of eradication that can be carried out through the farm bureaus. Unless this comes it will finally mean drastic legislation that will work hardships on many farmers whose lands have been seeded through no fault of their own.

Nothwithstanding the large number of students taken in the war service and the ravages of influenza, the Agricultural College at Ft. Collins graduated about eighty young men and women this year.

Strength is Vital in a Tractor Plow

In order that money invested in a power-plowing outfit may return satisfactory dividends, every precaution should be taken to avoid interruptions during the plowing season. Choosing a safe plow is just as important as getting the right tractor, for if the plow goes wrong, your entire outfit is "hung-up."

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Observations On the Tractor Demonstration

WHAT AN EXPERT SAYS OF THE PLOWING AT THE DENVER SHOW

Good depth of plowing in dry sod

ALVIN KEZER, Chief Agronomist Colorado Agricultural College

IT has been the writer's pleasure to attend a number of tractor shows. The one staged at Denver June 9th to 12th compares very favorably with other shows.

The tract of land chosen for the plowing demonstrations was admirably adapted to test the mettle of both tractors and plows. The land was virgin prairie; a heavy silt loam in texture with numerous buffalo wallow patches, which patches carried considerable percentages of clay, making a joint clay formation, one of the stiffest soils to plow likely to be encountered. One man from Missouri facetiously remarked that the land hadn't received rain since Noah, which is equivalent to saying that the land is as dry as dry prairie sod could become. Manufacturers who had advertised in advance the number of bottoms they would pull were busy reducing this by one, and in some cases two. Many tractor manufacturers who had planned to use moldboard bottoms substituted disks after seeing the conditions.

Plowing demonstrations started Tuesday at 1 o'clock sharp. The start was announced by a shot from a French 75 from the Government ordnance exhibit. Each tractor had been assigned space in the plowing field. Positions were determined by drawing lots. The space assigned was conditioned upon the number of bottoms drawn by the tractor. Eighty acres were plowed in about an hour and a half. The start on the second day was at the drop of a flag under the leadership of A. E. Hildebrand. All tractors were required to pull their plows six inches deep on the penalty of being ordered off of the field if they failed to comply when warned by official observers.

In this respect, all manufacturers were treated alike and the demonstration was good. Wherein the demonstration was weak was that there was no way of determining, under the conditions of the demonstration, the fuel and oil consumption—points of very material interest to farmers. Many farmers were heard to remark that they would like to know relative fuel and oil economy.

The older established and better standardized makes made good field showings in this demonsration. The freaks, some of the new and cheap models, to use the expression of the farmers, "were shown up." Some manufacturers have not yet learned that farmers are hardheaded business men. These manufacturers were attempting to pull loads above the capacity of their engines. Farmers on the field were frequently heard to observe: "I would rather see that tractor pulling one plow and doing a good job than three and not making it." Tractor manufacturers who have been in the game for sometime realized this and governed their operations accordingly. Several makes attempted plowing speeds entirely incompatible with good work, using plows designed for much slower speeds.

The good plowing was done by those outfits which traveled at a moderate steady speed which had reduced their bottoms until the engines were appreciably bigger than the loads. This tendency of the older manufacturers is in direct contrast to any previous tractor shows. The writer is of the opinion that these manufacturers have learned that false advertising at a tractor show hurts their business. It is false advertising to attempt bigger loads at a show than a tractor is capable of handling under ordinary field conditions.

There was a notable increase of four-wheel types and two-wheel types over previous shows. Three-wheel types have been greatly reduced in number. The crawler or track-layer types had a much larger showing than at the Salina show a year ago. This was partly due to the fact that many of the manufacturers of these types were unable to show at Salina because of rush war work at the time of that show.

Farmers are still afraid that the crawler or track-layer type has not been perfected and standardized to the point where the track and its mechanism have long wear, low repair and great dependability. When these machines have been perfected to the point that farm operators have confidence in the freedom of repair and dependability of the crawler type, it is quite likely that this type will increase in popularity. Farmers were frequently heard to remark that it was not only the expense of making a repair, but it was also the expense of lost time at critical periods when the repair must be made. The crawler types claim great improvements in the durability of their track and crawler mechanism. If these claims are substantiated in practice, this type will find increased use.

The increase in numbers of four-wheel types and two-wheel types shows these designs to be essentially sound as opposed to three-wheel outfits because these designs have remained as the result of competition in actual service. There is a place in driving farm machinery for the two-wheel types which pull the machines and may be driven from the seat of the machine. One four-wheel drive also made an exceedingly good showing.

Advantage of Simplicity

The wheel types all have the advantage of simplicity, and if good design is used, durability and freedom of repair, but all have the weakness of insufficient traction for some purposes. There is a great field for improvement in the design and application of grouters which will increase the traction on wheel types. With present designs of grouters, most of the wheel types have sufficient traction on hard ground but on stubble land, on land with considerable vegetative covering and on plowed lands these machines suffer from slippage. Slippage not only loses power, but it throws severe mechanical strains upon the machine.

Many of the tractors were kerosene burners. Some of them burned kerosene quite successfully but even kerosene burners operated with greater certainty on gasoline. Kerosene is difficult to vaporize. To do this efficiently means the proper application of heat. The most successful kerosene burners have more nearly approached the proper application of heat to the fuel line. Properly vaporized kerosene is a highly successful fuel.

Another very noticeable feature was that the most successful kerosene burners were slow-speed engines, although some manufacturers were attempting a high speed showing with this fuel. Their showing, however, had certain weakness apparent to many farmer buyers, as evidenced by the remarks of farmers.

On the hard ground which prevailed, properly set disk plows were doing good work. Not all of the disk plows, however, were properly set. The result was poor plowing. Ground as hard and dry as that used in the demonstration was almost ruinous to the plow shares of the moldboard types. Although the plowing was ruining shares very rapidly which would run up operating expenses possibly beyond economical figures for practical conditions, these plows, when properly set and operated at reasonable speeds, were doing good work. It was interesting to note that farmers very quickly caught the weak points of the implements as well as the tractors—a thing that wise manufacturers and dealers will heed.

It is doubtful if land in the condition of this land could have been plowed by horse-drawn implements. While not in the best condition for good work, the tractor made possible early preparation of such land for fall seeding. Early deep preparation is essential in much of the dry land territory. Early preparation is essential so that the sod may be broken, stopping the growth of vegetation, and in order that a considerable amount of time may elapse before seeding so that nature can make the proper compaction and so that if rains fall the soil may be in shape to receive them.

Practically every tractor was equipped with some device for straining the air which passes through the carburetor into the engine itself. It is doubtful if a tractor could run a week in dust such as prevailed at this dry time unless the cylinders were protected by some dust filter device.

Now Using Good Steel

Another noticeable feature was the tendency of manufacturers to use drop forgings and high price alloy steels for parts. This is in pleasing contrast to the old practice of cast-iron gears. Strength, long wearing, reliability with relative light weight, are three essentials in a tractor. Manufacturers are obtaining these results by more drop forging, by cut steel gears and by inclosed gears. That is, by better design, better materials and better assembling. All tractor manufacturers show a tendency to better equip their machines with that most necessary adjunct to all American implements—a seat.

Tractor-drawn implements for summer tillage were shown. Some of these implements would evidently work in plowed land but the attempts to do a job in the unbroken dry prairie were not successful, at least in the minds of the farmers. The most characteristic remark of the farmers following the machines were "not for me."

Tractor-drawn cultivators and harvesting machinery, while exhibited, were not given the demonstration ac-

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GENERAL FIELD VIEW AT THE MOUNTAIN STATES NATIONAL TRACTOR DEMONSTRATION

Dehydration of Potatoes and Uses of Product

HOW POTATO FLOUR OR MEAL CAN BE MADE ON THE FARM

E. L. KIRKPATRICK

DRYING or dehydration of potatoes should be of interest to the commercial potato grower as well as to the average farmer of Colorado. While figures are not available as to what amount of the 9,000,000 bushel potato crop may be shipped to distant markets, it is an undisputed fact that each ton of actual potato food shipped is accompanied by at least five tons of water. A process whereby shipping weight and shipping bulk of potatoes or other perishable food crops can be reduced by four-fifths and one-half, respectively, deserves the attention of the producer as well as of the market man and the consumer.

Three methods of drying based on the use to which the product is put are worthy of consideration, namely, the drying of sliced potatoes for ordinary use, the amking or milling of potato flour, and the manufacture of potato starch. The last named will not be considered in this article.

The production of dried or dehydrated sliced potatoes is quite simple. Peeling is advisable and in most cases it is a satisfactory way of washing the tubers thoroughly. A hand or belt driven vegetable peeler handling from one-half peck to four pecks per charge may be used. Time required to pare each lot or charge will average about three minutes, varying with quality and size, longer time being required for wilted or for exceptionally large tubers. The peeler consists of a horizontal emery disc which revolves rapidly in the bottom of an emery-lined bowl, the revolving motion of the disc throwing the tubers against the roughened inner side of the bowl. A spray of water entering under pressure at the top of the peeler washes the tubers, aids in loosening the peelings and washes them out through an opening at the bottom.

Hand trimming is necessary on large, irregular-shaped tubers as well as on those which are more or less scabby or bruised in appearance. Ordinary paring knives are used in trimming.

Peeled tubers must be sliced soon after being removed from the peeler. An ordinary hand or belt driven kraut shredder or a special slicing machine may be used. Slices should range from three-sixteenths to five-sixteenths of an inch in thickness.

Steaming or blanching necessarily follows slicing promptly, in order to prevent oxidation (blackening) of the product on exposure to the air. A delay of more than four minutes time will show disastrous results. Slices allowed to turn red previous to steaming, turn from red to black early in the drying operation, as will those not sufficiently steamed to hold the original color.

Steaming is accomplished by spreading the sliced produce approximately one-half inch deep on wire-covered racks or trays, ten or more of the racks being enclosed in a heavy box in which five to six pounds pressure can be maintained as long as desired, or loaded trays or belts may be passed under a special steaming pan. Actual time of exposure to steam varies with quality of the potatoes, thickness of slices, and the locality in which they are grown, three to eight minutes being a general average.

How They Are Dried

When slices are sufficiently steamed to retain their original color, loaded trays are taken from the steam box to the fan-equipped drying chamber, where the produce is exposed to 110-140 degrees of heat until dry, usually four to five hours. Water content of the slices must be reduced sufficiently low that the product will keep in storage.

Potato flour may be secured by running the dried slices, once ground on the farm feed mill, through a short circuit flour mill, such as a Midget Marvel. A very fine grade of flour will result, the color being only slightly

Grinding dried potatoes into flour; first reduction

grayish white. Approximately two per cent of the meal will go through as bran and not more than twelve per cent as middlings. Bran and middlings are both capable of being "re-milled," thereby reducing the final waste material corresponding to wheat bran, to less than one per cent of the original from fairly well peeled potatoes.

Loss in weight in paring range from one tenth to one-twelfth per cent of the original bulk. An average of 12 to 16 pounds of dried slices are secured per 100 pounds of fresh potatoes. Practically 98 per cent by weight of flour may be secured from the dried product, the flour weighing slightly heavier than wheat flour, bag for bag.

Estimated cost of the dried product will range between 15 and 30 cents per pound, with green potatoes at $2 to $3 per hundredweight. Costs vary with the system of drying used, labor available, size of the business, efficiency of and overhead charges carried on the plant.

Cost of plant equipped with necessary machinery for preparing the produce will range between $25,000 and $40,000 per unit, each capable of handling five to ten tons per day. In general the larger the plant, that is the more units it contains, the less should be the cost per unit and the greater the efficiency of each.

As previously suggester, dried slices may be ground into flour and used as a substitute for wheat and other flours in varying amounts. However, potato flour is more economically made by the natural process, which consists of cooking, mashing or flaking and grinding. A superior grade of flour is ordinarily secured by this method.

Description of Natural Process

In the natural process the prepared tubers are steam-cooked thoroughly and passed between two large heated cylinders, each of which takes a coating of mashed or flaked potatoes. Thickness of the coating is so regulated by means of small rollers that the flakes are dried as the large cylinders revolve. Dried flakes are scraped off the cylinder by means of set surface knives and drop into a trough containing a spiral conveyor and a suction draft tunnel connected with the flour mill. Thus the entire process of manufacture is continuous, since steam-cooked tubers feed directly to cylinders and dried flakes from cylinders to the mill. Moreover, washed tubers feed directly into the cooker, thereby avoiding the necessity of any hand labor. Approximately 18 tons of potatoes are handled per unit per day on the plant.

Uses of Dried Potato Products

Dried sliced potatoes are adapted to practically all the uses of the fresh tubers. Previous to cooking they should be soaked in two to four times their bulk of cold water for eight to ten hours, or until they have resumed their natural shape and appearance.

Domestic Fried or Mashed Potatoes
Cook dried sliced potatoes in water in which soaked until tender, 20 or 30 minutes, drain, season and fry in fat until slightly browned, or put through ricer, season with salt, butter and milk and serve as mashed potatoes.

Fried Potatoes—Drain product, soaked in cold water 6 or 8 hours, season and fry slowly in fat until slices are tender and slightly browned, 30 or 40 minutes.

Scalloped Potatoes

1 cup dried potatoes
1 cup milk
2 tbsp. flour
2 tbsp. butter
1 tsp. salt
Pepper

Soak dried, sliced potatoes 6 to 10 hours, drain and place in buttered baking dish, sprinkling flour between layers. Add milk, salt, pepper and butter. Bake in moderate oven 1 hour.

French Fried Potatoes—Cut soaked dried slices of potatoes in strips ⅜ to ½ inch thick. Drain and fry in deep fat until crisp and browned. Sprinkle with salt before serving.

Potato Flour

The following recipes are suggestive only. Others equally good may be adopted by the average housewife. In general, best results will be obtained when potato flour is used in amounts ranging from 1/10 to ¼ of the total of wheat or other similar flour. Since ¾ of a cup of potato flour is equivalent to 1 cup wheat flour that amount only should be used to replace each cup of wheat flour for which substituted.

Potato-cheese Scrapple

3 cups water
1 tsp. salt
½ cup potato flour
½ cup cornmeal
¾ cup cheese

Heat water to boiling point, salt and stir potato meal and cornmeal in, gradually. Cook thoroughly, add cheese, grated, pour into greased pan, cool, cut in thick slices and fry. This makes an excellent breakfast dish.

Nut Brown Bread

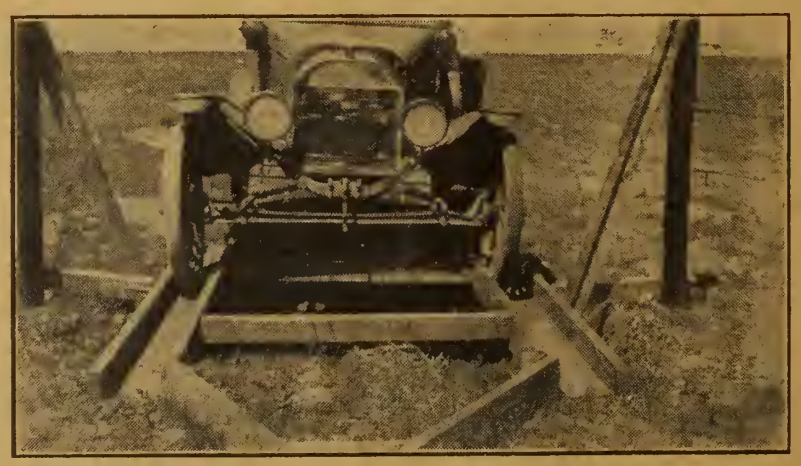
1 cup graham flour (unsifted)
¾ cup barley flour
½ cup potato flour
½ tsp. salt
½ cup molasses
1 egg (beaten)
3½ tbsp. fat (melted)
1 cup sour milk
1 tsp. soda
½ cup dates
½ cup nut meats

Mix together dry ingredients; add molasses, egg and fat. Dissolve soda in the sour milk and add. Add floured dates and nut meats last. Allow to stand 30 minutes in a warm place and bake 1 hour in moderate oven.

Home Made Potato Flour

Potato flour or potato meal can be made satisfactorily in the home where potatoes are plentiful. Tubers thoroughly washed are cooked until tender, peeled, riced and dried on cloth-covered trays under a temperature of 110-150 degrees Fahrenheit. A hot air register in a furnace-heated house furnishes sufficient heat for drying. The dried product is made into meal or flour by means of a hand grist mill. Two or more reductions may be necessary, the product being ground immediately following its removal from the trays, that is before it is allowed to absorb moisture. The meal or flour may be stored in glass jars, or in paper cartons until needed for use.

Quality of home made flour need not be inferior to that offered for sale by commercial firms if proper precautions are taken to maintain a gradually rising temperature during the drying process. The making of at least a small amount of flour in the average home may be the means of utilizing surplus or small tubers. Furthermore, it promises to acquaint the ordinary housewife with the use of a Colorado-made product, the commercial manufacture of which means much to the Colorado farmers.



Stock Guard for Auto Crossing

This illustration shows an auto crossing for pasture fences, such as are used extensively in western Nebraska to avoid opening gates by auto drivers. There is a square pit four feet deep in the center of the guard. This hole is immediately beneath the axle of the car in the illustration. The track is constructed of ordinary lumber, 2x6's and securely braced, with other braces running diagonally down from the two posts between which the guard is placed. An ordinary wire gate for rigs other than autos is usually found one post length to the right or left of the guard.—Delph Carpenter, Weld county, Colorado.

Rough on Trains

A well-dressed lady rushed up to a clerk in the household goods department of a New York store, and, without giving the clerk a chance to ask what she wanted, exclaimed: "Give me a mousetrap, quickly, please, because I want to catch a train."—Collier's.

Socially Successful

Mr. Brown's colored valet desired to entertain some of his friends, and his master contributed generously to the cause. The next morning Mr. Brown asked Mose if his party had been a success. Mose drew himself up a couple of inches above his usual height.

"Was it a success, suh!" he exclaimed delightedly. "Well, suh, it sho' wuz! Dey wuz sixteen invited, and twenty dat come!"—Exchange.

Purebred Sire Law Is Advocated For Colorado

MUST BANISH SCRUB IF BEEF INDUSTRY IS TO ADVANCE

GEORGE E. MORTON

A NUMBER of adjoining states have passed legislation requiring that only registered sires shall be turned upon open range. A bill providing for similar enactment in this state has been before our own legislature. The question is therefore one for stockmen to be thinking about and discussing. In connection with the proposed legislation in Colorado, various points have naturally come up with regard to the merits and demerits of the scheme. The argument for such legislation is pretty much as follows:

The use of high class registered sires has come to be recognized as the best means of improving livestock. The breeding problem on the range is no different from that on the farm, with the sole exception that any one man's herd is not under as close control on the range as it is on the farm.

In buying good bulls for the range, the man who purchases them knows that his neighbor will get the benefit of these good bulls, and if his neighbor is buying inferior bulls, the man who bought the good ones will have in his herd calves from the neighbor's poorer stuff. There has been a tendency, therefore, in many sections of the range, not to buy high class bulls. In other sections men have gotten together in their policy, and all who are running cattle on a given range will buy good bulls at about the same price per head. This policy, in connection with the law which is now in existence requiring a man to turn on the range one bull for every twenty-five cows, which he is running, has enabled some sections to build up the quality of their cattle, but a narrow minded man in a community can ruin the whole scheme. The argument that everywhere stockmen are recognizing the value of high class registered sires, does not move the man who is intent upon spending as little as he can, and getting the benefit of his neighbor's money; yet inasmuch as improvement by the use of registered sires is now recognized generally among stockmen, why should not the penurious man be compelled to recognize this principle if he desires to run his cattle on public grass?

The advantage of the registered sire is that he is more nearly a known quantity than the grade sire. The registered sire is from a line of ancestry that has been bred for a specific purpose and to a certain type for many generations. As a result he can be counted upon to transmit these characteristics with reasonable certainty. The grade animal may look exactly like the registered animal, may be three-quarters or seven-eighths pure, and yet he has in him the blood of a common line of cows, a line of cows concerning whom no information is available, except by word of mouth, and he is just as likely to transmit characters belonging to this inferior race of cows as he is to transmit them from the line of pure-bred sires back of him. I think I can illustrate this difference of appearance in breeding powers best by referring to the breeding power of crossbred or hybrid animals.

Take for example the cross between certain breeds of hogs, one of which is red and the other black. All of the progeny will be black, like one parent. So far as anyone could tell in buying a sire from this group of animals, the sire could be expected to breed black. As a matter of fact, red will crop out in the next generation, because while the animal is all black, he carries in his germ-plasm the power to transmit the red color of the second parent. Now this is exactly what the grade Hereford or Shorthorn bull does on the range. He, himself, may be a good looking Hereford or Shorthorn, but he carries within him the power to transmit the characteristics coming from a scrub cow that may have been his mother or grandmother. In other words, registration papers upon an animal is simply a certification that he comes from animals of a given blood and type that have been good enough to be maintained in a pure-bred herd, and in whose breeding and handling the owner has taken enough interest to keep an individual record and have them registered.

The chief objections which I heard with regard to the proposed law, were that it would shut out from use sires from herds that are pure-bred but not registered. There are, in this state, some herds of cattle that were started with registered cows. The owners did not keep up the registration on the progeny, but claim to have maintained the herds pure without the bringing in of common cows, and by the use of registered sires, so that their herd is as pure-bred today as in the days when the registry on it was kept up. Granting that there are a few such cases, the question arises as to whether the best interests of range men as a whole should be sacrificed to the desires of those few men to sell bulls which are not registered. Registrations on their herds could have been kept up if the owners had desired to do so. They preferred not to keep up the registration, which was purely a business choice with them. If it becomes necessary, in order to safeguard the interests of range men in the quality of range stock, that a law requiring registered bulls on the range shall be passed, these men must simply suffer for their own lack of foresight, and not attempt to hold back advancement in the range industry for their own selfish ends.

Another objection raised was that the proposed legislation was designed simply to furnish a market for bulls raised by breeders of registered stock. Such an argument is hardly made in good faith. The breeders of pure-bred livestock in this state are so few in number compared with the men running range stock, that there could be no possibility of the former dictating to the latter. If the argument for registered bulls on the range is not one that appeals to the intelligence of range men, it can never be framed in the shape of legislation in this state. The legislation proposed must appeal to range men as good business if it is to gain headway. Utah and Idaho have such laws. The argument evidently has appealed to the cattle men of those states.

It is simply a question as to whether a principle of breeding which is recognized generally by the producers of livestock in other lines shall not only be recognized by the better class of cattle men running stock on the range, but shall be forced upon these range men who prefer to run inferior stock and grade bulls. A section such as the North Park country and certain sections of our Western Slope, where groups of far-sighted men have been running cattle together on the same range and have gone in together to purchase high class sires, is an example of what can be done in the way of improvement of range cattle. North Park cattle, for example are noted for their quality. Their reputation has been gained not merely because of superior grass and hay, but because the stockmen of North Park have paid three hundred, five hundred and seven hundred dollars for sires to turn on the open range.

Legislation, of course, cannot state how much a man shall pay for a bull, but it can state that a dead line exists between registered sires—which are the accepted means of improvement in all classes of livestock—and grade sires, which should not be used as sires at all, but should be sent to the block.

SEMI-ANNUAL **INDEX** — **Western Farm Life** — January to June, Inclusive **1919**

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Beets
Beef Cattle
Corn
Dairy
Dry Farming
Editorial
Farm Home
Fruit
Hogs
Horses
Potatoes
Poultry
Farmer Putnam
Sheep
Silos and Silage
Sweet Clover
Tractors
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The Tractors Got A Severe Test

DEMONSTRATION FROM ANOTHER VIEWPOINT

ALVIN T. STEINEL

THE laugh was on the tractor manufacturers at the Mountain States National Tractor demonstration, which proved to be unique in the fact that at no time since tractor demonstrations were started have the machines encountered plowing conditions more distressing and difficult. Raw buffalo sod prairie had been selected as the plowing field. There was not an acre of stubble land in the big tract, comprising over 2,000 acres, and located about 11 miles east of the Colorado state capitol. Moisture during the spring had been abnormally light, and the showers that occurred just before tractor show week went around the plowing grounds. It seemed as if the weather man had conspired with the farmers to give the machines a difficult test.

Following the tractors on the testing field

Thunder clouds hovered over the field every afternoon of the week of June 9th to 12th; one day a few drops of rain fell, but these drops hardly made a mark in the dust, which was one of the disagreeable features that proved especially trying to the spectators, and was by no means welcome to the plowing crews, who literally had to eat dust.

Many a farmer went upon the field certain that he would see breakdowns, or scratched jobs of plowing. Frank M. White, chairman of the tractor test and demonstration committee of the American Society of Agricultural Engineers, declared that the draft of the implements due to the conditions that existed at Denver, was from one-third to one-half greater than the average for the country. Some of the manufacturers said that Mr. White's estimate was too conservative. At any rate, the first general plowing day found several thousand farmers on the field ready to check up on the machines, which were to plow six inches deep.

"If they can cut a good six inch slice today," they said, "they can meet any possible conditions on our western farms."

The writer of these lines followed the plows. He spent four days on the grounds, the first day watching the individual tests; the other three days as an observer in the general tests. He measured the furrows with care. He found that all but a very few of the machines were doing the full six inches, and that a number of the larger outfits were plowing seven and eight inches, with moldboard and with disk plows.

While most of the outfits used disks, because of the hard ground, there was also considerable moldboard plowing, and that is the kind the average farmer seems to prefer. One lesson that was not lost was this: no matter what the style of plow, if sufficient power was applied it turned over the sod.

Following the plows came harrows and rollers, the entire operation of seedbed preparation being carried out on the land, most of which is to be sown to fall wheat later.

The general demonstration ground was fairly level, but a portion of the test field was uneven enough to give the machines a chance to show what could be done on hillsides. Here the crawler type was especially in evidence, showing utter disregard of ditches or slopes.

There was disappointment over the attendance, but none over the character of the crowds, which were made up largely of farmers and implement and tractor dealers. Denver city people did not patronize the demonstration extensively, because of the dust, which no one not directly interested cared to brave more than once.

Many tractors were sold during show

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4 H. P. weighs only 190 lbs., being only 48 lbs. per horsepower. Besides doing all ordinary jobs, it may be attached to any grain binder, saving a team, and in a wet harvest saving the crop. Also it may be used on corn binders and potato diggers. Very easy to move around from job to job.

8 H. P. weighs only 320 lbs., being only 40 lbs. per horsepower. For all medium jobs. Also may be attached to hay presses, corn pickers, saw rigs, etc. 8 H. P. and larger Cushman Engines are all double cylinder.

15 H. P. weighs only 780 lbs., being only 52 lbs. per horsepower. For heavier farm jobs, such as 6-hole corn shellers, ensilage cutters, large feed grinders, small threshers, etc.

20 H. P. weighs only 1200 lbs., being only 60 lbs. per horsepower. For heavy duty jobs, such as shredders, shellers, grain separators, heavy sawing, etc.

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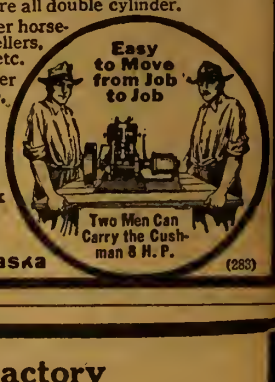

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week, and from the standpoint of farm power development for the future, the demonstration was eminently successful. It goes down in history as having shown that standard makes of tractors now turned out by the manufacturers are equal to the hardest conditions that they will ever be called upon to meet in the western states.

Among the distinguished visitors attending the tractor show was Mr. L. L. Cazalet, Italian representative of the International Harvester Co., with headquarters at Rome. Mr. Cazalet brought news to the effect that the Italian government had declared an embargo against importations of tractors and had begun the manufacture of an Italian machine. He stated that 6,500 American made tractors had been imported by Italy during the last few years, 4,000 of them being of the International Titan type. After a careful investigation the Italian government gave orders to its own engineers to design a tractor which would be a copy of the 10-20 Titan and, according to the specifications must not vary over 2 per cent from that machine. Orders were then placed by the government for 1,000 of these machines, and it is expected henceforth to supply the Italian demand at home.

American manufacturers of tractors and plows were called upon to furnish a great deal of material to foreign governments during the war to help keep up agricultural production in Europe. Mr. R. E. Moorhead, district manager for the Roderick Lean Company of Mansfield, Ohio, who was a tractor show visitor, stated that their company alone shipped 2,000 automatic disks to England for use there on Fordson tractors. This company is engaged exclusively in the manufacture of implements to supply Fordson machines, and they are now turning out 225 a day.

Thirty tents were required to house the exhibits, and farmers who spent the mornings inspecting the tents saw all varieties of motor driven implements and appliances, besides having the opportunity to inspect tractors at close range. The list of exhibits in the order in which the tents were arranged, is as follows:

Coleman Worm Drive tractor.
Liberty Tractor.
Hercules Deep Tiller.
Flour City Tractor.

Hart-Parr: Five tractors, two trucks, four stationary engines, one Bailor cultivator, feed grinder, mower, binder, wagon, horse disks, horse cultivators, cream separators, fanning mills, manure spreaders, sulky plow, smut cleaner, concrete mixer, pump jack, bean thresher, grain separator.

Eagle Tractor and C. H. Parker & Sons Electric Co.: The Stover line of engines and feed mills; Genco light, Paul water systems and Caloric pipeless furnaces.

International Harvester Co: Tractors, spring tooth harrows, pulverizer machines, beet planters, beet pullers, corn sheller, feed grinder, stationary engines, mowers, binders, knife grinders, cultivators, side delivery rakes, tractor disks, corn binder, drills, beet machinery, spring tooth harrows, manure spreader, wagons, motor trucks, ensilage cutters, harvester-threshers, plows, cream separator.

General Ordnance Co. tractor.
Yuba tractor.
Sandusky tractor.
Aultman-Taylor tractors.
Cleveland tractor.
Auto Equipment Co.
Lauson tractor.
B. F. Avery & Sons Plow Co.
Indiana tractor.
Illinois tractor.
Martin ditcher.
Holt Caterpillar Manufacturing Co.

Huber, Jr., tractor and light-four separator.

Beeman garden tractor and walking engine.
Wisconsin tractor.

National Beet Harvester company and riding baby beet puller.

Best tractor and Allis-Chalmers tractor.

Headquarters tent, containing U. S. Army Ordnance exhibit and tractor accessories.

Gray tractor and Republic truck.

Kingston carburetors and magnetos.

Oliver plows, drills, harrows, rollers, etc.

Rock Island Plow company: Heider tractors and plows.

Four-wheel drive tractor and truck.

View of raw prairie sod on demonstration grounds

The Fageol tractor.

Emerson Brantingham Implement Co.: Tractor, mower, manure spreaders, binder, drill, engine plow, grain separator, tractor disk, horse disk, etc.

Fordson tractor and Roderick Lean automatic double disk drill, roller, and harrows.

Wheat tractor.

Twin City tractor.

Advance Rumely Company: Oil Pull tractors, grain separators, gas engines.

The Avery Co.: Tractors, feed cutters, silage cutters, alfalfa hay cutters.

Port Huron tractors and grain separators.

Light Draft Harrow company: Farm and orchard cultivator.

Moline Universal tractor and tractor implements including binder, corn planter, cultivator, drill, disk, harrows, and packer.

La Crosse tractor.

Wallis & J. I. Case tractor and implements.

John Deere Plow company: Waterloo Boy tractor, mowers, binders, corn harvesters, plows, and spreader.

Bates Steel Mule tractor.

J. I. Case Threshing Machine company: Tractor, plows, baling presses, grain separator, silo cutter, etc.

Parrett tractor.

Fairbanks Morse Co.: Gas engines and Fair-Mor tractor.

W. W. Coates company: Ensilage cutters, manure spreaders, and silo tile.

All Work tractor.

Wilson Wetterhold feed grinders.

Hann company feed grinders, exhibited by J. O. Hochenauer Alfalfa Mill Manufacturing Co., Pueblo.

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That the Moline is really a Universal Tractor and fits any size farm is proven by the fact that the farms reporting ranged in size as follows: 8%, 100 acres and under; 37%, 100 acres to 200 acres; 21%, from 200 to 300 acres; 13%, from 300 to 400 acres, and 19% above 400 acres. In their report 76% agreed that they could use the Moline-Universal wherever they used horses, and 83% said they could do better work—and thereby make more money.

Owners are positive in their statement that the Moline-Universal is a good investment, and 73% of the Moline owners state that they wouldn't farm again without the Moline-Universal Tractor, while the rest say that they would dislike to go back to horses.

In reply to the question, "Can you operate and maintain the Moline-Universal Tractor for what it would cost you to keep three or four horses?" Ninety-two per cent replied "yes." Many reported they could do so for less.

Space does not permit a complete report, but surely these figures must convince farmers and business men who believe in facts instead of theory that the Moline System of Power Farming is the most economical and efficient, and this is the reason why thousands of Moline Power Farmers are making more money with less hard work. Complete report of this tractor investigation will be gladly furnished on request.

Moline Plow Company, Moline, Illinois

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Why Buy It Now?

Present trade conditions indicate a rising rather than a falling market, consequently the advice given in these columns some time ago, urging farmers not to put off buying necessary equipment still holds good. Nothing is to be gained by waiting, because there are no indications of lower prices. Wages continue high in the industrial centers; strikes are in progress, always involving the question of wages. Efforts to reduce wages in one or two sections have failed. Labor wants the high dollar, and seems willing to continue to pay the high cost of living in spite of sporadic protests.

We are harvesting the largest wheat crop in the country's history. Little advance provision has been made for storing a part of the crop, and congestion in elevator and transportation service is inevitable. Crops in other lines promise to be normal, in most sections. It is no guess, but merely a statement of known fact that the value of the agricultural production for the United States in 1919 will far exceed that of any previous crop. There will be a larger amount of money circulated among the farmers after the next harvest than at any time in the history of this nation.

Just what will happen to the financial market when the crop money goes into circulation is a matter of debate on which authorities do not agree. That the farmer's buying power will be greatly expanded is quite evident, because the crops will be needed by the world at large. All things considered, therefore, it would seem to be the part of wisdom to buy now what may be needed to insure the saving of the harvest on every acre. There was never a better prospect in the country at large for having barns, granaries, silos, bins and cribs filled to overflowing, and never a greater need for full equipment to harvest, haul, store, save and feed the crop.

✦ ✦ ✦

The San Juan Basin

"The natural outlet for the resources of the district is through the southern part of the basin, over practically a level route to the markets of Missouri, Oklahoma, Arizona, Texas and California. The time is near at hand when this route will be used in marketing the products of this new and growing empire."

We are quoting from a survey of the marketing conditions and agricultural resources of the San Juan basin of Southwest Colorado made by Stuart L. Sweet, Colorado Field Agent in Marketing for the United States Bureau of Markets. This survey resulted from complaints of long standing brought to a head by war conditions, to the effect that producers in the San Juan country were badly handicapped in marketing livestock, grain and other farm products. Transportation difficulties incident to mountain barriers have been a serious handicap to the development of the basin. The traveler from Denver to Durango is on the road 22 hours, the distance by rail being 451 miles, and the time consumed in the journey several hours longer than in going from Denver to Kansas City.

Mr. Sweet's report is a comprehensive recital of the facts regarding present development and a revelation of the wonderful future possibilities of the San Juan basin. It indicates the ability of the section to support itself and to produce a large surplus for outshipment. One of the significant features of the report is that relating to water resources, from which the following is quoted:

"The abundant water supply throughout the district impresses the traveler. The rushing mountain streams develop into large rivers in their course through the basin. Already over 50,000 acres of choicest land are under irrigation. Another million and a half acres of land equal in productiveness to the farms in the famous Fort Collins, Greeley or Longmont section in northern Colorado, or to the fertile soil in the valleys of the Western Slope, could be put under ditch without taxing the bountiful shed."

Analysis of this statement indicates the tremendous possibilities. Even a million acres of land "equal in productiveness" to the best in the state would justify the expenditure of great capital in the development of irrigation enterprises. But all of this would be practically futile without transportation.

Mr. Sweet's conclusion that the natural outlet of the district is toward the south is shared by the people of the basin who, while intensely loyal to their own state and its capital, nevertheless realize that their future depends upon easy access to markets.

Pending the construction of a broad gauge railroad, it seems to us that the inauguration of auto truck service would assist in solving the transportation problem. Of course the auto truck is dependent upon permanent roads. It takes money to build good roads, but the benefits are in proportion to the cost. Mr. Sweet's conclusion is as follows:

"The basin can be made an agricultural empire. Possibilities for further development are almost unlimited. The key to the situation is the means to market. Markets are ready—they are waiting, they need these products, but they must be reached efficiently."

In the light of experience during the last three years it would seem wise for the people of the San Juan basin to immediately consider the question of auto truck transportation. They can go to the railroad if the railroad will not come to them.

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Mistaking Their Function

Farmers' wives are grateful for the unselfish help that is being given them by the county home demonstration agents in teaching practical home economics, this term including a wide field that extends from labor-saving devices and methods in the kitchen to organization of clubs for cultural development. Young women trained in the arts and sciences related to home life are doing splendid work in the rural districts. During the epidemic of the past winter there were instances of self-sacrifice in aiding stricken homes with care and nursing that deserve the highest commendation.

In view of the fine record that is being made by a majority of these workers under supervision of the Department of Agriculture it is regrettable to note that there appears to be, in some sections of the country, a misunderstanding as to the duties of the home demonstration agents, and that the Department of Agriculture does not seem to realize the mistake.

We wish to refer to a recent item of news sent out in an official bulletin of the Department, headed: "Brushing the Teeth Wins Credit Mark." This news item, coming officially from a department of the government charged with the work of advancing agriculture and the improvement of farm home conditions, goes on to relate that in certain New Hampshire counties the county home demonstration agents are assisting the school authorities in "surveying" the health of school children. If the story stopped there one might not object, but this particular "survey" went beyond the business of inspection and actually laid hands upon bodies of school children, for the item goes on to say:

"Each child is weighed and measured by the home demonstration agent and a volunteer helper. The record is placed on a card and credit is given for such good habits as 'sleeping with the window open,' 'drinking of milk,' and 'brushing of teeth.' When a child is found much under weight, or with bad food and living habits, a visit is made to the home. In most instances parents welcome the advice of someone skilled in dietetics."

If those in authority at Washington hope to see a continuation of the home demonstration work, they will quickly put a stop to the effort to make the demonstration agent an adjunct to the health board, or a medical mentor. The farmers of the United States are not asking the Department of Agriculture to assume supervision of the health of their wives and children, and as they pay the taxes, they reserve the right to say of what sort the work of the county agent and home demonstrator shall be. Weighing and measuring babies is a fad originated by a bureau of the Department of Labor, that had its inspiration in an effort to saddle upon the nation a class of paid governmental medical advisers. It made little headway with people of intelligence in city or country. The average man, whether he lives in the city or on a farm, prefers to select his own physician and he resents suggestions from the government on that point.

County home demonstration agents have such a wide field of usefulness and are so welcome in carrying to the farm home suggestions along legitimate home economic lines that there should be no temptation to invade the field of medical inspection. At any rate, if our rural districts wish that sort of work from governmental sources, they will not expect it from the Department of Agriculture. A county home demonstration agent has about as much right to weigh and measure a farmer's child as a county agent would have to prescribe pills to a farmer who looked pale.

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Potato Shippers Protest

The Colorado Potato Shippers' association has gone on record in favor of maintaining appropriations for food products inspection service, the market news service of the United States Bureau of Markets. An effort is being made to cut the appropriations down to a point where inspection and news service would be badly hampered. The association adopted resolutions protesting against confining inspection service only to "shipments from foreign states;" also against the proposed cut in the available budget covering fruits and perishables in transit and storage work, and against the discontinuance of the Denver market news station. Copies of the protest were sent to Colorado senators and representatives urging them to do their utmost to maintain the work of the Colorado Office of Markets at its present standard of effectiveness. Both shippers and producers strongly resent any efforts on the part of congress to curtail a service which has been of much benefit to the potato and trucking industries.

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The principle of co-operation with the farmers is being applied in the organization of the beet sugar factory at Delta, Colo. Two hundred of the local people are subscribing $400,000 to the fund necessary to construct the plant. They are to be given a majority of the directors, and Lieutenant Governor Geo. Stephan is likely to be president. It is believed that this sort of an organization, where the growers have so much in it, will prove more successful than the plan usually adopted in the organizations heretofore.

The Branding Iron

Applied by Elias M. Ammons

In its annual tour the Agricultural College Girls' Glee Club devoted the last evening of its campaign to singing to the soldiers at Fort Russell. There were more than one thousand of the boys present, and they showed their appreciation by encoring the girls time and again until they induced them to sing an hour and a half.

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Mr. W. N. W. Blayney's two yearling heifers—"Colorado Belle" and "Colorado Girl," which were sold at the International show at Chicago last winter, were recently re-sold at two different sales of the east, the one bringing $4,700 and the other $3,600. These sales were very complimentary not only to Mr. Blayney's herd, which is headed by "Wyoming," but to Colorado Hereford breeders in general.

✦ ✦ ✦

There is every indication that the price of hay will be very high the coming winter, unless there shall be an abnormally mild winter. Little feed was left over in any portion of the state. ndeed, in some localities prices ranged as high as $40 to $60 a ton. The damage done to alfalfa from late frosts and the shortage of irrigating water, especially in the northern portion of the Rocky Mountain region, is certain to curtail the crop to considerable extent.

✦ ✦ ✦

Arrangements are about completed to finance the irrigation of the Montezuma Valley. The district which seems to have been the great drawback to the enterprise is to be eliminated and each farmer is to own his water right. There are 38,000 acres in the district, to which 7,000 acres are to be added. One of the principal difficulties in the past had been that 14,000 acres of land were owned by non-resident speculators. The failure to pay taxes on these lands was a source of constant annoyance, and under the new scheme these lands are to be purchased and put into the hands of those who will live on them and cultivate them.

✦ ✦ ✦

Senator Phipps of Colorado has introduced a bill into Congress to turn over all the public lands in Coolrado to the state for specified purposes. While some of these are good, the measure indicates that the senator is not very well acquainted with what is going on in the state. For instance, he proposes to give a large percentage of these lands for forestry at the State University and for vocational education at the Teachers' College. Both of these functions are well established at the Agricultural College. The board of agriculture took over vocational training when no other institution would put up money for it, and forestry supported by all allied branches of instruction has been established at the Agricultural College for several years.

✦ ✦ ✦

The Forestry Department of the Agricultural College graduated two young men this year. Both of them had positions before the close of the school. To those who like the work, and there are many, this school offers great opportunity; not only the nation but the state is taking an increasing interest in the growth of trees. The school at Ft. Collins has been well provided for. The state forester is at its head, and as he does much work for the land board, and other state agencies, there is plenty of opportunity for the students. On the grounds at Ft. Collins there are many kinds of trees. The institution has 1,600 acres, at various altitudes from the foot hills to timber line, for experimental purposes, as well as a tract of 6,400 acres belonging to the Ft. Lewis school in southern Colorado. All of the allied branches are taught in the institution and no other school in the west offers equal opportunity to those seeking an education in this line of work.

Build a silo this summer.

Comment by Farmer Putnam

OUR MISSOURI FRIEND HELPS HILDEBRAND RUN THE MOUNTAIN STATES TRACTOR SHOW

ONE of them literary fellers that writes poetry, I think it was Longfeller, wrote "Dust thou art to dust returnest, was not spoken of the soul." He's correct. It was spoke of the Denver Tractor show. It sure made me think of the Good Book which says that man is made of dust. I felt that way, and looked that way, and it tasted that way. I drove in from the ranch, the show takin' place in my county, every mornin', and when I got home the fust night the dog barked at me and Josephine throwed up her hands and sez: "Law me, Tom, what's a-happened to yeh? Did the car throw yeh in the dirt?" I told her no, that I was out to the show watchin' 'em make dust mulches. "Well," she sez, "you cain't come in this house tell you take a bath." "But woman," sez I, "this is only Tuesday," and she sez, puttin' her foot down: "Tom, you shake them clothes out good, and by that time I'll have the tub unfolded and the water hot and you wash all over. I never seen such a sight as you air; your whiskers looks like you been plowin' with 'em. What you limpin' about Your hair's all stringy and brown lookin', you got rings around your eyes and your face looks like a map of the Wolf crick country, with streaks all up and down. Tom, air you lyin' to me? ain't nuthin' happened to yeh? Did a tractor run over yeh?"

"Woman," sez I, "be cam, be cam. That thar limpin' is temporary. Git me a needle to pick the cactus outen my feet. Bring my nightshirt; I'll have to have my linens washed before I kin put 'em on ag'in, and see if they's a pair of darned socks in my dresser."

Well, she stopped arguying' and went and got me the socks and things, and after a while when she called supper I felt ready to tell her all about the show. It took a lot of skirmishin' around to tell her that I'd bought a tractor, but she didn't explode near as much as I thought she would, because I didn't spring it too suddent.

Fust I told her all about Mr. Hildebrand, the big feller that owned the show. Nobody could help likin' him. He's 50 drawbar and 75 belt h. p.; motor, own, 6 cylinder, valve in head, high tension magneto with impulse starter; three speeds forward; extra large fuel tank; dry air cleaner, pump circulation; frame one piece, without bolts or rivets, mounted solid. He's a Nebraska feller; used to teach school, but the job was too little fur him so he got on one of them farm papers that they used to have back in Omaha, the late Twentieth Century Farmer, and started the plowin' demonstrations at Fremont.

The people that went to the first one done it just like they would go to a circus, to see the strange wild animals. And they seen some strange wild animals, too. In them days the tractor was a kind of a curio like to the giraffe at the circus, that the farmer walked around and looked at and then sez, shakin' his head, "they ain't no sech animal!" We had some steam tractors that was good fur threshin' and breakin' down bridges, but the gasoline tractor was still a infant, but hollerin' loud fur recognition. Well, Hildebrand is the feller that made tractors a household article on the farm.

When he seen me he sez to Professor Kezer: "Who is that old feller with the whiskers?"

Kezer sez: "Oh, that's old Farmer Putnam, quite a character he is. Would you like to meet him?"

Mr. Hildebrand said he would, so I stepped over and shook hands with him and fust thing I knowed he'd pinned a big blue badge on me and sez:

"Now, Farmer Putnam, you're a practical man, I'm goin' to make you one of the official observers. I want you to foller the plows, and if any of them fellers don't plow six inches deep you tell 'em about it, will you?"

Gosh all fish hooks! Wasn't that a compliment? Would I tell 'em about it if they didn't plow exactly six inches? I reckon!

Well, the show begun at 1 o'clock, when one of them cannons from France was shot off in the middle of the field, and Hildebrand dropped his flag. Right on the drop of the flag a hundred tractors commenced to roll back the prairie sod, chuggin' and pullin' at the plows like war hosses. It was a great sight—what you could see of it behind the dust. I was on the job right away, with a big measurin' stick which was give to me by Mr. Bange, the International man, who took down my name. He said he wanted to let Mr. McCormick know I called in their tent and that he would give me a plow stick as a mementoe of the occasion. He was a darn nice feller and he introduced me to Mr. Seyferth from Chicago, another of their big officials.

Well as I was sayin', I went on with my job, measurin' furrows and by and by I found a feller goin' too deep. His plows was down over seven inches. Here's where we have trouble, sez I, and I starts off down the furrow to ketch the big outfit. It was a hot and dusty run and I picked up a lot of loose cactus spines on the way, but duty is duty, and I finally got him to stop when I waved my stick in front of the machine. He looked at me with a grin, nuthin' showin' through the dust exceptin' his teeth, which was genuine gold filled, and he sez:

"Well, mister, how do you like our work? Thinkin' of buyin' a tractor?"

"Young feller," sez I, "don't git smart, don't you know you're violatin' the rules?"

"Rules," he sez, "what rules?"

"You know 'em as well as I do," sez I, showing' my purple badge. "I'm one of the official observers of this show, and Mr. Hildebrand told me to see that six inch plowin' was done, and six inches means six. I don't want to be harsh with you, young feller, but don't fool with the rules, or I'll have to take you down to headquarters tent."

I seen I had him scairt, fur he got down offen his seat, blowed a whistle and up bobs a ford, with a big yellow card on it, "Official Car." He whispers somethin' to the driver and the driver motions to me to jump in and I done so, and he drove off the field bumpin' along over the plowed ground till he got to one of them sody water stands. "Hop out," he sez.

I done so, and we walked over to the counter and he sez: "Give this old whiskers some near beer; he's overcome by the heat!" He left fifty cents on the counter and skinned out before I could say a thing. After refreshin' the inner man, who was dusty from guzzler to gizzard, I hunted up Mr. Hildebrand and told him what them smart Aleck's done, and he sez:

"That's all right, Farmer Putnam, you've just misunderstood. Six inches is the minimum. They kin go deeper if they want to, but I think most of 'em will be satisfied with six in this dry sod."

I never seen a feller that could unruffle a man quicker. I just calmed down right away and he told me that I'd done enough fur that day and could rest now, he would take care of the managin' fur the balance of the afternoon.

Now I reckon you folks would like to know why I bought a tractor and

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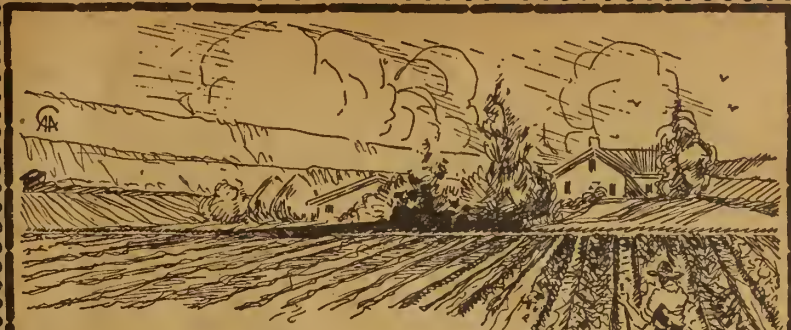

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Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Can Reside on Either Entry

In December last I filed on a homestead of 160 acres. Had to contest another 160 acres in order to make 320 acres, and filed on it in January. Will I be allowed to build on the latter 160, or must I build on the original? The reason I wish to live on the additional is because it is a more desirable place and nearer to the public road.—C. B. S. San Miguel County, Colo.

Under section 3, of the enlarged homestead act, providing for additional entries before final proof, residence may be maintained on either the original or the additional entry, as the entryman may elect.

Debt for Farm Labor

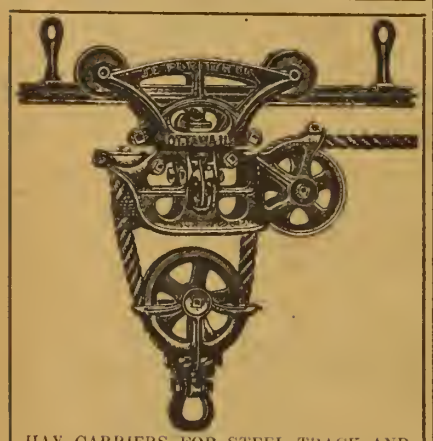
How long does a debt for farm labor run before being outlawed? It is a little less than six years since I have received anything on it. Could I collect now?—A. B., Custer County, Colo.

Debt of this kind would be outlawed six years from date of last payment.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver, Colo.

Ownership of Water

I have bought a tract of land and a share of water stock in a reservoir for irrigation to go with the land. Can I use this water on land that I own other than the tract with which I bought the water?—W. E., Garfield county, Colo.

If you bought the share of water you are entitled to use it any way you see fit, as long as it does not interfere with the rights of other water users. In Colorado water is the same as real estate and you can obtain title to it just as you can to other property. Your use of it must be for beneficial purposes, respecting the rights of other users under the system.



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Tresspassers Can Be Prosecuted

The highway runs due north from Thurman past the west side of sections 21 and 16, which I own and lease. I have over 100 head of horses in these pastures and people keep going through my fences breaking wires, stretching the wire so bad it will hang almost to the ground and make a good horse trap to get cut up, and quite a few times I have found the wire stapled down to the ground and left by somebody that thought they were in a hurry. Will I have to stand all this just because somebody is too lazy to shovel a little snow? Because all our taxes are used in the north part of the county the grade is worse than if it wasn't there and not even a culvert put in low places. How can I prevent people from going through all the time when roads are a little wet?—M. R., Washington county.

No one has a right to take down your wire fences providing they run along the property line. A notice warning against tresspassing, put up at the point where the trouble usually occurs, might have the proper effect. Tresspassers can be prosecuted under the law. It seems to us, however, that the best way to avoid trouble is for yourself and other influential citizens to demand of the county commissioners that they grade the road, so that people will not be forced to take down fences in order to get around low places. Unless you put somebody on watch it will be almost impossible to keep them from pulling down the wires because the average traveler doesn't like to get mired. If a few of you who own your land get up a petition and sign it urging upon the commissioners that some action be taken in fixing these bad spots, it will probably solve the problem.

New Colorado Brand Law

Please give me full information about the new brand law and branding fees. When does this law go into effect?—Subscriber, Kiowa County, Colorado.

The amendments to the branding law became effective June 27. All brand owners will receive notice from the State Board of Stock Inspection by registered letter specifying changes. The law provides for an assessment of $2.00 on each brand now on record in the office of the State Board of Inspection at Denver. The object of this assessment is to revise the brand books, disencumber them of records of unused brands, and to publish new brand books, etc. The assessment of $2.00 is due and payable within 60 days after the notices are mailed. All owners may expect notice on or about the first of July. The law also changed the recording fee, making it $3.00. A notice recently sent out by the State Board of Stock Inspection calls attention to the fact that many stockmen are running cattle under an unused brand and under a brand which is recorded to some other person. The law specifies that should such animals become estrays, the Board of Stock Inspection would award them to the one who had the brand recorded, and that if the brand were not on record stock would be sold and the money be paid into th eestray fund. This ruling makes it necessary for everyone running stock to see that it is being run under the owner's brand.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

May Be Lumpy Jaw

I have a cow which has been dry for about four weeks. Her udder is somewhat stiff and I think she will be fresh soon. Just recently a lump about as big as my fist formed on the left side of her head about three inches below her ear. She does not care to eat or drink. Do you think that it is lumpy jaw? She is being fed on alfalfa hay. Isn't there some way which shows signs of a cow coming fresh? I have two cows which were supposed to be fresh in April but so far there has neither of them come fresh. Their udders are swollen and they contain water somewhat thick like syrup. Please give me some helpful points on the above subjects.—R. K. E., Morgan county, Colo.

The lump on the side of the head may be an abscess caused by the awns of barley or foxtail; from infection with tuberculosis, actinomycosis or other micro-organisms. Again it may be a tumor that has little or no tendency to suppurate. If soft the contents should be released by a wide incision. If it contains thick, yellow, granular pus without odor, the indications point to actinomycosis or lumpy jaw. In this event the abscess cavity, after being thoroughly cleaned, should be injected once with tincture of iodine. It would be presumptious to offer further suggestions as to treatment without some knowledge of actual conditions. The signs of pregnancy may be classed under two heads—probable and positive. The probable signs are: increase in the volume of the abdomen, tendency to put on fat, change in disposition and cessation of heat. The positive signs are: enlargement of the udder, the secretion of milk, and the movement of the fetus, as seen in the flank or determined by rectal examination.—G. H. G.

All cereals should kept in dry, well-lighted storerooms. Damp, dark cellars should never be used for storing foods.

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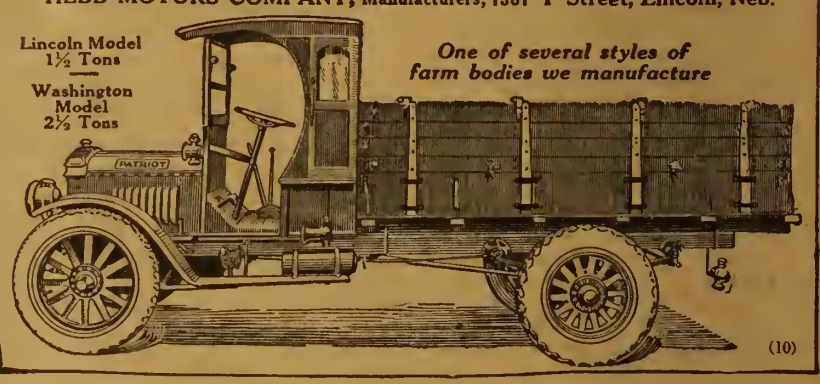

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"I have one of your spreaders and use the straw spreader attachment on it. By actual experience, I have raised more and better wheat on heavy clay soil where I had applied wheat straw or clover chaff after the wheat was sown in the fall, than where I used fertilizer right by it; and invariably we were successful with clover on straw covered plots."
A. A. COFFMAN, Ohio
(Address on request)

Deaths Among Sheep

Some of my sheep are running at the nose. One died on May 3. Could see nothing else wrong with her. After death some blood came from her nostrils. Another died today which appeared the same. Have another one the same, but she started last night with scours and this morning she seems to be losing the use of her hind quarters. Can you tell me what is wrong with them and what to do for them?—R. D., Idaho.

The symptoms given strongly indicate hemorrhagic septicemia which is quite common among sheep this year. The loss among lambs in the feed lots of Northern Colorado this winter has been heavy. This disease has been made a project for special investigation by the Colorado Experiment Station. A preliminary bulletin has been issued and the work is still under way. Vaccination appears to be quite successful. But for the fact that the disease assumes an acute form and is fatal we might guess that the nasal discharge was from "grubs" in the frontal sinuses. You should get in touch with your State Veterinarian immediately as there is danger that your losses may be heavy. G. H. G.

Diagnosis Not Possible

About a month ago one of our cows seemed to be slightly sick and did not eat much. She would follow the other cattle to the range, then lie down and when they had grazed some distance, follow them and lie down again. She seemed stiff when she arose and as she grew better after a day or so, we thought no more about it. Last week her eyes have been somewhat sunken but are brighter now and she seems about as usual otherwise except that she is indifferent to her calf. She has a fair flow of milk and seems to forget the calf when he is out of sight. She feeds with other cattle and chews her cud. This cow is about seven years old. Can you give me any light on what her trouble is and advise as to treatment?—D. R. W., Lincoln county, Colo.

The symptoms given do not indicate any special disease. Without an opportunity to make an examination there is nothing left but to guess and guesswork in dealing with disease is almost sure to be dangerous. In cases like this—in all cases for that matter—it is well to keep in mind that the doctor is not curing the disease. Nature resists the enroachment of disease and the doctor, if he is wise, will do all in his power to make conditions such that nature can do her best. In the absence of professional assistance it will pay to take the very best possible care of the animal. Be sure to provide the best feed and water, not neglecting shelter. Watch the cow carefully for symptoms that seem to indicate disease and report the same. We may then be able to adopt a line of treatment that will give some promise of success.—G. H. G.

A Lotion, Not a Cure-All

I read in the veterinary advice of Western Farm Life, April 15th issue, where a reader asks advice for care and cure of horse with sore neck. Am sending name of mixture I have used and feel sure will cure his horse while he is working him. Have never seen it fail if the powders are good, but at times they are no good and won't do the work, so if it don't cure, try some more. We used to get 10c worth each of sugar of lead and sulphate of zinc; (this would probably ge 20c each now, due to increase in price of drugs), dissolved in 3 quarts water. Rub over sore 3 times a day. This has cured some awful sore necks and shoulders for me when the lead and zinc are as good as they should be, and I have worked the horse while it cured, but the collar must fit right.—R. D., Idaho.

Note:—This constitutes the well-known White Lotion which is a very satisfactory astringent dressing in many cases. It is not adapted for sore necks where there is friction from the collar or where there is a "sitfast" (necrotic tissue). As a "Cure-All" it will scarcely do.—G. H. G.

Joint-Grass Poisons Horses

Joint-grass is a rush-like perennial with harsh, grooved, jointed stems. It grows in sandy places, along railways, roadsides, and in low meadows. It gives the greatest amount of trouble in hay. Although it is not suspected as a stock poisoning plant, there is plenty of evidence from all over the country that animals suffer seriously when they eat any great quantity of the plant. Horses only are affected. The animal becomes thin at first, and in a few weeks begins to stagger about. However, the appetite of the animal is normal, and its eyes are bright. The animal will refuse to lie down, and it suffers greatly from the cold.

As soon as first symptoms are noticed, do not feed more of the hay containing the joint-grass, and give a physic of raw linseed oil. After operation of the physic give a teaspoonful of powdered nux vomica, with the grain feed, three times a day.—Colorado Agricultural College News Notes.

Larimer Breeders Organize

The Larimer County Pure Bred Stock Breeders' association was organized at Fort Collins today with about sixty leading stock raisers of the county as charter members. J. D. Pancake of Loveland was elected the first president.

Other officers are S. H. Clammer of Fort Collins, vice-president, and Elmer Johnson, secretary and treasurer. County Agent D. C. Bascom will be a member of the executive board.

The organization meeting was an enthusiastic one, and was attended by breeders of pure-blood cattle, hogs, sheep and horses from all parts of the county. It was held in the Civil building at the Colorado Agricultural college.

Dues of the association were placed at $2 a year, and the annual meeting will be held the first Monday in June. Among the benefits of the organization will be a pamphlet to be sent to all members containing lists of pure-blood stock offered for sale, together with other information of value to stock breeders.—Loveland Reporter.

Raising the Colt

To insure rapid growth, the colt should be encouraged to eat hay and grain when a few weeks old. A grain ration composed of equal parts of oats and bran with a little oil meal added is excellent. In order that the colt may get enough grain it can be fed while the mare is at work in the field. Colts should not be allowed to follow the mare at work in the field.

Where such a practice is followed the colt is frequently in the way, there is greater chance of cuts and injuries, and the colt will not make rapid growth. Both mare and colt quickly become accustomed to the separation and the colt will be better at weaning time, and also less troublesome.

The first year of the colt's life will determine largely what that colt will be worth. Failure to grow the colt out of this stage will mean a small horse at maturity, and the market pays the premium for the big ones. Big draft mares should be bred to superior pure-bred draft stallions in starting to produce the profitable kinds of colts. Big rugged horses with good breeding to give them quality and finish will always sell at top prices on the central horse markets.

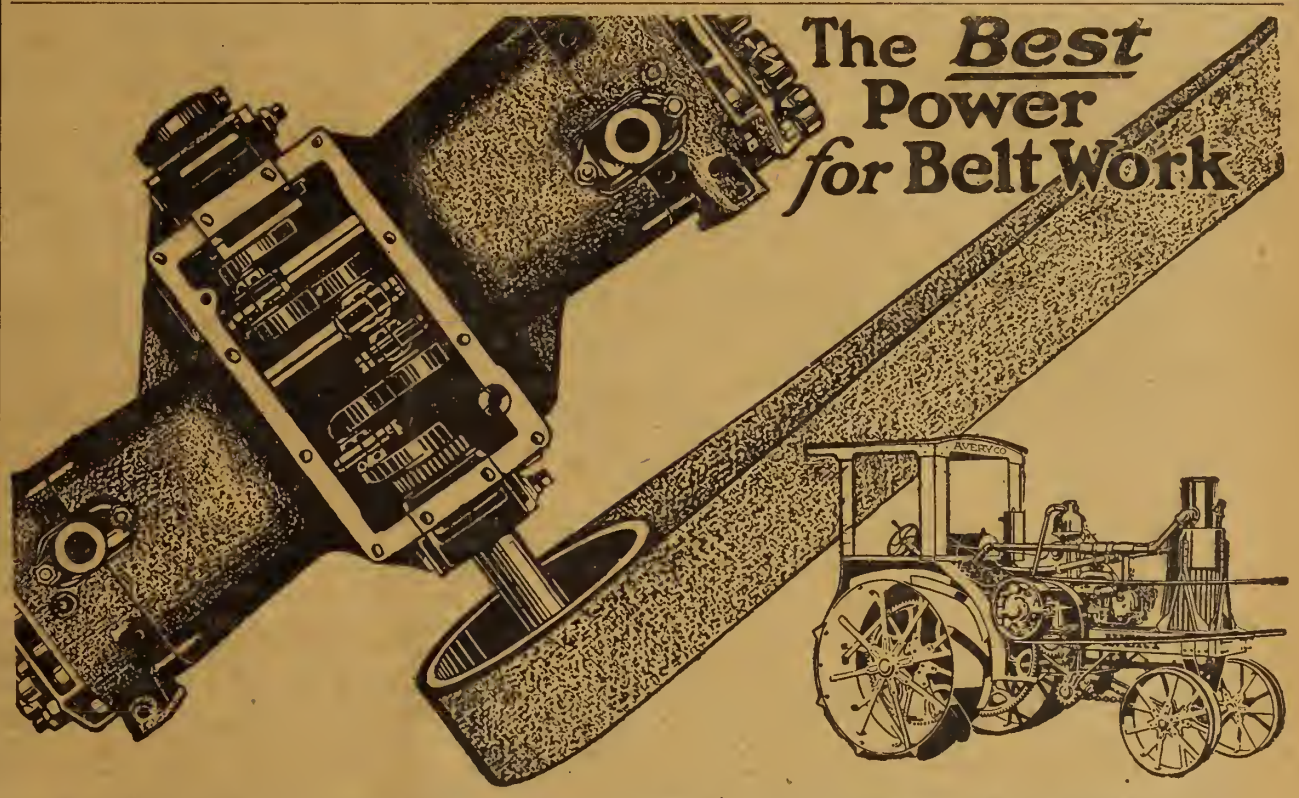
The right kind of breeding is only the beginning in raising marketable horses. The farmer must give the mare an opportunity to develop the colt to the best advantage, both before and after foaling. The mare must take care of the farm work and at the same time nourish the colt, and these two jobs cannot be accomplished satisfactorily except under a good system of feeding.

The amount of grain fed will depend on the work the mare is doing as well as the requirements of the colt. Such feeds as oats, bran, and oil meal should be included in the ration, with good quality roughage consisting in part of alfalfa hay, prairie hay, and sudan hay. Oats is unsurpassed for both mare and colt, and a little oil meal added to the ration will prove advantageous.

Some corn can always be used, but unless it is cheaper per pound than oats it should be in very limited quantities. Bran is excellent for the brood mare and foal. If it costs too much to use it regularly it is well to give the mare a wet bran mash every Saturday night or oftener to aid in keeping her digestive tract in good condition.—F. W. Bell, Kansas State Agricultural College.

Shorthorns for South America

Thirty head of Shorthorn cattle picked from the finest herds in the United States were shipped recently to Buenos Aires, consigned to A. J. Marshall, for distribution among the cattle breeders of Argentine. The females were selected by W. M. Hartnell at the request of the American Shorthorn Breeders association, and the list included prize winners at the shows of the last few years. One of the Colorado herds was honored by a selection, the animal being Western Star, a bull from the Allen Cattle Co. herd, Husted Colorado, and winner of first in his class at the 1916 International.



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Avery Tractors are built in sizes from 8-16 to 40-80 H. P. in one standardized design, with a special 5-10 H. P. size for small farms and lighter work.

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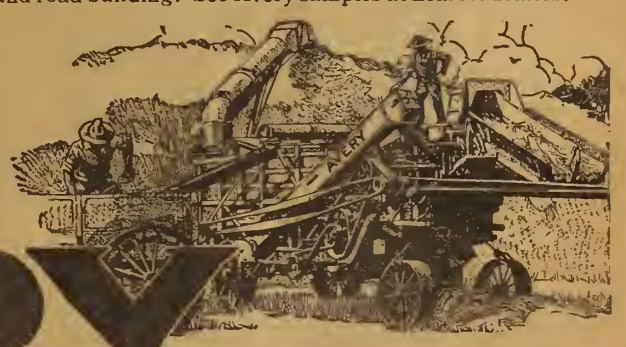

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Rolo Mercena DeKol 30313 (C.H.B.), a 5-year-old Holstein-Friesian cow, owned by J. B. Hanmer of Norwich, Ontario, Canada, recently made the startling record of 51.93 lbs. butter in an official 7-day test, and 20.34 lbs. butter in a 30-day test. Her milk production for the 7 and 30-day period was 738.90 lbs. and 2,920.50 lbs. In 60 days she showed a production of 337.49 lbs. butter from 5,795.10 lbs. milk. These records were made in a test conducted under the direction of Prof H. D. Dean, of the Ontario Agricultural College, and retests were made by officials of the Holstein-Friesian Association of Canada. On June 7th this cow was put in the Holstein Association sale at Philadelphia and sold for $26,000 to the Coldstream Farms, Lexington, Ky.

Here are the milk and butter records made by this wonderful producer from one to 60 days inclusive:

	Lbs.
1 day butter	8.57
1 day milk	125.8
7 days butter	51.93
7 days milk	738.7
Average test	5.62%
30 days butter	200.34
30 days milk	2,920.5
Average test	5.47%
60 days butter	337.49
60 days milk	5,795.1

Rolo Mercena DeKol made her record under ordinary conditions, in the same stable as the rest of the herd, and suffered no ill effects; her owner stating that she actually gained in weight. Her ability to consume and digest a large amount of concentrates had much to do with her fine performance. During the last four days of her test she consumed as high as 34 lbs. grain daily, together with 120 lbs. of mangels and red beets and 16 lbs. f ensil . Twice a day she was given light feeds of hay. The ration consisted of equ l parts of bran, oats, distiller's dry rains, one and one-fourth parts of oil meal and cotton seed meal, and one-half parts of hominy and gluten. The ats contained 10 per cent of peas; each feed being mixed separately in the above proportion. Towards the end of the test Mr. Hanmer fed as high as two parts of oil meal and 1¼ parts of cotton seed meal in the ration, cutting off the gluten and hominy.

This great cow is not one of the largest specimens of the breed, her weight being about 1,300 lbs. She is nearly all black and she has a beautiful head and splendid top line, with a wonderfully fine square udder. Her sire is Sir Rolo Banks Mercena 14953 (C.H.B.) and her dam, Flora DeKol Pietertje 9163 (C.H.B.); the latter having five other daughters in the Canadian Record of Merit list. Sir Rolo Banks Mercena was born on the same farm as his wonderful daughter and was used mostly in a grade herd, having but two pure-bred daughters.

Rolo Mercena DeKol has had three calves, all heifers. Her first and last daughters are owned by Mr. Hanmer, who also owns her dam, the latter, together with "Rolo" and some other members of the family, having been purchased by Mr. Hanmer at his father's sale. He paid $320 for the cow which has now made the world's butter record for both seven and thirty days, and another record for sale price, when the Canadian farmer disposed of her for $26,000.

Mr. Hanmer, who has fed "Rolo" since she was a calf, is a young man of only 23 years. He has been in the Holstein dairy business on his own account for a little over a year. Rolo Mercena DeKol's 7-day butter record displaces the one made by Segis Fayne Johanna (50.68) and her 30-day record eclipses that of Fairview Korndyke Mata (185.37), former 30-day champion by 15 lbs.

A Grade Cow That Paid

About a year ago a dairy farmer went to the sale on the Western Holstein Farms determined to get a good milk cow. He had been handling ordinary grade cows and he wanted to try out a high grade Holstein to see if better stock would really pay. He had his eye on a good cow, and when she was brought into the sale ring, made up his mind that he must have her. Other farmers had picked the same cow and bidding ran up to $375, when she was knocked down to our friend. The price looked mighty big to him and he hardly knew how to face his wife when he came home with his purchase and told her that the cow had cost him the price of two or three ordinary grades and that she was not registered at that.

The county agent called on him a few days after the sale and gave him some encouragement. He advised him to give the cow a chance to show that she was really worth the money, and to feed her right. The farmer followed his advice and recently after she came fresh, in one month a check for the milk from this cow alone amounted to $70. She brought him a heifer calf. Not long ago a neighbor called to buy the heifer.

"What'll you take for that heifer, John, out of your $375 cow?"

"That heifer isn't for sale."

"Give you a hundred dollars for her."

"Nothing doing!"

So another farmer has found that it pays to pay well for good stock, even for grade cows when they are sold out of herds of known and tested breeding.

Milk and Cream Standards

Definitions and standards for milk and cream adopted by the Joint Committee on Definitions and Standards and approved by both the Association of American Dairy, Food and Drug Officials and the Association of Official Agricultural Chemists, to be used as a guide for the enforcement of the Food and Drugs Act, have been published by the United States Department of Agriculture in a circular, "Food Inspection Decision 178."

Milk is defined as the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy

Rolo Mercena DeKol

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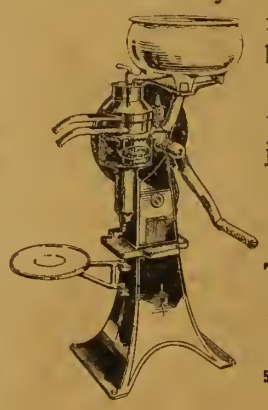

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cows, properly fed and kept, excluding that obtained within fifteen days before and five days after calving, or such longer period as may be necessary to render the milk practically colustrum free.

Pasteurized milk is milk that has been subjected to a temperature not lower than 145 degrees Fahrenheit for not less than thirty minutes. Unless it is bottled hot, it is promptly cooled to 50 degrees Fahrenheit or lower.

Skimmed milk is milk from which substantially all of the milk fat has been removed.

Buttermilk is the product that remains when fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than eight and five-tenths per cent of milk solids, not fat.

Cream, sweet cream, is that portion of milk, rich in milk fat, which rises to the surface of milk on standing, or is separated from it by centrifugal force. It is fresh and clean. It contains not less than eighteen per cent of milk fat and not more than two-tenths per cent of acid-reacting substances calculated in terms of lactic acid.

Whipping cream is cream which contains not less than thirty per cent of milk fat.

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Homogenized milk or homogenized cream is milk or cream that has been mechanically treated in such a manner as to alter its physical properties with particular reference to the condition and appearance of the fat globules.

The composition of the milk produced by different breeds of dairy cows varies so greatly, say the food officials, that it is not practicable to fix a standard which is applicable in all localities in the United States and its territories. It is, therefore, left to the state and municipal authorities to adopt such standards as their local production conditions may warrant.

Why Not Get a Purebred Bull?

This question was answered by the dairymen of Webster county, Missouri, about a year ago. They found it had been costing them $19.75 a year each for the service of a $75 bull, while each man had a "scrub" bull around his place. After organizing a co-operative bull association it cost them only $5.50 a year each for the use of a $260 bull, and in addition they have only seven bulls to maintain, while before organizing they had eighteen.

The Webster county dairymen had been getting along as best they could with "scrub" bulls, each feeling that he could not afford to pay the price of a high-grade bull. They came to the point, however, where they realized they could not improve their herds until they stocked up with some well-bred bulls. Then, to answer their need, thirty-eight Jersey breeders met and formed a Jersey bull association. They divided themselves into seven well-arranged communities, or "blocks," and purchased a bull for each "block."

In selecting their bulls these men determined to be satisfied only with the best. One of their bulls is a son of the Imported Jap; another is a grandson of Spermfield Owl's Eva with a record of 1,241 pounds of butter (80 per cent basis), and the rest are equally well bred. The average records of the dams of these bulls for four generations back is 622 pounds of butter, showing that they carry some of the best breeding to be had.

When one thinks of an animal of this breeding he immediately has visions of a fortune tied up in a bull. And yet these men bought their bulls by simply levying an assessment of $6 on each cow a man wished to breed to them. As has been stated, these seven communities purchased seven bulls. Every two years the bulls are alternated in numerical order among the community. So that with the original cost price a man has the use of such a bull for as long a time as these bulls are serviceable.

But the economy of bull service is only a minor point in comparison with other advantages these men are deriving. Through the use of these bulls they are building up their herds to a much more profitable standard. More than this, most of them are working gradually into the purebred business and are building toward a strong Jersey center. In this way, as a community, they can advertise and attract buyers that no individual could ever hope to do.

New Guernsey Records

A new record was set for the Guernsey breed in the combination sale held at Florham Farms, Madison, New Jersey, May 15. Eighty-three head were sold for a total of $180,275. Sixty-one cows averaged $2,003.69; 14 heifers averaged $946.43; 8 bulls averaged $5,600; the average for the 83 head was $2,172. A two months old bull calf consigned by Anderson T. Herd of New Hope, Pennsylvania, was purchased by the Oaks Farm and Hugh Bancroft for $25,000. This price sets a new record for the breed, being $10,500 in excess of any price previously reported for any Guernsey. The $25,000 bull, Florham Leader 55682, was sired by Ne Plus Ultra 15265, A. R., the sire of 23 Advanced Register daughters, and is out of Langwater Nancy 27943. A new record was also established for a Guernsey cow in the sale of Follyland Nancy 52475, consigned by Florham Farms and purchased by Anderson T. Herd for $12,500.

Cook Buys Idaho Bull

University Don, the Hereford herd bull of the University of Idaho, was recently sold to A. B. Cook of Townsend, Montana, for $1,900. This is a record price on beef bulls for the Pacific northwest. This bull was bred and raised by the animal husbandry department of Idaho University. He is three years old. He was sired by Western Fairfax, a son of Fairfax 16th, grand champion of America in 1912 and now owned by Mr. Cook. The dam of the bull is Dona Perfect and she is still in the University herd. Mr. Cook will place University Don in his show herd for exhibition next fall, at the state and provincial fairs in United States and Canada and the livestock shows, and will also use him as a herd sire.

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THE PART a cream separator plays in the success of a dairy farmer is becoming more and more important. With butterfat worth about fifteen times as much as wheat and twenty times as much as shelled corn, it is too valuable to waste a particle.

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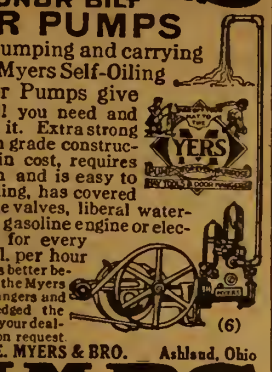

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Observations on the Tractor Demonstration

Continued from page 3

cording to the plowing machinery. Some of this machinery, while successful, was evidently not perfected to the point desired by the manufacturers, or they would have featured these phases to a large extent. Possibly some of the manufacturers did not realize that cultivated crops were grown in Colorado and reserved their exhibits of cultivating machinery for corn belt shows.

Power Farming Is Here

It is evident that this show demonstrated again that power farming is here; that the tractor has a place; that it is successful, especially the better standardized makes. It was also quite evident that many further improvements are possible. These machines are much more adaptable and much more reliable than formerly, but they have not been perfected to the point where no further improvement is possible. They offer a means of doing certain kinds of farm work which can scarcely be done by horses. They make it possible to put a greater amount of power in the hands of one driver.

One very noticeable thing of the show was the almost unanimous use of the high-tension magneto for ignition. Ignition, in the gas tractor, has always been a weak point. The war has advanced the development of the high-tension magneto in two years what would probably not have taken place in ten, so that the reliability of tractor ignition has been very greatly improved and its dependability increased in the last year or two.

Much less trouble was apparent with cooling systems. At many of the previous shows, trouble with the radiation was always more or less apparent. Almost no trouble was observed at this exhibition. This simply indicated that, as in ignition, cooling has progressed very rapidly in recent times.

With the two sources of tractor trouble above mentioned highly perfected, the chief source of tractor trouble falls back on lubrication. Lubrication troubles are of two kinds. Those caused by faults of the machine and those caused by faults of the operator. Most of the tractor manufacturers have so far perfected their tractor lubrication that difficulties with the operation of the machine are few, but no manufacturer has yet invented a driver who will always attend to lubrication. Our experience in the field has been that among the most frequent sources of trouble with tractors, ignition and lubrication were by far the most important. Manufacturers have mechanically perfected both of these difficulties. It remains to educate drivers in the necessity of lubrication. A tractor will not put in its own oil. The driver must do it. Forgetfulness on the part of the driver may ruin the machine and this very trouble frequently happens.

The tractor is partially replacing horses. It has not developed yet to the point where it will entirely do so. On the other hand, it is doing many pieces of work that horses cannot do. Accordingly, it has a place and with improvements it will have an increasingly large place on the farms.

Tractor Show Comment

BY ALVIN KEZER

The Tractor Show was held about five miles east and south of Aurora. The posters all said four miles. The jitney driver said it was four miles over and charged a quarter but it was six miles back and they charged you fifty cents.

When you got off of the car a nice man or a nice lady grabbed you by the arm and offered to escort you to the tractor grounds. Before you reached the grounds you saw where the show ought to be—the big tent. It lacked the elephant but the side show was there just the same. It was no place for the small boy—waterboy—for the water boy's job was a full-sized man's job.

If you could judge by the remarks of the spectators, twelve inches of dust was the chief attraction. Men from Kansas and Nebraska gave up their boasting and admitted that this show could produce more dust than any they had staged in Nebraska.

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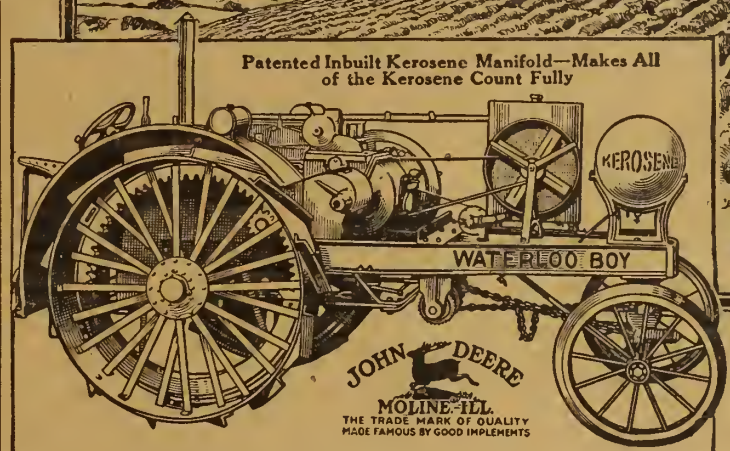

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Even the Indian came in for his store of surprises. One red man was heard to remark when he looked upon the electric lighting plants for farm homes, "White man greater than God. God make light in daytime. White man make light any time."

Some of the tractors have become domesticated. They have put on rubber soles and heels so that they could tramp in the parlor.

It is too much to expect one farmer to see the whole show. One driver for a manufacturer remarked, "I have lost my tractor. There are so many here I can't find my own."

A chap poking around while the mechanics were setting up tractors and machinery was asked what outfit he belonged to. "Oh! no outfit, just trying to pick up information." "Well, if you stick around while we are setting up and tearing down, you may learn more than you would at the show." Mature deliberation would indicate that the mechanic knew what he was talking about. In setting up and tearing down mechanics and owners exhibit their fears as well as their confidences. Where there is fear, there is a weakness.

Most of the tractors went on wheels but one of them walked. It succeeded in walking all right on hard ground. There was no sand around so there was no means of telling whether it was a "sand-hog" or a "mud-hog."

The American used to walk but now he rides. That is why the American is an inventor. He has to think up ways of doing the work without getting off of the seat. No one but a lazy man could have invented the selfdump harrow which will clean itself when incited with a gentle rope.

Selling Our Fertility

Plant food to the value of $365,000,000 will be extracted from the soils of Kansas farms this year, at the present price of fertilizer, according to Prof. R. I. Throckmorton of the Kansas State Agricultural college.

"This plant food would produce 200,000,000 bushels of wheat, the estimated yield for the state this year. Kansas farms are gradually but surely becoming less productive and the maintenance of soil fertility is a matter of concern to every farmer, particularly the

"It was pointed out in England long ago that Americans disposed of their crops and livestock at even less than fertilizer value. In the face of the large number of abandoned farms and the rapidly increasing population, it is high time farmers began to do their work more scientifically."

Crop rotation, in which legumes play an important part, and keeping a liberal supply of livestock and returning all organic matter to the soil, are suggested as efficient means of improvement.—Kansas Industrialist.

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

America The Beautiful

Oh beautiful for spacious skies,
For amber waves of grain,
For purple mountain's majesties
Above the fruited plain!
America! America!
God shed his grace on thee,
And crown thy good with brotherhood
From sea to shining sea!

Oh beautiful for heroes proved
In liberating strife,
Who more than self their country loved,
And mercy more than life!
America! America!
May God thy gold refine,
Till all success be nobleness,
And every gain divine!

—Katherine Lee Bates.

Do you know them and do you sing them often, these wonderful lines whose subject could be none other than our own beautiful America? Then get ready to sing them now with a pride you never before could feel at even an Independence Day celebration.

The Julys as well as the Aprils have been mom ntous in America's history. Last Fourth we were waiting to see what the end of July would bring. The Americans were still "west of the Marne," and the Germans were yet dreaming of national and international holidays which should be carried on as they directed.

We know how their dream ended and that the last days of July brought the capture of Soissons, and the beginning of the retreat which meant liberation indeed for their victims. All of the gold of America came out in those days. No one but those who fought there will know how much that love of country cost, and none can sing more truly than they,

Till all success be nobleness,
And every gain divine! —E. D.

What Mary Wants

(Marvin Expresses Himself On The Picnic Question)

Dear Mary:—

You have become altogether too apt in quoting the Scripture, young woman, and your picnic letter has thrown both sides of this house into somewhat of a turmoil. Sarah is still hunting at this date, two days after receiving it, for the thirteenth recipe for a "new" sandwich filling. I'm hoping she won't find it, for I'm sure after you made that many unlucky varieties that a rain would spoil your going. It's bad for chickens to try so many sorts of food at once.

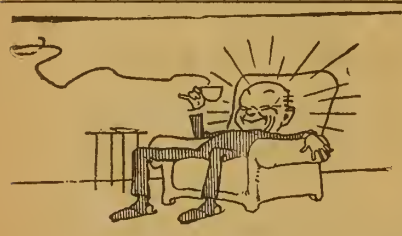
Don't remove my hair forcefully before I apologize and explain about a scheme which has been percolating in my brain ever since your letter came. That's the reason for my turmoil. The more I think, the more it is borne in upon me that you are right about the appetite of man never being filled, at a picnic, and the labor, of woman, all being in vain along that line.

Now my wonderments all came to this,—even if man were no more successful in filling the demands of his own appetite, wouldn't it be a little diversion for the women if he were to take hold of one picnic dinner and try? You can make up your mind to enjoy anything, Mary, and a man-made picnic is the next social affair on your list.

I have decided it. It is to be held just after the second cutting is in, and your neighbors will join my neighbors and we'll go to the lakes for a day, wherein the women will have nothing to do but go. To prove that the masculine conspirators in a picnic can do something beside drive vehicles and carry matches for the fire, we'll not only build the fire,— but we'll get coffee and lemonade ready, have more different kinds of sandwiches than the mind of woman could dream, or her stomach digest, and have more salad stuff and flumididdles than Heinz could ever advertise, his own house being limited to less than sixty varieties. You may have pie, and I'll bet my fishing tackle on the presence of a tablecloth.

You are invited to a picnic where the men labor to satisfy the appetites of all. Please accept at once.

Sarah's and your devoted
Marvin



Do you know the comfort, cheer and after-glow of fine tea?

There is no other drink like it; it gently stimulates and cheers, but makes no demand upon the digestion.

It is a royal drink, and yet, next to water, is the cheapest of all—⅓ cent for a cup of fine rich-flavored invigorating satisfying tea!

Schilling Tea is the fine practical economical tea of this country.

There are four flavors of Schilling Tea—Japan, Ceylon - India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

A Schilling & Co San Francisco

Another Plea For Safety

In order to save the babies from the dreaded disease of "summer complaint" you must get rid of the flies. It has been proven that the blame for that illness can be laid almost wholly at the door of his very Insanitary Majesty, the fly.

Fly traps are neither difficult to make nor secure and will take care of the insects already here; but the safest and most intelligent way is to destroy the spots in which they breed, decaying food, the open manure pile and the unscreened and unprotected privy vault.

For many years we have been advocating a safe and sane Fourth of July; and yet with no evidence of saneness we let all the other days go unsafe for the babies by continuing to board flies along with the family.—E.D.

Feeding Thresher Crews

Any one who has grown up in a large family seems to know instinctively how much to cook when there are many extras in for meals. But that instinct doesn't always come to the aid of younger housewives in time of stress. These recipes give amounts of food necessary for very generous helpings to feed a crew of, say, fifteen threshers. Those crews always come in with the appetites of ogres and want enough. Yet they do not care for warmed over foods and that means that there should not be too much cooked, or else you are liable to have an overfed dog for a few days.

Scalloped potatoes

6 quarts of sliced potatoes
2 qts. hot milk
½ cup flour
1½ cups butter
3 tbsp. salt
Juice one lemon

Baked Beans

1½ qts. dried beans
1 pound salt pork
2 tbsp. salt
½ tbsp. mustard
¾ cup molasses
2 tbsp. brown sugar
½ teaspoon pepper
1 onion

Macaroni and Cheese

1¾ pounds macaroni
¼ cup salt
1½ qts. medium white sauce
1 pound grated cheese
Cayenne

Apple Sauce

10 lbs. apples (30)
5½ cups sugar
2½ to qts. water
Juice 1 lemon or 2 grated nutmegs

Cup Custard

3 qts. milk
12 eggs
2¼ cups sugar
1½ teaspoons salt
3 teaspoons vanilla

The Rancher's Partner

One look into the faces of the farmers' wives as they hustled along in a vain attempt to keep step with their stalwart, weather-bronzed partners at the Tractor Show of last week would convince the most skeptical that country women in general are healthy, happy and intensely interested in all that means better and more efficient farming.

Power indoors as well as out is fast becoming the watchword on all up-to-date farms. Ranch women are quick to avail themselves of all these labor saving devices. To them they mean hours of leisure for rest, study and recreation. City dwellers often pity the women who live close to nature and imagine their lives dull, colorless and filled with drudgery. This is the exception, not the rule. Our modern homes make our routine of housework very much the same as that of our city sister, but our recreations are vastly different. We look upon the time spent with our flowers, our garden and our baby chix as one of genuine pleasure. One that brings us in close touch with Nature's wonderful and mysterious work and fills every day with changes and possibilities which make the development of the plant and animal life about us a very interesting study.

On the other hand, it fills our larders in a way which assures the unexpected guest of a hearty welcome, devoid of the nervous tension induced by the knowledge that a smuggled phone call or a secret visit to the corner grocery is necessary before the dinner hour.

I am inclined to think that, compared with women in other walks of life, the successful farmer's wife will be found unusually generous and hospitable, a cheerful, optimistic, competent PARTNER in the ranch business. —Mrs. Jessie Gardner, Watkins, Colo.

Fred and May on the Farm

(Written by Dorothy Logan Hargis, Aged 9 Years)

Once upon a time a little boy and girl, the boy's name was Fred and the girl's name was May, and they lived on a farm, where there was cattle and chickens, and ducks, and horses and all kinds of things like that, and so one day, can you guess what they did? They went out and tried to milk a cow, and guess what the cow did? He kicked them, and the reason the cow kicked them was because he had never been milked before, and they went in the farm house crying and were put to bed without supper, and they never monkeyed with any cows after that.

Why is a White—Red?

This is my turn to ask a question. I have a baby chick and he, or she, is red, and his parents are white, real White Rocks, and the parents of his grandparents are, and all his, or her, ancestors for at least twenty generations have been White Rocks. More than that, there have been no Reds on my place in all these years but once; three years ago I bought a bunch of Red baby chicks, kept them until fall then sold the entire lot. Six years ago I bought six full grown White Rocks from J. W. Downey. Mr. Downey had been breeding White Rocks for nearly twenty years, and for about three years had kept Reds also. Has this anything to do with this little red him or her? If so, why have we never had a single red feather show up before? I give it up; can someone answer, why?—W. E. Vaplon.

The most expensive thing in the world is getting even and it isn't worth the price.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2408——For House or Poroh Wear—You will want this pretty model. It is lovely for percale, gingham, seersucker and lawn. It will make a smart, little dress for business or outing, in appropriate materials. You may have the sleeve in wrist or elbow length and finish the dress with or without the pockets. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure Size 38 will require 5¾ yards of 44 inch material. The skirt measures about 2½ yards at the foot.

2828—A Very Comfortable Apron—This style has a very good feature, in that the bib portions are in back as well as in front, which helps to hold the apron well in place. The skirt portion is in two sections. This style is good for gingham, seersucker, percale, drill, sateen and brilliantine. Cut in 4 sizes: Small,

32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. Size 38 requires 3¾ yards of 36 inch material.

2810—Frook for Mother's Girl—Here is a model that will not be troublesome to make or launder. It is lovely for plain or figured voile, batiste, swiss, lawn, handkerchief linen, dimity, poplin and silk. The front of the waist portion may be embroidered, or trimmed as illustrated, to simulate a vest. The long sleeve is gathered at the wrist, with the fulness below, forming a ruffle. The short sleeve is finished with a frill. This dress is cut in kimono style, and closes at the back. Cut in sizes: 4, 6, 8, 10 and 12 years. Size 8 will require 2¾ yards of 36 inch material.

2827—Pretty Dress for the Growing Girl—As here illustrated, white voile and fillet lace are combined. The design could be developed in any other lingerie fabrics, also in silk, voile, satin, linen, gabardine, gingham or percale. Either style of sleeve is becoming. This model is composed of a simple waist and skirt over which the jumper portions are draped. Cut in 3 sizes: 12, 14 and 16 years. Size 14 will require 4¾ yards of 36 inch material.

It Pays to Advertise

By golly, that ad you put in Western Farm Life regarding potatoes nearly ran me ragged. I had orders for seven carloads more than we could supply. We cleaned up our seed potatoes in fine shape at a good price, and several of our customers duplicated their orders. The farmers around Eastonville were greatly pleased to get rid of their small potatoes.—William H. Paul, the Paul-Murphin Ranch, Eastonville, Colo.

The advertisement was a four line classified, offering for sale seed potatoes grown by farmers in the Divide section.

Comment by Farmer Putnam

Continued from Page 9

what kind I got. Well, I seen what they could do in tough, dry sod, with nary a bit of moister, and havin' a fine level farm I seen where I could save myself a lot of labor, git along with three or four less hosses, git my plowin' and seedin' done in half the time. have the machine fur belt work all the rest of the year and raise bigger crops on more acres then I been doin'. Now about the make—the editor sez it wouldn't be fair to tell, because all of them tractor makers is treatin' us fine and he don't want to make 'em sore. I reckon I better leave out the name of it, but you people has read this here page fur nearly three years now and you-all know me purty well, and I reckon you kin guess the kind of a machine that'd appeal to me!

THOMAS JEFFERSON PUTNAM.

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

During the past few months a number of Western Farm Life readers have requested information about Hoganizing. Perhaps this is an opportune time for this discussion as hens are gradually and surely falling off in egg yield and to be able to pick out the quitters will add very materially to the profit side of the ledger. This last paragraph compels me to digress a little from the subject in hand long enough to say—hens are dropping off in egg production at this time of year too fast—unnecessarily fast. Do we get a little careless about now and neglect our hens? Do we depend too much on range and cut down too much on the feed?

There is no real reason for the heavy decline in egg production as early as June and July in the intermountain region when cool nights prevail and when hot sultry weather is unknown. The other digression, or transgression, is in regard to the word, ledger; we take it for granted that none of our readers will go without a poultry ledger, or record blank, when a request on a postal card will bring a supply.

So back to Hoganism or Potterism.

Nine years ago we happened to be held up in Chicago for two or three weeks and having read Potter's, "Don't Kill the Laying Hen," we took the opportunity of visiting his place, 20 miles out. I am not sure, but I think Potter came out first with the ideas so commonly expressed now in print, of "abdominal capacity, lay bones," etc., etc. Anyway I was deeply impressed with the work he had done along this line. He had 35 or 40 specimens of hens in glass jars, these hens having come from his own yards after having been trapnested and studied carefully before killing. From a study of these specimens, both alive and dead, he deduced the material contained in his little booklet.

I have no doubt that a great deal of harm has come from the reading of such works as Potter's and Hogan's; not that the material is not good and perhaps true, but that readers will apply the rule of selection, or if you please, the standard of values, at any and all times and under any and all conditions. In other words, a reader will learn that the "lay bones" should be two fingers or three fingers apart; if closer together the hen is not worth keeping. He applies this test at a time when this hen is out of condition, when, in the very nature of things she could not and should not be in lay; she falls short and off comes her head. Commonsense is still a valuable commodity and should be carefully cultivated, then used with any information which is to be put into practice.

Potter claims that a hen with a big appetite, showing a good distance, two to three fingers, between the lay bones, or pelvic bones, also showing large abdominal space, distance between end of breast bone and lay bones, is a good producer. The hen going to roost late, with a full crop, also getting out early for more food, is naturally a hard worker, a big eater because she requires much food in the manufacture of eggs. The fact that the lay bones are fairly well spread apart, say two fingers, indicates good laying; a larger spread, say, three fingers, shows heavy consistent laying. The big abdominal capacity indicates what the big barrel on a milk cow indicates, large capacity, much room. When a hen shows up well in these three respects, she is, without question, a good layer, and the reverse conditions indicate a poor producer.

Thick, rigid lay bones are bad, thin pliable bones denoting a good layer. Hogan goes into the brain measurement but personally I do not know that his theories along that line have been verified by facts.

It is safe to say that any person carefully considering the three points mentioned above, always remembering that the conditions and time should be weighed also, can not fail to note a steady advance in the fecundity of his flock and need never have many drones about the place. Added to these tests are the sure old indications of full combs, active sprightly ways that indicate the business hen.

Now that the egg yield is falling off little by little, it is safe to presume that some hens have quit entirely, though, perhaps, most of the decline is due to the entire number of hens falling off a little; but the few that have stopped entirely can easily be detected by reason of early roosting, loafing, half filled crops, "late arising," lay bones gradually coming closer together, combs shrinking, etc. When these conditions seem to have become permanent, these star boarders had better go to market.

We Want to Know

Douglas county's agriculturist has written for information as to how to eradicate bed bugs from a sod poultry house. We have our theories but no actual experience to back them. Undoubtedly many readers of Western Farm Life have the sod house and some the bed bugs and mites; tell us how you get rid of the pests. All the advice in the world is not so valuable as an exchange of ideas founded on practice.

Chickens Have Rheumatism

I would like to ask something about my chickens. They are fat and they look healthy, but their feet will swell and they will get weak and when they walk they wobble from one side to the other. Is there such a thing as chickens having the rheumatism? If so, what can I do for them? They all are laying well. —Mrs. L. F. W., Pueblo county, Colo.

We have had a good deal of trouble in the plains section, where young chicks have the run of prairie sod, with what we call, "foot and face disease." The feet of the chicks become swollen, then break open and a thin, watery discharge comes from the sores. Evidently from this the face becomes sore and eventually blindness results. However, I have never known of this except in a very few cases in the grown stock. It is just possible that your fowls have rheumatism and if so, I do not know what can be done for them except to keep the affected ones in close quarters and not allow them to range or feed with the other fowls and feed very lightly. Poultry is subject to as many ailments as human beings and the treatment we have been able to give has apparently done only a slight amount of good.

Boy Makes Wonderful Record

Sometime ago we published a preliminary report on the proceeds of one acre of Minnesota No. 13 corn grown by Carl Hixson, a member of the Boys' Corn club of Boulder county. The young man recently completed his record by the sale of nearly 2900 lbs. of seed corn, swelling his total receipts to $208.70. It cost him $45 to grow this acre of corn, to market the product, prepare exhibits, etc., making his total gain on the one acre $163.70.

This remarkable record has perhaps been exceeded by few corn club members in the United States and has never been approached in the West, as far as we are aware. Following is the complete record as furnished by Mr. H. H. Simpson, county agriculturist for Boulder county:

Seed corn, 661 lbs. at 10c	$ 66.10
First prize, 10 ears sold at corn show	24.00
First prize crate sold at corn show	14.00
Second prize crate sold at corn show	6.00
Third prize crate sold at corn show	5.00
2149 lbs. of market corn at $2.60 per cwt.	55.87
728 lbs. of market corn at $2.60 per cwt.	18.93
First prize, District fair	3.00
First prize, corn show	3.00
First prize, stock show (tools)	5.25
First prize, stock show (skates)	4.00
Second prize, state fair (Thrift Stamp)	.75
First prize, county fair (Thrift Stamps)	3.00
Returned seed corn	.80
Total receipts	$208.70
Total expenses	45.00
Total gain	$163.70

Who Does the Buying For Your Family!

There is someone in your family who has a big responsibility. Food to buy for the table; clothes for the children and grown-ups; new household utensils, linen, furniture, books and all the hundred and one little things for which the family income is spent.

In most families, one person does the bulk of the buying. And it is that person's job to see that the money is well spent—that you all get full value for every cent that goes out.

The success of a family depends on wise buying just as the success of a business does. Wise buying means intelligent buying. It is necessary to have knowledge of goods. The best way to get this knowledge is by reading advertisements. They tell you what is new and good.

Not only the person who does the buying but every member of the family should read advertisements. It is the duty of all the others to help the one who does the buying by pointing out advertisements of new goods and giving all the information possible as to tastes and styles and values.

Advertisements are published for your benefit. Make use of them by reading them.

Denver The Live Stock Market

Denver is the Highest Market **Most of the Time** and the Best Market **All the Time** for Western Cattle and Sheep.

Time and again cattle have sold on the Denver market for higher prices than the same cattle would bring same days at the Missouri River.

Why don't you market your cattle and sheep at Denver, where they will bring you greatest net returns?

IRRIGATE Your Field and Garden

Get larger yields and profits. Provide fire protection for your buildings, and water for your stock, by installing an

'AMERICAN" Centrifugal Pump

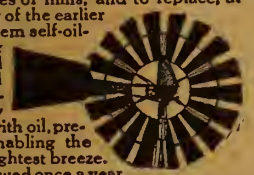
A compact dependable, and economical pump that requires little attention. A size for every purpose—small farm or large irrigation project. Absolutely guaranteed.

An American Centrifugal Pump insures all the water you want when you want it. Write for new Catalog.

THE AMERICAN WELL WORKS
General Office & Works: Dept. 27, Aurora, Ill.
Chicago Office: First National Bank Building.

THE SELF-OILING WINDMILL

has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

Big Money Boring Wells

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

One Man One Team

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

LISLE MFG. COMPANY
Box 743 Clarinda, Iowa

America's Pioneer Dog Medicines

BOOK ON
DOG DISEASES And How to Feed
Mailed free to any address by the Author
H. CLAY GLOVER CO., Inc.,
118 West 31st Street, New York

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

300 EGG BARRON S. C. WHITE LEGHORN cockerels, March hatch, $1.50 each. R. Hentschel, Wheatridge, Colo.

SINGLE COMB WHITE LEGHORNS. THE LAYing kind; the paying kind. No hucksters, but genuine business birds that fill the egg basket all seasons of the year. Standard bred, line bred and trapnested continuously. I breed from nothing but the best. Selected for prepotency, size and vigor, and verified by the trapnest route. Eggs, $2.00 per setting. Incubator lots 8c each. Send for folder. 8 and 10 week old pullets and cockrells, all hatched from hens with records of 200 or better. April, 1918, hatched hens, record (7 mos.) 120 to 147. Remember I trapnest all my hens all the time and breed and sell stock only from hens with records of 200 or better. J. S. Stever, Rock, Kan.

PLYMOUTH ROCKS

WANTED FIFTY PURE BRED BARRED ROCK pullets about eight weeks old. W. A. Manuel, Ft. Garland, Colo.

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

PARK'S BARRED ROCK EGGS, $1 to $2, 15; $6 to $7, 100; baby chicks 15c. Bourden Red pure bred turkey eggs, $5 for 12 prepaid. N. P. Jones, Speed, Kans.

LAYMORE BARRED PLYMOUTH ROCKS. Eggs, $3.00-$5.00 for setting (15); $12.50 per 100. Prize winning stock. Buy eggs of this stock and you buy the best. I can furnish a few hundred Rhode Island Red baby chicks at $20.00 per 100. J. R. Anderson & Son, Fort Morgan, Colo.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

CORNISH

INVINCIBLE DARK CORNISH. OFFERING 50 high class utility yearling females at $3.00 each, 10 big heavy yearling cock birds at $4.00 each. Lots of 12 hens and cockbird for $35.00. All stock guaranteed to please or money back. Order direct from this ad. R. H. Jandebeur, Alma, Nebr.

SEVERAL VARIETIES

HATCHING EGGS—GET FREE CIRCULAR. Write today. Twenty best varieties. Modlins Poultry Farm, Topeka, Kan.

SEVERAL VARIETIES—BUFF LEGHORNS, R. I. Reds; best layers on earth. Buy cockerels now and save money. Champney, 25 So. Logan, Denver.

BABY CHICKS

BABY CHICKS THAT WILL LIVE—WE hatch chicks that will live and thrive in the Mountain territory. Have been making the Denver Incubators and hatching and selling chicks in Denver since 1906; we have the only hatchery in Denver with a present capacity of 20,000 eggs at one setting. Parcel post prepaid on 25 or more. Selected Barred Rocks, Reds, White Wyandottes, $18 per 100; extra fine laying stock, $20. White Leghorns from the best in Colorado, $16 per 100. Why not buy direct from the firm that does the hatching in Denver. No reshipped chicks from us. Denver Incubator Co. and Hatchery, 175 South Broadway, Denver, Colo.

POULTRY

POULTRY PAPER—MOST WIDELY KNOWN. Tells all about care of poultry. Fine Rabbit Dept. 50c a year; 3 years $1.00. Sample free. Rabbit book, 25c; with paper, 65c. Poultry Advocate, Dept. A48, Syracuse, N. Y.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

WANT TO BUY—A FEW GOOD MILK STRAIN Shorthorn or Red Polled cows. Address C. N. Revis, Box 478, Sterling, Colo.

FOR SALE—REGISTERED HOLSTEIN BULL, 2 years old, Jewelfield Rag Apple Karem No. 231483. Tel. Wiggins. Chas. McDermott, Hoyt, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—A FEW EXCEPTIONALLY WELLbred Holstein bull calves from three to nine months old. Registered, high-producing stock, no better in Idaho. Intermountain Institute, Weiser, Ida.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $150 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

FOR SALE—PURE-BRED HOLSTEIN BULL, one year old. This sire is a son of Rag Apple Korndyke 8th. the greatest bull in the world. The dam, A. R. O. cow of fine breeding. Price $200.00. Mrs. Katie Le Fevre, Gunnison, Colo.

FOR SALE—PURE-BRED AYRSHIRE BULL calves, one to eight months, choice individuals. Sire—Cavalier's Rising Tide. G. A. Somerville, Limon, Colo.

HOGS

BIG TYPE POLAND CHINA; BOAR PIGS, OLD enough for service; correspondence solicited. Gad Barney, Haswell, Colo.

FOR SALE—A FEW BIG TYPE POLAND-China boar pigs. Weaned. Write or come and see them. W. J. Peterson, Seibert, Colo.

BIG TYPE POLAND-CHINA PIGS, APRIL AND May farrow, for sale at weaning time. Correspondence solicited. Gad Barney, Haswell, Colo.

A FEW BIG TYPE PURE-BRED DUROC WEANing pigs, from registered boar. Price, either sex, crated f. o. b. express office, $15.00. Wm. Robson, Route 3, Golden, Colo.

CHOICE REGISTERED HAMPSHIRE GILTS. The range hog. Best of blood lines, bred to National show winner or other splendid individuals. Reasonable prices. L. F. Newbold, Minden, Nebr.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo. On U. P. R. R.

FOR SALE, BLACK REGISTERED PERCHeron stallion, 7 years old. Weight, 1900 lbs., also registered Mammoth Jack, 7 years old, 15½ hands. A good one, priced to sell. F. Gilgen, U. P. R. R., Eaton, Colo.

SHEEP

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamb, $35.00 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 398J.

FOR SALE—400 HEAD PURE BLOOD COTSwold breeding sheep, one to four years. Reason for selling, lady owner and poor health. Price $25 per head. An income of $8,500 per year can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 398J.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

640-ACRE HOMESTEADS—STOCK, GRAIN. Duff, Casper, Wyo.

FOR SALE, RANCH AND CATTLE. FOR PARticulars, write Sim Moore, Gunnison, Colo.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

79 ACRES INSIDE CITY LIMITS OF DENVER on car line, good water rights, all cultivated. 7-room brick house, several barns; on boulevard. Price $25,000, liberal terms. A. J. Simonson, 314 Cooper Bldg., Denver, Colo.

320 ACRES 1½ MILES FROM INTERURBAN station, close to Lincoln Highway; 13 miles from Denver; fine water right, 3 good lakes; 7-room house, good barn; 120 acres alfalfa; fine thorough stock farm close to loading station; only $140 per acre. B. J. Hockabout, 527 17th Street, Denver, Colo.

HELP WANTED

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MASON SOLD 18 SPRAYERS AND AUTOWASHers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

NEGRO SOLDIERS IN WAR. BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

HUNDREDS GOVERNMENT JOBS OPEN TO men-women, $1,000-$1,600 year. Pleasant work. Paid vacation. Common education sufficient. Write immediately for free list positions now open. Franklin Institute, Dept. G 171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

CROCHETERS WANTED. POSITIVELY NO canvassing. Stamped addressed envelope for particulars. Mrs. Meixel, 517 Lycoming Street, Williamsport, Pa.

HOOD'S FARM AND COUNTRY SHOES FOR all the family, $3.25 down. Send for circular. Stylish and durable. Duck upper. Rubber sole. Pneumatic heel. Central Sales Co., 599 9th Ave., New York.

TORIC EYE GLASSES $4.75. GUARANTEED gold filled with deep curved special Toric lenses. Complete $4.75. Mail orders a specialty. Toric Optical Co., 1515 Stout St., Denver, Colo.

IF YOU WANT TO MAKE A SATISFACTORY job of Canning all kinds of Vegetables, Fruits and Meats, by all means use an Alexander Home Canner, and you will never be disappointed. Thousands of people are delighted with the superior quality of the canned products. Canning Experts and Demonstrators say the Alexander Home Canners are the best Family Canners on the market. For prices and description write G. W. Alexander & Co., Plattsmouth, Neb.

AUTO TIRES

TIRES. FORD, $6.75. LARGER SIZES equally low. Lowest tube prices. Booklet free. Economy Tire Co., Kansas City, Mo.

GROCERIES & SUPPLIES

100 LS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1528 Nineteenth St., Denver., Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

FARM MACHINERY

FOR SALE—12-25 CASE TRACTOR AND plows complete. Cheap if taken at once. Chas. McDermott, Hoyt, Colo.

FOR SALE OR TRADE, 16-35 HART PARR tractor. Six disc plow; ten foot tandem disc. All in good condition. Price reasonable. John Prendergast, Carr, Colo.

CABBAGE CUTTER SIX KNIVES—SLICES ALL kinds of vegetables rapidly. Fine for Saratoga chips. Prepaid $1.00, three for $2.200; Agents wanted. Lusher Brothers, Elkhart, Ind.

CASE THRESHING OUTFIT, COMPLETE; 25-75 H. P. Steam engine with fuel bunkers. 16 lbs. water wagon, 36-56 separator; Ruth feeder. 16 ft. extension feeder, all in good order. Albert Frey, Weldona, Colo.

CORN HARVESTER, ONE-MAN, ONE-HORSE, one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25 with fodder binder. Free catalogue showing pictures of harvester. Process Corn Harvester Co., Salina, Kan.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

LIVESTOCK FIELD NOTES

Elsewhere in this issue appears the announcement of H. C. Dennis. Mr. Dennis is the popular auctioneer of Fort Morgan, and is an experienced and successful livestock salesman. He also conducts real estate and land sales.

The Colorado Agricultural College at Fort Collins is advertising a lot of fine stock for sale. They have some top-notch Duroc Jerseys, and Poland-China boar pigs; also three Holstein bull calves and a two-year-old Shorthorn bull. See their announcement in this issue.

Mr. J. W. Brauer of Colorado Springs has a lot of fine spring and summer pigs for sale. These pigs were sired by I-Am-A-Pathfinder, the Grand Champion hog who sold recently for $3.000. See Mr. Brauer's announcement in this issue.

Mr. Frank P. Healy of Fort Collins has just moved to Colorado after forty years in Iowa. Mr. Healy brought with him some fine grade Scotch Shorthorns, and will continue in the cattle business in this state. See his announcement in this issue.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.

DENVER, COLO.

2055 Humboldt St. Phone Main 5713

THE CITY PARK DAIRY FARM

We breed and always have for sale

High Grade Holstein Cows

Our herd is sired by registered bulls of reputation.

Visit our farm—only 1 mile from Denver, on Leetsdale Drive.

OUT OF TOWN ORDERS FILLED

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

FRANK P. HEALY

Breeder of Shorthorns

Forty years in Iowa, now has for sale a Yearling Scotch Bull and some heifers. Write, or come and see them.

Fort Collins, Colo.

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH

Montrose, Colo.

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

GEO. R. GILMORE, Ft. Morgan, Colo.

YOUNG HOLSTEIN BULLS

Two extra good bulls coming two years old; and bull calves under one year old; all nicely marked; good type—King Segis, De Kol, Ormsby, and Pontiac breeding.

For further information and prices write,

W. A. PURVIS, Johnstown, Colo.

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.

Elbert, Colorado

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

MAJESTIC SUNBEAM

HEREFORDS

Herd headed by "Majestic Sunbeam" by "Majestic 24th" by the Imported Bull "Majestic," he by "Argon" by Prospero" by "Statesman"; dam, "Armour Sunbeam" by "Beau Brummel Jr." by "Don Carlos" by "Anxiety 4th."

BEAU ANDREW

By "Beau June" by "Beau Mischief." Beau Andrew is a grandson of "Beau Mischief" and one of the biggest boned bulls sired by the great "Beau Mischief."

MAJESTIC SUNBEAM HEIFERS

All bred to Beau Andrew

Have several head of yearling coming two year old bulls sired by "Majestic Sunbeam" and "Beau Andrew" for sale.

Would also sell 18 to 20 head of "Majestic Sunbeam" heifers and young cows from 2 to 4 years old.

If you are looking for the best blood, quality conformation and the biggest bone bulls in the West to put size and weight in your herd of cattle, come and look my cattle over. I am pleased to show them at all times.

I also have for sale 30 head of full-blooded Poland China gilts, sired by my great herd boar, "Wonder King." These gilts are bred to my next herd boar, "Standard Darkness." These two boars are the biggest Poland China boars in Colorado or any place in the West. Gilts are due to farrow in the next three to five weeks. Price, f. o. b. cars, Wellington, Colorado, $55.00.

A. J. CAMPION

Union Stock Yards DENVER, COLORADO

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyo.
406 New Live Stock Exchange Building,
Union Stock Yards, Denver, Colo.

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent JAMES C. ADAMS, Salesman

FOR SALE

DUROC-JERSEY AND POLAND-CHINA BOAR PIGS

Practically all farrowed in March. No sow pigs for sale, as the Boys' and Girls' Pig Clubs took all we had to spare.

THREE HOLSTEIN BULL CALVES

One of these is out of a 26-pound cow ,is 17 months old, and was third in his class at Denver.

A GOOD SHORTHORN BULL

By Scotch Mine, 2 years old in July. Red color.

ANIMAL HUSBANDRY DEPARTMENT

COLORADO AGRICULTURAL COLLEGE, FORT COLLINS, COLO.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Durocs am sold down to November pigs. They are sired by a son of Top Sensation.

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

REGISTERED DUROCS

Lakeside Herd

We are offering tried sows and gilts of SENSATION, KINGS COL., DEFENDER, ORION CHERRY KING, and GOLDEN MODEL breeding, bred to farrow in August and September, to our Big Type Boars, DIAMOND ORION and DIAMOND MODEL SUPREME.

All Hogs Immuned. Write Us Your Wants

DR. F. T. DALY, Cambridge, Neb.

The Greatest Purebred Livestock Center in the West

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

We Will Hold a Bred Sow Sale, August 6th, 1919

Canary Repeater Herefords

Sired by

Repeater 63rd

FOR SALE—A carload of 1-year-old Bulls and a car of 1-year-old heifers.

Also a Few 2-Year-Old Bulls

J. D. Canary Denver, Colo.

720 Majestic Building

Registered Hereford Bulls

Very Attractive Prices
Some good Registered Hereford Bulls of our own raising, and ready for immediate service.

Any Number From One to a Carload

Write your wants, or come and see them. Everything we sell is fully guaranteed.

JOHN E. PAINTER & SONS
Roggen, Colo.

WYNNEWOOD RANCH

BIG TYPE POLAND CHINA HOGS

Junior Champion Gilt, Denver Stock Show, 1919, exhibited by Wynnewood Ranch

FOR SALE—Two young boars, sired by the Sensational BIG BOB WONDER No. 252987, dam Master Queen 2nd No. 696650, weight 600 pounds.

These boar pigs are out of a litter of ten, their color and marking are perfect. They are six months old and weigh 200 pounds, not fat. They are of the best Poland China blood lines.

Also have weanling pigs of both sexes same breeding as above.

L. G. DAVIS, Owner

Address C. E. GORDON, Manager, Overland, Colo.

El Paso Herd Durocs

the home of

Pathfinders in Colorado

Sold my Grand Champion to Wm. J. Farley of Aurora, Neb., for $3,000. Have for sale a few sows and gilts bred to him; also good lot of spring and summer pigs sired by him.

NONE BETTER IN THE WEST

J. W. BRAUER

Colorado Springs, Colo.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

BEAU ASTER

Registered Hereford Cattle

Prince Domino—199611 Sire of the Champion Futurity Bull and Heifer

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER
Holyoke, Colo.

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion,
Chicago, 1917
Denver, 1918
and 1919

Breeders of

BELGIAN HORSES

and

POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

Shorthorn and Polled Durham Cattle

Valentine's Last X12316 452008 at head of beef herd. Claywood White 127350 at head of milk type.

STATE INDUSTRIAL SCHOOL
Golden, Colorado

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves and yearlings. Prices, $75.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, Good Block, Des Moines, Iowa.

'Chain'

'Usco'

Take it in the Car

Think how your car shortens those trips to town!

Going or coming—carrying any one of the hundred and odd things you have to carry, how much it means to you in time saved, alone!

Give it tires that will vouchsafe its greatest usefulness and most economical operation.

Experience has taught hundreds of thousands of folks—both in the cities and on the farms—that United States Tires are good tires; the best tires they can buy.

Last year, when thrift was a necessity and dependability vital, United States Tires showed the remarkable superiority that has always marked their performance.

That is one reason why the 1919 sales of United States Tires are far beyond any previous demand.

Another big reason is this:

There are five separate and distinct types of United States Tires—among them tires that will meet—and meet exactly—any existing need for tires. This means greatest economy, longest mileage and most satisfaction all 'round.

The United States Sales and Service Depot Dealer in your neighborhood will gladly point out the tires that will serve you best. Let him help you.

United States Tires are Good Tires

IN

WESTERN Farm Life

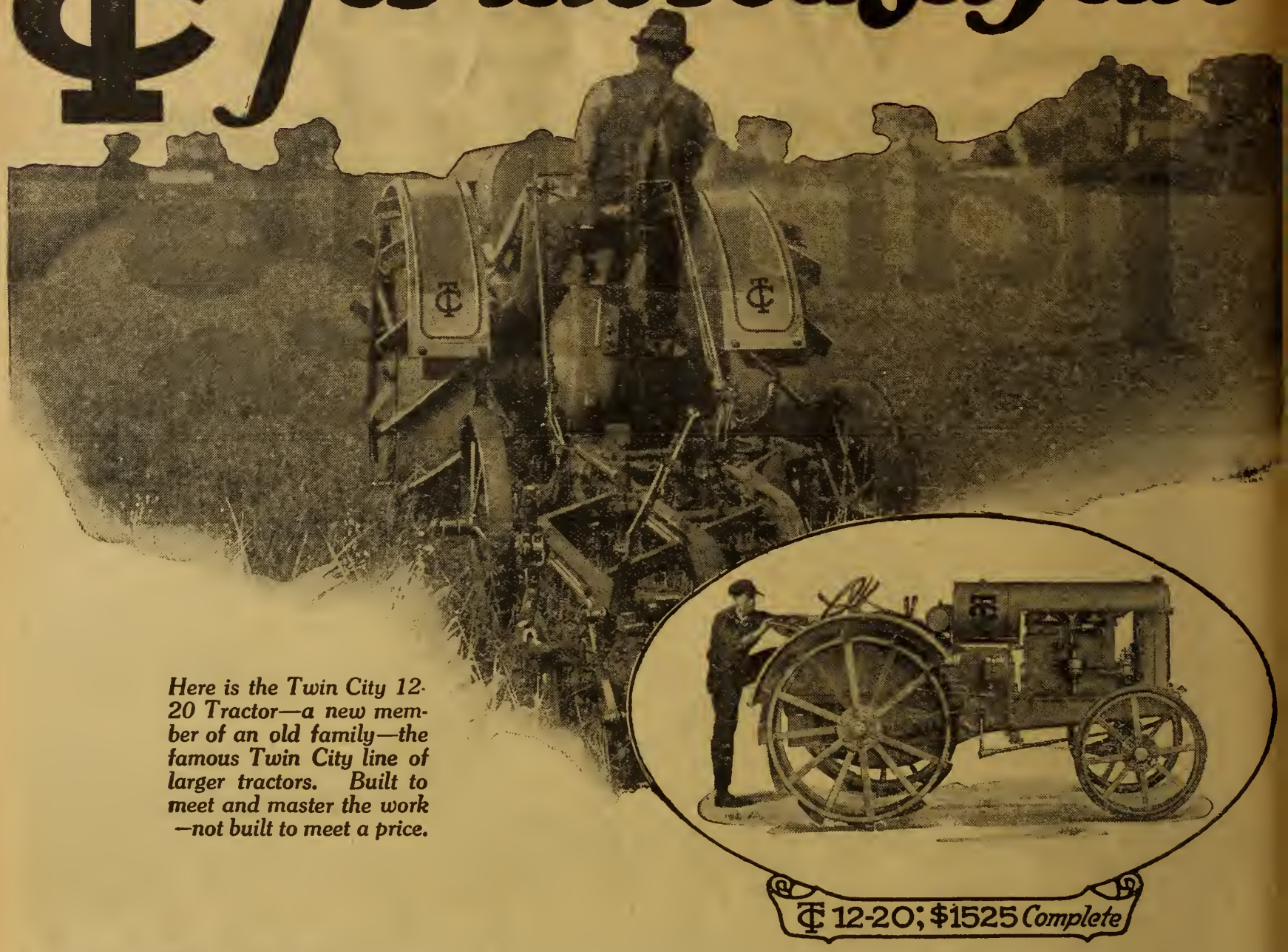
1919

Vol. XXI Denver, Colorado, July 15, 1919 Semi-Monthly

VISITING THE DIVIDE SHORTHORN FARMS

1. A Barnyard View on the Allen Carnahan Farm. 2. Gleason & Blazer's Registered Stock. 3. Part of the Crowd on the Shorthorn Sociability Tour

TC for the Tough Jobs



Here is the Twin City 12-20 Tractor—a new member of an old family—the famous Twin City line of larger tractors. Built to meet and master the work —not built to meet a price.

TC 12-20; $1525 *Complete*

THIS NEW 12-20 has a great reputation to uphold. Therefore, before offering it for sale, it was put into service on every kind of field and farm work—the toughest jobs, the hardest strains—to make it prove its strength and power and stamina. We are proud to put our trade-mark on it. And every farmer can be proud to own the tractor that bears that mark.

Here Are a Few of Its Striking Features:

Four-cylinder, vertical sixteen-valve engine, valve-in-head type, with removable cylinder sleeves and counterbalanced crankshaft. (For the first time this powerful type of motor is applied to tractor use.)

Sliding spur-gear transmission, two speeds forward, direct drive on both. Easy of access, dust proof and running in oil. Bosch high-tension magneto with impulse starter.

The Twin City 12-20 Tractor is produced in one of the largest tractor factories in the world, by the most thoroughly skilled mechanics and some of America's foremost engineers.

At $1525 ***complete,*** it will prove the most dependable and economical tractor for any farmer to buy.

Write us today for complete details, catalog and our booklet, "The Factory Behind the Tractor."

Minneapolis Steel & Machinery Company, Minneapolis, U. S. A.

Manufacturers of the Famous Twin City 16-30, 25-45, 40-65 and 60-90 Tractors

BRANCHES—Denver, Colo.; Des Moines, Ia.; Fargo, N. D.; Great Falls, Mont.; Salt Lake City, Utah; Spokane, Wash.; Wichita, Kan.; Peoria, Ill.; Lincoln, Nebr.; Winnipeg. Regina, Saskatchewan, Calgary, Alberta, Canada.

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DISTRIBUTORS—Twin City Co. at St. Louis, Mo.; Dallas, Tex.; Houston, Tex.; San Antonio, Tex.; Amarillo, Tex.; Crowley, La.; Baskerville & Dahl, Watertown, So. Dak.; Frank O. Renstrom Co., San Francisco, Calif.

TWIN TC CITY

12-20 Kerosene Tractor with 16-valve engine

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

Entered at the Denver Postoffice as Second Class Matter

WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, JULY 15, 1919 | Number 14

The Story of A Delta County Holstein Herd

CHEESE IS MADE FROM MOUNTAIN GRASS MILK IN SUMMER

HOWARD M. JAY

WHILE on a business trip recently on the Western slope I had the pleasure of visiting the ranch owned by Dr. A. E. Miller, of Delta, Colo., he being one of the men who is doing great work in developing the many resources of which Montrose and Delta counties so rightfully boast.

Here is a man who read well the signs of the times and saw the wonderful advantages that the Western slope afforded to the dairymen and set about to inform himself as to the most desirable breed of dairy cattle.

Alfakorn Feikje Pontiac

After much study and investigation he decided to select a herd of Holsteins that would in the future do credit to his section of the country. He spared no time nor expense in informing himself as to the production behind the pedigrees, and as to the best possible location in which to secure the right kind of foundation stock. He finally located the kind he demanded in a certain section of Wisconsin, where he was informed that they had used a lot of good judgment in the thirty-eight years of breeding for increased production. Each year they had improved their herds by careful selection of sires, many of these being imported in the early days of importation of Holstein cattle.

In looking over his herd, I am most certain that such of the facts that I obtained from the Doctor and his foreman are well borne out as shown in their individuality and the production in sight.

An examination of the pedigrees shows a close up breeding and strong in the blood lines of such famous sires as, King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, De Kol the 2nd, Butter Boy 3d, King Peter, Segis Johanna, King Peter VII, and King Peter XXI, and such dams as Miss Mercedes De Kol, Pansy Alcartra, Highland De Kol Maid, etc.

The sire that heads this well selected herd at present is Alfakorn Feikje Pontiac No. 198913. His sire is by King of the Pontiacs and his dam is a daughter of Sir Korndyke Pontiac Pleiona. Such foundation stock of quality breeding and individuality as these, properly handled, cannot help, in my judgment, but be a source of pleasure to their owner. However, in this particular case, the herd have such an interesting home that they seem anxious to carry out their owner's plans and do their part.

The ranch upon which this constructive work is being carried on is beautifully located on Surface creek, about eight miles from Delta, in a district known as Surface creek mesa. In this district general farming and some commercial fruit growing, is the chief industry, so the contour of the country with its occasional orchard mixed in with the farms, makes a very attractive sight.

Surface creek runs through a large draw or gulch on one side of the ranch and helps to make an ideal place for cattle to feed and offers a pleasant and warm place for the winter, spring and fall. Here will be seen a natural feedlot which could not be improved upon by human hands or expensive materials. This beautiful creek, winding down through the draw, with its many falls and its clear pure water, not only adds to the beauty but gives these cattle clean, fresh water at all times of the year.

The hills on either side of this draw, which is probably one hundred yards wide, with trees along the creek banks, certainly make a beautiful background for the black and white cattle, and while they are feeding and resting there, sheltered from the wind, Colorado's splendid sunshine gleams down upon them the greater part of the time. To walk through this "nature's feedlot" and see these cattle, all as gentle as any family pet, makes one sure that they enjoy their surroundings as they are the picture of contentment. Here they are fed alfalfa hay and corn ensilage, during the winter months.

About the middle of May, under normal weather conditions, the entire herd is driven to their summer pasture, a seven hour drive from the main ranch. This pasture is ideally located up among the quaking aspen and Jack pine and consists of about 320 acres of fine mountain grass. It is here in the summer months that these cattle play the most important part in helping to grind out the dollars for their owner at a minimum expense.

Here we find a day and night pasture and also one for calves, each with plenty of running water supplied by mountain springs. This is indeed, a glorious sight and the fact that they are up away from the flies, mosquitos and heat, surely adds to the setting as well as to the production. The pastures are kept reseeded, which insures the constant growth of grass, so that this feeding plan can be continued indefinitely.

Upper View Shows Mountain Pasture Used in Summer
Lower View is of the Natural Feedlot Used in Winter for the Herd of Dr. A. E. Miller, Delta, Colorado

The entire herd of sixty-five head remain here until about the middle of September when they are taken back to their winter quarters.

When the fact is taken into consideration that this place is so inaccessible, even by auto, the question naturally arises, "What in the world do they do with their milk and cream in a location like this?" This problem has been solved in a money making way, by converting the milk and cream into delicious cheese.

A Youthful Milker

I wondered at first just how this would work out, but soon learned that 100 pounds of 4% milk will make twice as much cheese as that quantity of milk will make into butter, so when the comparative price of butter and cheese is taken into consideration, it can readily be seen that it works out exceptionally well.

The equipment utilized to obtain these results consists of a permanent camp in which a man and wife and the additional help are comfortably quartered and their work is principally milking and making the cheese, although the breeding and calving take up considerable time.

The cheese plant, the main part of the entire equipment, is composed of a boiler, cooling and cooking tanks, all housed in a log cabin, built over a cold running stream. Here the entire season's milk is made into American cheese, and it is properly cared for and marketed at the breaking up of the camp in the fall. No other feed is fed during the summer season except these natural grasses of this mountain pasture. Note some of the interesting pasture scenes reproduced here to give you a better idea of the quality of the stock and the beauty of their surroundings.

Idaho Farm Bureaus

Farm Bureau membership of Idaho has increased to about 12,000 in 1919, from the 10,000 membership of last year, says R. H. Musser, Assistant County Agent leader, in a statement urging every farmer to be interested in the advancement of his farm bureau, "which means better livestock, better farm crops, incidentally better marketing and improved living conditions."

"Farm bureau organization" says Mr. Musser, "means unity and organized effort for the development of agriculture and in turn will bring organized as well as individual profitable returns.

"If organized effort through the farm bureau organization within the communities of the county will return to the county a saving of $100,000 in farm crops, by the extermination of rodent pests, it benefits every person within the county, whether or not he has been a member of the farm bureau and had a part in it. Does not then every person within the county become a part of the farm bureau either directly or indirectly? Then is it not necessary for every person within the county to become an active member of the farm bureau, which enables each individual as well as the county to secure greater returns?

"The question today is not 'making two blades of grass grow where one grew before,' but making each blade of grass worth twice as much as before,

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Divide Shorthorns Inspected On Sociability Tour

TWENTY-SIX FARMS IN ONE SECTION ALL PRODUCE SAME BREED

ALVIN T. STEINEL

"IT yields no fruit of earth or air, yet should its harvest fail for a single year famine would depopulate the world."

Thus spoke John J. Ingalls, the brilliant statesman of the Sunflower state, of grass. And truer words have not been spoken. Where the grass is good cattle thrive. Grass is the reason for success of the Shorthorn breeders of the Divide district, comprising a section of western Elbert and northeastern El Paso counties. It was in the grass-covered hills of north England that the breed was developed and wherever in the wide world those conditions can be approximated, Shorthorns will flourish. To grass we shall add water and shade, and in the Divide country we have an element that is missing even in Old England, namely, the favorable influences of a high altitude climate, with its sunny days. This element is apparent in the generations of cattle bred in our hills, in an added sprightliness and vigor that sends the red blood coursing through the body, proclaiming vigor of heart and lung.

This comment is inspired by the writer's recent visit to nine of the twenty-six Shorthorn breeding farms located along the headwaters of the Kiowa and neighboring streams. A glance at a topographic map of Colorado shows a fan-shaped elevation extending from the Front range of the Rocky Mountains far out toward the plains. It is a somewhat rugged country, with low, pine-covered hills, every valley nursing a clear, spring-fed stream, with rich grasses covering the meadows and hillsides, where the snow lingers long enough to cause the moisture to penetrate the earth and replenish the pastures year after year. The grass never fails, hence there is never a famine for the cattle.

It was to this beautiful hill country that Denver was invited to send representatives of its livestock interests June 19th, to participate in a sociability tour—a farm-to-farm visit of farmers, who wanted to see what their neighbors were doing. Just two weeks before that date Mr. A. G. Cornforth, president of the Western Shorthorn Breeders' Association, remarked to County Agent H. L. Ford that he thought it was time for the Elbert county Shorthorn breeders to show the world what they had. Ford agreed and got busy, with the result that sixty autos turned out for the tour, which started in front of the Elbert county courthouse at Kiowa and continued until evening to the edge of the Black Forest in El Paso county. That county sent its agriculturist, W. H. Lauck, and a delegation of farmers to participate, as the Divide breeders live in both counties.

The Ranches Visited

Sunnyside Ranch, owned by Gleason and Blazer, was the first stop. Here the visitors had opportunity to look over a fine herd of forty-two registered Shorthorns and inspect substantial ranch buildings. Sunnyside Robert, who was second in his class at the National Western show last winter, is the herd header and a splendid specimen of the beef type.

On the Allen Carnahan farm, which was the second stop, there was much interest in Supurbus Cumberland and his get. This sire comes from the famous herd of C. A. Saunders at Manila, Iowa. Some of the females were bred by Sam Ball of Wray, a Shorthorn pioneer on the buffalo grass of eastern Colorado. The herd of registered animals comprises forty-three head. Recently a lot of young bulls from this herd were picked out by Eugene Grubb of Carbondale for shipment on special orders to California farms, and also some for use on his ranch in Garfield county. The California order, it is expected, will be followed by more from the coast, after the farmers see what kind of Shorthorns are being bred in the Divide district. Mr. Grubb has written to friends that the California farmers liked the bulls he selected for them.

A Few of C. A. Melburn's Shorthorns

J. Paul Jones and R. G. Jones, brothers, had assembled some of their registered cattle on the farm of the first-named. Baron Hedgewood and Brampton Pride are the principal herd sires, and the brothers together have about one hundred head of registered stuff.

Passing on through the town of Elbert, the party next stopped at Forest Glen ranch, where A. G. Cornforth has been engaged for many years in developing good beef blood. The ranch comprises some 3,000 acres of alternating meadow and pine timber, with numerous springs and creeks, affording an unlimited supply of pure mountain water and the best of grass and shade. Cedar Lawn's Best, a magnificent specimen of the breed out of Rees & Son's herd at Pilger, Neb., is the principal herd sire. Some fifty head of registered cattle are kept, besides a large herd of non-registered animals.

After inspecting the cattle, the visitors were asked to go to the pine grove nearby for a picnic lunch, which, as is usual in the Divide country, proved to be a regular fried chicken dinner.

Short Addresses Made

After lunch, J. J. Kruse of Kiowa called the gathering to order and announced a speaking program with Ex-Governor Ammons as the first speaker. Mr. Ammons called attention to the necessity for overcoming some of the effects of meat conservation practiced during the war. He stated that a good many people had become vegetarians to a considerable extent during the time when it was necessary for all of us to conserve meat for the benefit of the army. He urged greater consumption of beef and directed attention to the good work that the Divide Shorthorn breeders were doing in developing the kind of beef most in demand.

R. M. Shearer, manager for the Denver plant of Armour and Company, who came to the state about three months ago from Indianapolis, was next called on. Mr. Shearer declared that he was astonished at the vastness of the state from a scenic standpoint, as well as from the standpoint of agriculture and livestock development. He said that Mr. Armour had said to him, just before he came West, that Colorado was destined to become the greatest livestock state in the union, with Denver one of the principal packing centers. From what he had seen during the day he concluded that Colorado would come up to Mr. Armour's prophecy.

James Brennan, general manager for Swift and Company, declared that the Divide farmers were developing a high type of Shorthorn which came nearest the kind desired by the packer for beef. The packer is after the meat from the high priced cuts. "He wants it on the loin and rib because that is the most desirable meat from the consumer's standpoint. Your Shorthorns are being bred right."

Prof. Charles I. Bray of Colorado Agricultural College, spoke on the necessity for legislation which would eliminate the scrub sire from the Colorado range. He pointed out that purebred cattle were developed not by the agricultural colleges or experiment stations, but by the farmers of England and Scotland long before agricultural colleges were thought of.

F. P. Johnson, general manager of the National Western Stock Show, who was next called upon, said it pleased him to see that the Divide breeders were getting their sons into the game. "That means the development of a permanent type of Shorthorns for this section," said Mr. Johnson. "By having a uniform type on your farms here buyers will be attracted from all over the country, and they will be able to fill demands in going from farm to farm without having to hunt over a large section of country."

C. H. Hinman, owner of the Bonvue herd of milking Shorthorns at Golden, who came to see what the beef men were doing, was next called upon. He told of selling a non-breeder out of his milking Shorthorn herd recently for $180 as beef. She weighed 1500 pounds and brought 12 cents a pound.

"This is the type of cow which gives us both beef and milk," he continued. "It is not the size of the milk check that counts, but the size of the milk check minus the feed bill."

To clinch the argument he spoke of the performance of Overbrook Ury 3d, a cow out of Bonvue farms herd, which won in the milking contest at the National Western Show last winter by showing the lowest cost of butterfat production.

Allen Carnahan was called upon to respond for the local people. He said he had come to the locality in 1887 and if anyone at that time had told him what was in store for the Divide country he would not have believed it. He spoke of the still undeveloped possibilities, especially of irrigation from under-flow which he said might some day water the Kiowa valley from Elbert down to Roggen. Others called upon for remarks were D. W. Thomas, Secretary of the Agricultural Bureau of the Denver Civic and Commercial Association and R. McCann, Secretary of the Creamery Butter Manufacturers' Association.

List of Breeders

W. H. Paul, secretary of the Elbert County Shorthorn Breeders' Association, was next called upon. He stated that the farms then being visited were only a part of the Shorthorn show places, and he gave a list of others in the district, all of them breeding registered cattle. The list follows: J. C. Brace, Clinton Whittier, Conrad Peterson, Lewis Kirk, Weiss Bros., G. W. Hixson & Sons, The Erring Ranch, Allen Cattle Co., C. H. Cheese, Arthur F. Cramer, Fitz Peterson, Alger Peterson, Helgeth Bros., Grover C. Crosswhite, D. S. Kilpatrick, The W. E. Vergerant Ranch and Clifford Stoker.

After the speaking program the tour continued, next visiting the C. A. Melburn farm, where there are 80 purebreds, constituting one of the best herds of the breed in the West. The herd sire is Typical Thought from the herd of the Allen Cattle Company, only a few miles further south, but too far to be reached during the day's tour.

On the next ranch, that of George Gleffy, the visitors had an opportunity to look over a small but well selected herd of purebreds and also to see Sultan's Valentine, a young sire owned by Louis Kirk and bred by A. G. Cornforth.

The cattle of William H. Paul were inspected in the pasture as were those of T. W. Roberts and T. J. Evans. Divide Heir is the herd header owned by Secretary Paul, this young bull having been purchased from the Allen herd.

T. W. Roberts showed his herd from the saddle after having rounded up nearly all of the 40 purebreds in the pasture.

The last stop for the day was made on the F. J. Evans ranch near Eastonville. Here the visitors saw another good herd of registered Shorthorns including 5 yearling bulls and 10 yearling heifers sired by Divide Dauntless, a bull from the herd of the Allen Cattle Company. There were also a number of choice breeding cows shown and two herd bulls, Model Goods, sired by Model Type, the famous Warnock bull, and Broadhook Seal, purchased from H. Rees & Sons, out of the Grand Champion lot of Shorthorn bulls at the National Western show.

A. G. Cornforth, Snapped in the Barnyard on Forest Glen Ranch

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Announcement has just been made by the department of agriculture concerning the production of sugar beet seed for 1918, the amount being 4,443,000 pounds. This was produced on 5,872 acres, indicating an average production of 757 pounds per acre, which is more than the average in either 1916 or 1917.

Probably on All Four Tires

Caughlin: When Cheapleigh bought that bargain car, with the poor times, he invited all the neighbors for a long celebration trip.

Laughlin: Yes—they had a regular blowout.—Cartoons Magazine.

Wyoming Wool Clip Valued At Sixteen Million

AUSTRALIAN SYSTEM OF SHEARING IS PROVING A SUCCESS

T. S. PARSONS, Extension Agronomist
University of Wyoming

SHEARING for 1919 has been practically completed in all parts of the state and the 4,000,000 sheep in Wyoming have as usual produced a large amount of wealth. It is estimated that the wool crop this year is worth at least $16,000,000. Prices are keeping up although the government is no longer taking over the wool. The prices received for the new clip range from 50 to 60 cents. The prophecies that wool prices would go down after the war have not been fulfilled. It is very probable that wool prices will be higher next year than this, as the extremely dry season throughout most of the mountain states will cause a shortage of pasture and feed and many sheep will be marketed this fall.

A visit to the King Brothers, shearing plant on the Laramie plains found the shearing in full swing. About 10,000 sheep are sheared at the plant which, although one of the smaller Australian plants in the state, is one of the best equipped. For the last three or four years the King Brothers have used the power shears and have graded the wool at the time of shearing according to the Australian system of wool classification. Many of the larger sheep owners in Wyoming are now using the Australian system of grading. A questionnaire sent out by the animal husbandry division of the agricultural college showed, however, that the system was not entirely satisfactory to all of the growers and some of them are not using it. A majority of them ,however, profer it to the old method of handling wool.

There are several of the large plants in the state where the Australian system of grading is used. Large numbers of sheep are brought to these plants to be sheared and the wool is graded by experts. J. A. Hill, the wool specialist of the University of Wyoming, has showed great interest in the introduction of the Australian system in the state and for several years has taken a number of students to the shearing sheds to study the system and to receive training in the grading of wool. The sheds at Bitter Creek, Rawlins and Shoshone are among the largest shearing plants in the country.

The King plant being a private enterprise, is small in comparison to some of the other plants in the state. Seven or eight shearers work on the sheep with power clippers run by a small gasoline engine. Here 9,000 to 10,000 sheep are sheared, producing about 100,000 pounds of wool. The shearers are paid by the head and make $25 to $30 per day each, so it can be imagined that they work somewhat rapidly. In addition to the men doing the shearing there are about 25 others working in various capacities from the proprietors themselves and the expert grader, down to the boys who take the fleece from the shearer and place it on the classing table and pick up the tag ends and scraps.

As the wool comes from the back of the sheep it is delivered to the sorting table where it is tied and then turned over to the grader who quickly examines the fleece and throws it into a certain bin according to the grade. The wool is then packed in bales, each grade by itself, and the bale is marked on the outside to show the grade, date of shearing, etc.

Several men are required to bring the sheep to the sheds and to care for them before and after shearing, so the shearing shed is a veritable hive of industry during the shearing period. All hands are working at high tension all the time. Even the boys have no rest between times. When not carrying fleeces they are gathering up the scraps of wool that become scattered in the shearing.

The sheep pass through two or three stages from the open air to the shearing room, each one of them a little warmer than the other, so that before they are led to the shearing room they have been for sometime in a temperature of 100 degrees. This is to stimulate the flow of oils and make the shearing and packing easier. The sheep are held in the pens until the end of the half day period, when they are carefully checked and this count forms the basis of the pay of the shearers. Piece work is employed almost exclusively in sheep shearing and is generally satisfactory.

The Kind That Produce Wyoming Wool

Each fleece is tied by itself with paper twine. This twine is now used exclusively in wool tying in place of the fiber twine formerly used. The fiber twine would sometimes get into the wool in weaving and injure the cloth. The paper twine is strong and smooth, and cheaper than the fiber twine and makes a better tie. The grader does not untie the fleece when he grades it, but merely pulls out a wisp of wool and notes its length and fineness.

Wool graded by the Australian method is placed in six or seven classes according to its fineness and length of staple. These are the classes used: fine Merino combing; fine Merino clothing; superfine combing; half-blood; combing half-blood; superfine combing and quarter-blood. The smaller bits of wool and tag ends are packed by themselves to be used in the manufacture of carpets and rugs. The fine Merino wools are used by the worsted mills and the other classes by the clothing and carpet mills.

The Australian system of grading has been used mainly by the larger sheep owners. Farmers and small growers are now seeing the benefit of grading and are co-operating in their shearing operations. All of the sheep owners in a community drive to a certain place for shearing and have an expert grader come from the college, or from some other place to grade the wool. The expense of grading is very slight and the growers get two to three cents per pound more for their wool.

Mr. Hill, of the University wool department, is spending much time with the small sheep owners of the state, assisting them in the culling of their flocks, so that in the course of a few years both the wool and mutton should be improved. There is much land in Wyoming better fitted for sheep grazing than anything else. This will always keep Wyoming in the front rank as a sheep raising state and by culling the flocks and grading the wool the income from wool and mutton can be greatly increased.

Colorado County Farm Bureaus Are In Action

OFFICERS AND PROJECT CHAIRMEN OF 24 COUNTIES

TWENTY-FOUR County Farm Bureaus are now in active operation in Colorado, as a result of a campaign covering a period of some months, the purpose of which was to give the work of county agricultural agents organized backing and direction from the farmers. Under the bureau plan, the county agent assumes in fact and not in theory alone, his place as a representative of the organized farmers, to carry on educational work planned by and for the farmers. Growing out of the county organizations we have the State Farm Bureau, formed in Colorado last March, and just beginning its first year of activity. Present plans contemplate a strictly educational program, with betterment of farming conditions in view, no conflict with any existing organizations, the adoption of a working plan which every farmer can approve. In short, co-operation for community advancement through better livestock, better roads and better farming methods. This is understood to be the function of the farm bureaus, and wherever these principles are allowed to govern the farmers are making progress in working together for the common good.

Following is a list of the Colorado County Farm Bureaus and their roster of officers and project chairmen, as announced by County Agent Leader A. E. Lovett:

ADAMS—President—J. W. West, Bennett; Vice-Pres.—J. D. Flint, Broomfield; Secy.-Treas.—A. R. Ward, Watkins; Better Seed—H. L. Prather, Brighton; Better Stock—F. W. Haupert, Brighton; Better Roads—W. C. Sweinhart, Brighton; Threshing—Clifford Seltzer, Brighton; Better Farm Home Equipment—Mrs. E. J. Thomas, Brighton.

ARAPAHOE—President—Dan Lee, Strasburg; Vice-Pres.—H. S. Teesdale, Byers; Secy.-Treas.—G. E. Totten, Strasburg; Club Leader—John Spacke, Denver; Dairy Cattle—Geo. McCarroll, Capitol Hill Station, Denver; Crop Improvement—Ray Beitler, Strasburg; Seed Improvement—E. D. Bradford, Bennett; Good Roads and Improvement—H. S. Teesdale, Byers; Home Demonstration—Mrs. Geo. Prebble, Strasburg; Pest Control—A. C. Gibson, Bennett. .....

BOULDER—President—F. S. Luethi, Boulder; Vice-Pres.—Frank Wadsworth, Longmont; Secy.-Treas.—C. P. Emery, Longmont.

DOUGLAS—President—Ed Seidensticker, Castle Rock; Vice-Pres.—Henry Lowell, Castle Rock; Secretary—Chas. Hurlbut, Castle Rock; Treasurer—W. L. Fales, Castle Rock; Pest Control—Max Binford, Castle Rock; Crop Improvement—H. H. Bean, Plum Creek; Dairy Improvement—J. P. McInr. v Larkspur; Livestock—H. L. Lowell, Castle Rock; Home Conveniences—Mrs. Maude R. Hoskins, Castle Rock; Club Work—G. L. Nixon, Castle Rock; Marketing—E. V. Blunt, Sedalia.

ELBERT—President—E. E. Hughes, Kiowa; Vice-Pres.—Al Carnahan. Elbert; Secy.-Treas.—B. H. Gleason, Kiowa; Rural Roads—O. Olson, Ramah, R. F. D.; Prairie Dogs—C. T. Walker, Bennett; Dairy Improvement—Al Reynolds, Elizabeth; Livestock Improvement—A. G. Cornforth, Elbert; Crop Improvement—H. G. Isbell, Kiowa; Boys' and Girls' Clubs—Miss M. McCarty, Simla.

EL PASO—President—W. H. Paul, Eastonville; Vice-Pres.—Mrs. Della Cook; Secretary—Mrs. Muriel DeGeer Hill; Treasurer—Ralph E. Walker; Better Roads—Alex Elsner, Ramah; Marketing and Standardization of Farm Products—Chas. Cheese, Peyton; School as Social Center—Geo. Bright, Yoder; Kitchen Conveniences—Mrs. A. R. Atkins, M.R.A., Colorado Springs; Home Nursing and First Aid—Mrs. J. H. Smith, Buttes; Livestock Improvement—S. G. Rose, Monument; Boys' and Girls' Clubs—Floyd Hodgen, M.R.A., Colorado Springs; Pest Control—Asa Coan, Fountain; Poultry—Mrs. John Miller, Yoder; Rural Telephones—Jas. Yates, Calhan.

FREMONT—President—Richard Houlse, Canon City; Vice-Pres.—C. M. Chase, Canon City; Secretary—Frank Lamb, Canon City; Treasurer—W. C. James, Canon City; Crops and Seeds—Frank Lamb, Canon City; Horticulture—C. M. Chase, Canon City; Livestock—Frank Steinmier, Canon City; Pest Control—E. C. Kibbe, Canon City; Can ing and Drying—Mrs. E. C. Kibbe, Canon City; Home Conveniences—Mrs. W. W. Goodwin, Canon City; Food—Mrs. Frank Batchelor, Canon City; Boys' and Girls' Clubs—W. C. James Canon City.

GARFIELD—President—C. H. Miller, Rifle; Vive-Pres.—W. E. Ricketts, Silt; Secy.-Treas.—E. E. Westhafer, Glenwood Springs; Livestock—Frank Squier, Rifle; Potatoes—Grant Jackson, Rifle; Pest Control—G. O. Beel, Rifle; Poultry—Mrs. Robert Wiggington, Rifle; Food—Mrs. Frank Houston, Rifle Home Conveniences—Mrs. W. J. Harmon, Rifle; Small Grain—W. E. Ricketts, Silt.

HUERFANO—President—J. F. Karst, Huerfano; Vice-Pres.—John Kreutzer, La Veta; Secy.-Treas.—Alex Firm, La Veta; Crop Improvement—Luther Martin, La Veta; Livestock Improvement—P. C. Carver, Huerfano; Pest Control—T. J. Quillian, Gardner; Roads—J. L. Morris, Rouse; Irrigation—John Kreutzer, La Veta.

JEFFERSON—President—H. A. Brown, Arvada; Vice-Pres.—D. P. Wilmont, Evergreen; Secy.-Treas.—J. A. Hogan, Golden; Field Crop Improvement—J. Teagarden, Golden; Livestock—R. Eggleston, Morrison; Drainage—J. Calkins, Westminster; Marketing—Wm. Bratton, Conifer; Pest Control—S. B. White, Wheatridge; Soil Henry Ramstetter, Jr., Golden; Food and Home Improvement—E Apel, Wheatridge; Potatoes—Conveniences—Mrs. E. Apel, Wheatridge.

KIT CARSON—President—J. O. Hendricks, Seibert; vice-president—Adam Pflester, Flagler; secretary-treasurer—Will Adams, Vona; crop improvement—Chas. Parsons, Burlington; plant and animal diseases—Clark Reece, Seibert; plant and animal pests—J. O. Hendricks, Seibert; boys' and girls' clubs—W. L. Butler, Vona; home conveniences, Mrs. Ben H. Boese, Vona; farm management—Ben F. Loiler, Seibert.

LARIMER—President—J. M. Rodgers, Wellington, Route 1; Vice-Pres.—R. T. Scott, Loveland, Route 3; Secy.-Treas.—Roy Hice, Ft. Collins, Route 5; Better Roads—Geo. E. Garrett, Ft. Collins, Route 2; Crop Improvement—M. T. Harned, Waverly; Labor—O. J. Watrous, Ft. Collins; Pest Control—C. C. Stobbe, Fort Collins, Route 5; Orchard Pruning and Spraying—J. V. Smith, LaPorte; Dairy Improvement—J. D. Pancake, Loveland; Co-operative Marketing—Paul Mead, Berthoud; Food—Mrs. C. A. Culver, Ft. Collins, Route 2; Home Conveniences—Mrs. Ira Watts, Timnath; Boys' and Girls' Clubs—Mrs. E. F. Munroe, Ft. Collins, Route 2.

LAS ANIMAS—President—E. G. Duling, Trinidad, R.F.D.; Vice-Pres.—J. N. Gibbs, Trinidad, R.F.D.; Secretary—H. B. Bostwick, Hoehne; Treasurer—O. W. Fuller, Trinidad; Roads—H. P. Brown, Kim; Livestock Improvement—W. R. Hough, Plum Valley; Fairs—A. E. Walker, Utleyville; Seed and Crop Improvement—R. E. Mahoney, Utleyville; Marketing—N. E. Scholl, Utleyville.

LA PLATA—President—E. W. Kroeger, Durango, R.F.D. 1; Vice-Pres.—Frank Wride, Griffith; Secy.-Treas.—Paul Ritter, Ignacio Organization—Frank Wride, Griffith; Livestock Improvement—John Waters, Durango; Crop and Soil Improvement—Marion Campbell, Bayfield; Silos and Silage—F. W. Kroeger, Durango; Pest Control—E. D. Smith, Durango; Poisonous Plants—C. F. Hafling, Griffith; Co-operative Buying and Selling—E. Buchanan, Durango; Clubs—E. D. Smith, Durango.

LINCOLN—President—R. J. Council, Hugo; Vice-Pres.—H. A. Johnson, Hugo; Secy.-Treas.—A. L. Kramer, Hugo; Pest Control—F. C. Schnebley, Boyero; Marketing—E. G. Philbrook, Hugo Roads—H. A. Johnson, Hugo; Home Improvement—Mrs. E. J. Hansen, Hugo; Boys' and Girls' Clubs—Miss Lennie Beavers, Hugo; Live-

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A Young Shorthorn Breeder

There is a young farmer near Eastonville, Colorado, who promises to make his mark in agriculture. He is Ralph H. Evans, 11 years of age, son of Mr. and Mrs. Fred Evans. His accomplishments are little less than astonishing. He is aggressive and original in his methods. When he heard of the farmers' sociability tour covering the Divide Shorthorn district he decided to get the benefit of it, although his name did not appear on the schedule. This omission did not bother him, for he is a resourceful lad. He stretched a rope across the road and forced the automobiles to come to a stop. When someone asked, "What's the matter?" young Evans bobbed up out of the timber leading a purebred Shorthorn cow and calf, and said:

Ralph Evans, a Youthful Shorthorn Breeder

"I'm a Shorthorn breeder myself and I didn't want you folks to go by without seeing my stock. This cow is Golden Daisy, and I am calling the calf Bulger, but want to find a bigger name for him before I register him. I am thinking of naming him Prince of Wales."

Ralph has plowed 60 acres this spring, besides disking 40 acres, harrowing 28 acres and covering 40 acres with the mulcher and packer. Besides that, he has gone to school and has taken care of his cow and calf. Some time ago Wm. H. Paul, who owns a registered Shorthorn bull of excellent breeding, told Ralph that he could have the use of the sire whenever he got ready to breed his cow.

"What do you think about it, Ralph?" suggested Mr. Paul.

"Well," said Ralph, "I will come up and size up your bull and see if he is good enough."

The laugh was on Mr. Paul, who took the joke good-naturedly and told the young Shorthorn breeder that he was on the right track in refusing to mate his cow with anything but the very best. It is hardly necessary to add that Ralph expects to attend the agricultural college when he becomes older.

Moffat County Fair

Geographically speaking, Moffat county is the last county in northwest Colorado, but otherwise it is always first. This year the county fair is to be held at Maybell, the week of September 10th and Secretary Gordon W. Graham advises us that it is to be a better and bigger event than the fair of a year ago, which had such a successful aftermath in the fact that exhibits taken to the State Fair from Moffat county won first and second prizes in nearly every class. This, too, in the face of the fact that the fair was gotten up on thirty days' notice. People on the Eastern slope can form no idea of the agricultural progress which is being made by the northwest counties until they visit that country, and we earnestly commend such a visit to them at the time of the Maybell fair. The journey may be made by automobile, as the mountain passes are always open until far into the fall.

Washington County Crops

Crop conditions are much better here than in most parts of Eastern Colorado. June was a very dry month, but the moisture held out remarkably well. Corn looks fine and it promises to be far above the average. Wheat has been cut some by the dry weather and the fall wheat has ripened too fast, but farmers report that they will have an excellent crop. The fine rains of the past few days will help spring wheat and all other crops. Harvest is beginning now.

This section is having a rapid growth and land values are advancing. Several farms have been sold at around $75 and it is predicted that land here will soon reach the "hundred dollar mark." The town of Akron has not kept pace with the surrounding country. However, during the past two years it has grown very fast and many splendid homes have been built.—W. M. Tarr, Akron, Colo.

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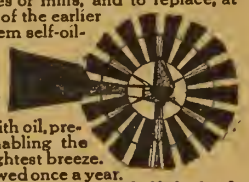

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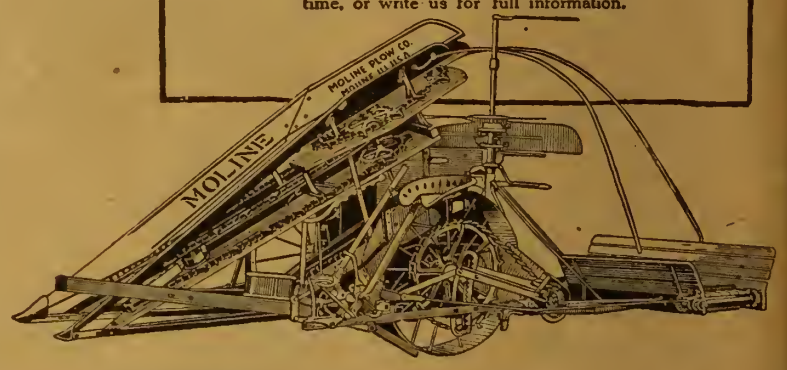

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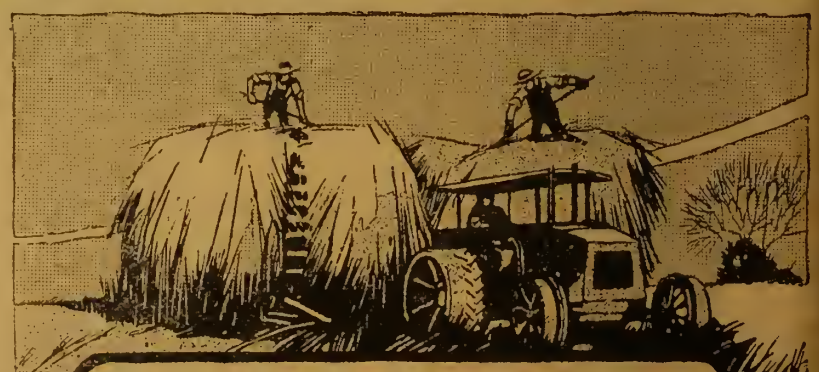

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Fall Rye As Pasture and Hay

A USEFUL CROP FOR THE DRY LAND FARM

E. R. PARSONS

FALL RYE is one of the most useful crops for the dry farmer, especially the new settlers. Old hands at dry farming generally work into alfalfa sooner or later; but it takes some time to do this, and in the meantime if the homesteader wants hay he can have tons of it by planting rye; if he wants pasture, he can have all he needs by planting rye; if he wants pig feed for winter, all he has to do is to allow some of it to run to grain and the pigs will do the rest.

Rye is particularly good for pasture. It is quick. It can be pastured two months after seeding, and it will remain green usually up to zero weather, about the holidays and start to grow again in February. Rye is classed as an annual, but it is practically a perennial, if not allowed to go to seed. After it has matured a crop of grain that is the end of it, but if cut in the dough, even then some of it will come again. Rye, if continually pastured on the dry farm, gradually wears out after a year or two like everything else but alfalfa. For several reasons the best time to start a pasture of this kind is toward the end of summer. The heat of midsummer is hard on rye and since the farmer needs it most in the fall and winter when the grass is dry, spring planting is not as popular as that of summer or fall.

There are many ways of preparing the ground for the pasture. For one intended to last more than one season the summer fallow would naturally be the best; but few farmers want to go to all this trouble, and an easier way is to run it in on corn stubble after the corn has been cut for silage, or else to plant it between the rows of corn about the beginning of August. If planted just before the roasting ears are ready, it will not hurt the corn a particle, and will make early pasture. It can be broadcasted by hand between the rows and covered with the one-horse cultivator. If the space between the rows has been badly crusted and cannot be worked up into a fair condition of tilth, it would be better to wait until the corn has been cut and removed for ensilage. The ground could then be disked until fine enough for planting. Late plowing in the summer or fall for rye when the ground is more or less dry, and no chance to conserve moisture, is no better than disking. When the seed is broadcasted by hand and harrowed in, the stand will be better if a heavy roller or pulverizer is used to finish. If the rye is put in with the press drill, not less than two inches deep, no further packing is necessary. The disk drills which loosen up the soil and plant at one operation do quick work, but the seed is not covered uniformly, and the soil above it is loose and should be rolled or packed.

It often happens in the fall that the seed has to be planted in comparatively dry ground and if too near the surface a light rain or snow may sprout it and the dry ground underneath it cannot support it, and unless another rain arrives in time the sprouts will dry out and the stand be lost. This occurs more often with winter wheat than rye and is a god argument in favor of the summer fallow. The remedy is to plant deep if the ground is dry, so that a rainfall heavy enough to sprout it will remain in the ground long enough to establish it. The writer, in doing fall plowing one year, plowed under quantities of rye which had shattered out. It all came through and the field was green before the holidays. This would seem to indicate that rye may be planted almost any depth.

A field of this grain may be pastured all fall and winter and cut twice for hay in late spring and early summer, but if it is desired to preserve it for another season for pasture it should be eaten off and not allowed even to joint. In cutting it for hay it must not be allowed to arrive at even the milk stage; even when in the dough animals do not care for it as hay.

The time to cut it is about blooming time and the hay is then digestible and nutritious and horses and cattle will clean it up. By cutting it this early the yield is less but the second crop will be much heavier than it otherwise would.

If fall rye is planted in the spring, it mats on the ground and will not run to head until it has passed through a winter season. A few stools here and there will send out heads, but not enough to be worth cutting. It was by breeding from these that spring rye was obtained. If the rye pasture is plowed under in spring it leaves an excellently well fertilized field for corn, if the moisture conditions are right; but if the weather has been dry and the rye has used up what little moisture there was, it would hardly be safe to plant another crop until some fresh moisture had been conserved.

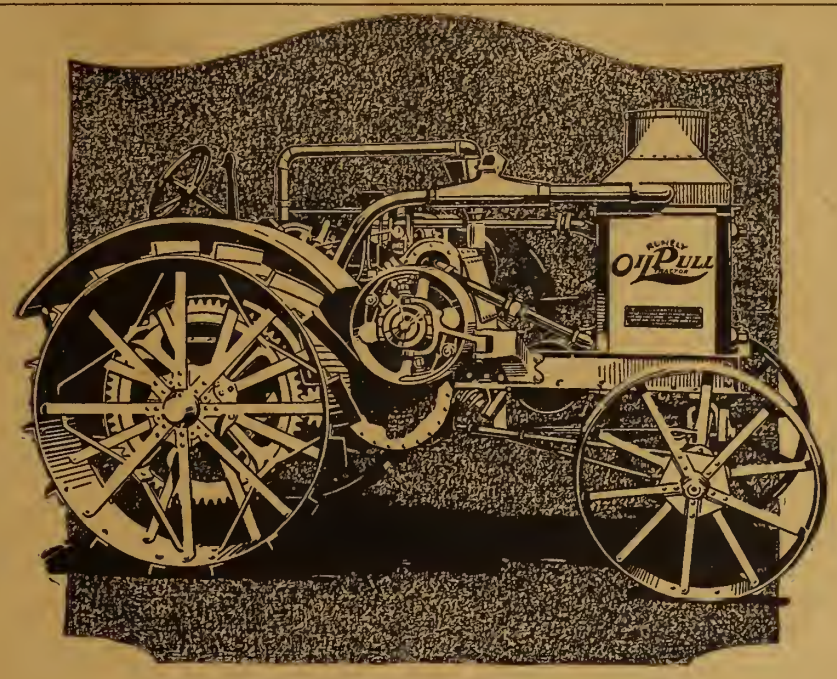
To get rye out of the ground the best way is to plow it under green, or else cut it in the dough before it has a chance to shatter out. It is a valuable pasture for milk cows just as the grass is drying up, and still more useful for calves at weaning time when they need tender green feed. It also saves feed in the spring because it starts so early and can often be cut for hay by the last of May. For a quick fertilizer there is nothing better than rye and it can be raised and plowed under between two crops of corn. It does not contain as much nitrogenous matter as alfalfa, or sweet clover, but is easier to raise. The later it is cut the more fertilizing value it contains, but it must not be allowed to ripen or the heads will sprout in the ground. It is a help to the soil if plowed under at any time.

It makes a good rotation with corn, allowing one year to the rye pasture and then corn again. Those who are planting large acreages of corn on the same land year after year would protect their soil from depletion by plowing a larger acreage and adopting this rotation.

Eradication of Bind Weed

As soon as a small patch of bind weed appears in the field it should be salted at once, before a large area becomes infested. Where large areas are infested, salt a strip a few rods wide around the patch. This will prevent its spreading. The inside area should then be cultivated by itself and all possible steps taken to keep the weed confined within the salted part of the field.

Straw and similar material gathers moisture, and when the litter becomes damp enough to be limp it is practically useless for fowls to scratch in for their grain feed. Scratching litter in the poultry house is essential, but it should be cleaned out and renewed frequently.



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We have embodied the proved OilPull ruggedness and substantial construction in this small, light weight 12-20. And by light weight we mean *right* weight—the proper weight to give long lasting, year after year, dependable service.

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And just as Advance-Rumely guarantees its OilPull tractor as a cheap fuel burner, it insists upon giving the purchaser a surplus of power. The 12-20 rating is based upon only 80 per cent of its maximum power efficiency—a 20 per cent overload capacity when you need it. This means further insurance of long life—a tractor that will be doing the same good work five years hence as in its first season.

The 12-20 is oil-cooled—no evaporation and the radiator can't freeze. The circulating system is always open and oil preserves the metal parts. The OilPull cooling system keeps the motor at the right temperature at all loads—the harder the OilPull works, the cooler it runs.

On the 12-20 the belt pulley is on the right hand side—up within full view of the operator. The 12-20 can be lined up with a belt machine, backed into the belt and the belt started and stopped from the platform. The belt pulley is driven direct off the crankshaft—no loss of power.

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W. E. VAPLON.....Poultry Raising
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Practical Butter Standards

That the general tendency among chemists and scientific men when setting standards on commercial products is to look to the ideal of a scientifically correct or attainable standard, rather than to the commercially attainable and practical wholesome minimum averages, is clearly demonstrated in the attempt of the Committee on Definitions and Standards of the Bureau of Chemistry to set an 82 per cent butterfat standard for butter. For all practical purposes, is it not far better to set a wholesome, practical minimum on any product, then strictly enforce that requirement, than to set an average or an ideal as the minimum and not be able to keep above it commercially?

Practically all the large foreign butter producing countries have a standard of 80 per cent fat for butter. It would not be fair to the American manufacturers or producers to have to market an 82 per cent butter in competition with an 80 per cent article. Dairymen would be losing the price of two pounds of butterfat on every hundred pounds sold. The creamerymen would be seriously handicapped in attempting to market or manufacture butter of this standard, as there is no accurate commercial method of quickly determining butterfat content of butter, and it would be very difficult to commercially maintain butter above this standard. The old government standard on butter was first adopted in 1886, then later in 1902. It has always been considered impractical and, therefore, has not been enforced. It is like many other federal requirements, established so long ago that it will not meet present needs.

During late years a few states have been blindly led by ulterior influences to adopt federal standards on all dairy products. Where the federal standards adopted are enforced by state authorities, butter manufacturers are seriously handicapped by being compelled to make and place on the market an 82½ per cent butter which goes into competition with the normal 80 per cent butter made in other states. The dairy farmers of such states have received less for their cream.

In general, government standards on food products are labelling requirements, rather than standards of purity or quality, so that good state laws not only maintain our state rights but are stronger than federal laws in many respects, and usually more practical. Colorado's standards are among the best in the Union and there is no valid reason for changing them, because they are fair to producer, manufacturer and consumer.

Transfer of Forest Service

Bills are being pushed in Congress to transfer the Forest Service bodily from the agricultural to the Interior department. Up to 1905 the Forest Service was under the jurisdiction of the interior department. Because of the friction between it and the settlers of the west, together with the fair promises of Mr. Pinchot and his school of conservationists, a law was passed turning the Forest Service over to the agricultural department. The relief expected was not realized. The west felt that promises were not kept. Tremendous areas better fitted for other purposes were included in Forest Reserves and a strong campaign was maintained for years to put the whole public domain on a leasehold basis. The greatest propaganda campaign in the history of the country was carried on to secure a system of federal control of all timber, mineral and grazing lands. How much benefit may be realized by retransfer of the Forest Service is hard to guess; officials of the interior department, however, call attention to many advantages that might accrue from the change.

The interior department is to pass on titles, and titles are concerned in almost every question that arises. There is no doubt that the overhead charge under tbe present system is very much greater than it should be. It is also true that the autocratic methods of the department in its rules and regulations have occasioned great dissatisfaction among the people who are compelled to do business with the Forest Service. Many people have been made to realize that the cry against autocracy in Germany becomes a good deal of mockery when we support in this country an autocracy in the Forest Service which was borrowed from autocratic countries abroad and which has never been Americanized.

Every attempt to secure relief in the courts, because of arbitrary rulings of the Forest Service, has been a failure. If the interior department wishes the united assistance of the people of the west in this re-transfer it would do well to announce now that it will recommend to Congress relief in the courts for people who are aggrieved by autocratic rules or officials. It is a noteworthy fact that in the present discussion there are no personalities nor charges against individual officials. It is insisted that the old system is fundamentally wrong and should be made over not only to comply with true Americanism but to induce the best growth of the western state.—E. M. AMMONS.

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Regarding Legal Rights

As an admonition to our readers never to forget the rights of others we shall quote from a letter recently received from one of our subscribers in Colorado:

"I am writing Western Farm Life Service Bureau and want to know if cattle can be put on the road and let run all day. I am a girl 16 years old. Our house burned down and my father was taken sick at the time and has been in the hospital ever since. I put in the crops myself. My neighbor is turning cattle on the road for pasture and they are going into my wheat. The cattle keep coming in, four or five times, about fifteen head. We have a two wire fence, posts close together and the wire is tight. I asked the neighbor to keep their cattle out, but was told that my fence was no good. They have a two wire fence also. I would like to put one more wire on our fence, but I cannot afford to do it this summer, as I have four brothers and two sisters to feed and I need every penny to buy them something to eat. My neighbor hasn't enough pasture for the cattle and is turning them on the road. Please let me know what I can do to stop it."

Legally this sixteen year old girl, without a mother, with a father sick in the hospital and seven mouths to feed, has no recourse, because she does not have a lawful, three wire fence. But the neighbor, so she asserts, also has only a two wire fence. It is unlawful to run cattle only in a road or lane fenced on both sides with a lawful three wire fence, that provision being enacted with the two fold purpose of keeping cattle off the roads in range districts, and impelling farmers to erect lawful fences.

We are publishing the letter not for the purpose of telling what suggestions were made toward a solution of this particular problem, but merely to again direct attention to the fact that in sections where free range conditions prevail there must be a sense of honor among users of the range. It may be legally excusable to let your cattle destroy the crops of a neighbor who does not have a lawful fence, but the person who slides through life on the theory that he has nothing to respect except his neighbors' legal rights must, in time, lose even his self respect, to say nothing of the regard of his neighbors. It is worth most any sacrifice of so-called legal rights or privileges to retain that good will which says of a man: he is a just man, a lovable and kind neighbor, always ready to help others.

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A Farm Bureau Protest

The Colorado State Farm Bureau has adopted resolutions protesting against the policy of the United States government in buying imported beans and also against the indiscriminate use of the term "pinto" when applied to beans grown in the Orient and sold on the American market in competition with real pintos. Importers of Japanese beans have been in the habit of calling their production by the American name and selling this inferior article in competition with pintos grown in Colorado and New Mexico. An effort is being made to stop this practice and also to persuade buyers for army use to confine themselves to American grown beans, as long as there is a good supply of these in the market. Following is a copy of the farm bureau resolution:

Whereas, many importers of foreign beans market them as "Pintos."

Whereas, there is a tendency on the part of the trade to designate all foreign beans under the term "pintos."

Whereas, the pinto bean is a distinct variety of Colorado bean grown extensively in the states of Colorado and New Mexico.

Whereas, the pinto bean is of superior quality, food value, and edibility to many other varieties of Colorado beans.

Therefore, Be it resolved: That the Colorado State Farm Bureau protests against the sale of any foreign bean as "pinto."

Be it further resolved: That the Colorado State Farm Bureau protests against the policy of the United States government in purchasing any foreign beans as long as there is any considerable quantity of home grown beans not marketed.

Be it resolved: That copies of this resolution be sent to the Colorado Bean Growers Association, the U. S. Bureau of Markets, and the Bean-Bag of St. Louis, Mo., a national publication of the bean industry.

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Widow Wants a Homestead

To the Editor:

My son-in-law takes your valuable paper and I like it very much. I think the editor is right; we all should help him with our experiences. Let the sisters tell their best ways of doing things; also the brother farmers. Some things which are simple to us may be the very thing someone else s badly in need of.

I want to hear from someone in southeast Colorado or northwest New Mexico or northeast Arizona in regard to getting a homestead near timber and where shallow water can be found. The land does not need to be all tillable. I am a widow with little means and just want a home for myself and 17-year-old son and 10-year-old grandaughter.

Here are two remedies that might help someone: For tired, aching feet: put a tablespoonful of ammonia in the water when washing the feet. To drive insects from the hen house: hang pieces of cedar inside the hen house. —Mrs. M. M. Butler, 911 Silver Ave., Deming, New Mexico.

The Chamber of Commerce of Grand Junction is following Secretary Lane's plan to settle up some of the newly irrigated land in its neighborhood, and seems to be meeting with success. The Chamber is also pushing road construction into surrounding territory to increase trade. This whole section of the Grand Valley is more prosperous than for many years past.

The Branding Iron

Applied by Elias M. Ammons

Colorado stands fourth in potato shipping states, Minnesota, Wisconsin, and Maine coming first in the order named. Minnesota shipped 23,000 cars the past year, Wisconsin 20,000, Maine 18,500, and Colorado 13,600. Tbe Centennial state also stands third in cabbage shipments. From last year's crop two thousand cars were sent out, to say nothing of a great deal tbat was included in eleven hundred cars of mixed vegetables shipped.

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Press reports state the water power bill in Congress has been virtually agreed upon and will probably pass. It has been considerably liberalized, but is still unjust to the development of the west. The control of water power development, so far as local matters are concerned, should be vested in the states affected. A leasehold system under the federal government will enable the more populous states to regulate the cost of power in the west and control competition in manufacturing in as effective manner as they have regulated competitive goods from abroad by the tariff.

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Colorado was the third state in the Union in the shipment of beans the past year. An aggregate of seven hundred and eighty-two cars were sent out, and an additional seventy-five cars are still in the hands of the growers or local dealers. Over half of those shipped went to the government and were delivered at seaboard at from seven to eight and one-quarter cents a pound. The grower received about six cents. Recently prices have fallen as low as four cents, due undoubtedly to the falling off of tbe government demand. The acreage planted this year is only half as great as that of last year. The falling off in planting was due largely to low prices this spring. The fact tbat beans are so much lower than any other food product is a strange circumstance.

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The concerted effort to reduce prices in farm products has already shown results. The stopping of shipments of beef to Europe and consequent necessity for finding local markets for hundreds of millions of pounds of beef this spring resulted in demoralizing the market for livestock and tremendous loss to growers. Pork and beef products, generally regulate each other's prices to a very considerable extent. The fact that beef is largely shipped in a fresh state, while pork is cured and is, therefore, more easily shipped, is chiefly the reason why beef has gone down when foreign demand stopped. Hams and bacon have continued high. So long as the government was a large purchaser of beans the growers received six cents or better a pound for them. The end of the war stopped the demand by the government for export and prices have been reduced to four cents or less. A similar condition has been found in the handling of other farm products. Flour is still protected by war arrangements, but probably will not be after the harvest of the present crop. The demand to force down the prices of farm products while every expense necessary to produce them is maintained at war prices, is almost certain to bring about disastrous results. Wherever credit has been given to foreign countries to take our surplus products, prices have been held up at least to a reasonable degree. The best solution to the whole problem is for this government to arrange national credits abroad so that our surplus meat, bread and other products may find an outlet at prices which will support production. There is nothing in the experience of other war times to warrant the hope that present prices can be maintained. At the same time no greater service can be done the country than to secure markets for our over production in order that world's prices may be reached in a manner to prevent disturbing changes.

Comment by Farmer Putnam

OUR MISSOURI FRIEND HAS A GOOD TIME WITH THE SHORTHORN FOLKS IN THE DIVIDE COUNTRY

JOSEPHINE had a tantrum agin the other evenin' when I got back from a trip down to the Divide country and told her I was a-goin' into Shorthorn cattle breedin'. She stopped eatin' fur a minit and give me one of them queer looks of hers, which tells of a storm comin'. Her face is like a barometer; I kin allus tell when the weather's goin' to change by lookin' at her. It's safer then the barometer, and a durn sight surer than Brandenburg's forecasts. The minit she puts on that queer look, kind-a smiles and curves her lip up, stops what she's a-doin', looks straight at me, sayin' nuthin', then it's time to hunt the cyclone cellar, because a minit later the storm breaks, and it makes no difference what kind of a excuse I've got, she has her say-so and it comes in a torrent, like one of our summer showers like we used to git but which has been scarce this summer. I've got so I just let her run herself down before I try to shoot back, because she cain't hear me talk when she's in action and I don't believe in wastin' my shots. This time I come home from a long trip plum tuckered out, but enthusiastick about them Shorthorn herds I seen around Elbert and Eastonville, and all I said was:

"Well, Josephine, I've made up my mind to go into breedin' Shorthorn cattle; thar's money in the game and if fellers like Al Carnahan and Cornforth and Gleason kin make it go they is no reason why I cain't, because I got all the advantage in the world by havin' Western Farm Life back of me."

She looked at me and I ducked my head under my arm, and sez: "Come on with the fireworks, it's nearly Fourth of July anyway."

"Tom," she sez, "Tom, you're crazy. Don't you know it takes intelligence and money and hard work and good sense and energy and business ability and grit and farmin' experience, and a hull lot of other requirements which you hain't got and never kin have, to run purebred cattle and make somethin' at it? Don't you recolleck goin' to a sale over to Gallatin one time and buyin' a registered Shorthorn bull fur $500 and then sellin' your best cow to help pay fur the bull and expectin' to make money outen that bull like you would outen your stallion? Don't you recolleck that experience in tryin' to break into the cattle business when you was fit only fur hoss tradin'? Tom, why cain't you larn sense and be contented to write about farmin' and let them that knows somethin DO it and make money at it?"

That's the way with that woman. She's took all the ambition outen me; every time I try to strike out and do somethin' she brings up some mistake I made and it takes all the sand outen my craw and I give up tryin' and go back to givin' advice to others on how to succeed on the farm, which I don't know how to do myself, but git paid fur tellin' other people what to do. It's a queer world. We all has our crosses to bear; sometimes I don't know whether that woman was sperit, or whether I hadn't really give to me to keep me humble in oughter rise up on my ear and throw off the yoke and defy her. I would like to hear from some other old-timers in harness about what is the right thing to do under them circumstances. I think the world and all of her, but is it fair fur her to keep remindin' me of my shortcomin's?

Well, I reckon that's about enough on my family affairs. The editor has wrote all about the Shorthorn trip, but I'd like to add a few more words, tellin' you-all somethin' about the people I was along with and the good farmers and their families that we spent the day with. Mr. Brennan and Mr. Shearer, managers of Swift Armour, Denver, Colorado, was among our distinguished visitors; also Ex-Governor Ammons, Fred P. Johnson, Dave Thomas, Roud McCann, Prof. Bray and Lee Reynolds, part owner of the Kiowa valley.

This Mr. Shearer is a new man from Indiany, but you'd think from the way he made hisself at home, that he'd been raised in the West. I reckon Mr. Armour knowed what he was a-doin' when he picked him out to come to Denver.

Some of the farmers got kind-a scared when they seen all them packin' house big guns; I reckon they thought them fellers was goin' to steal their cattle, havin' read so much about the terrible packers in the newspapers. Along about dinner time, when we all got into the grove on Cornforth's ranch, why the oneasiness passed away and after dinner the packin' house fellers was the ones that was oneasy, but it was on account of the big chicken dinner. The farmers discovered that Mr. Shearer and Mr. Brennan was human after all, and that when properly fed up on fried chicken, a farmer could git most anything he wanted out of 'em.

They was a little misunderstandin' occurred just before noon when Mr. Cornforth sez to a bunch of us, "Come on over to the house, you men, I want to show you my den."

Well, several of 'em smacked their lips and winked at each other, but I knowed better'n to think so. When we got over to the house it was locked up and Mr. Cornforth told us he was sorry we couldn't git in and see his den, which he had all decorated up with picters cut out of the Breeders' Gazette and the Shorthorn magazines. Mr. Brennan spoke of his disappointment in his speech which he was called on to make, and said that in Denver whenever a feller invites you to see his den it means something. It used to mean something in the country, too, but my, how times are changin'! I kin recolleck back in Missouri where me and Jim Brennan comes from, every gentleman had his den and every den its decanter, and every decanter its dew. Them happy days is no more!

Now, that reminds me of what happened after my Wyoming trip in April, when the Weld County News published the follerin' infamous scandal:

"A couple of weeks ago Farmer Putnam, scribbling sage of Western Farm Life, journeyed to Wyoming to investigate, as he tells it, the agricultural department of the university of Wyoming. We should dearly have loved to be with him. Nothing, to our way of thinking, is more charming to the sight than the long, chin whiskers of a denizen of the arid areas, as they wobble with delight over the more or less fragrant collar of a glass of two per cent."

The News is run by Ed Foster and George Hobbrich, two smart young fellers, and I ain't a-goin to abuse them, because I believe in lettin' sleepin' dogs lie (They kin take that either way they're a-mind to.) The feller that I'm layin' fur is the one that sent Josephine a marked copy of it. His name is knowed and when I ketch the mangy catamount I'll make his fur fly. I hereby wish to make public denial of the charges and assure my many friends in Weld county, includin' Senator Carpenter, that I never touched any 2. per cent in my life and I'd ruther die of thirst than stultify my conscience by stoopin' to sech a nefarious substitoot.

THOMAS JEFFERSON PUTNAM.

A weed is any plant in the wrong place. Vegetables too close together are as injurious to each other as weeds. Thin them out before they are large enough to crowd.

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

May Keep Uniforms

Answer to F. H., Weld county, Colo.

Discharged soldiers may keep their uniforms and overcoats, no matter if their discharge was secured before the regulation to this effect was adopted. In fact, those who had already given up their uniforms were privileged to make application to their proper supply officer for return of same.

Stock on the Highway

An unsigned letter comes to us from Weld county asking whether there is a law to prevent livestock running in the public highway. The state fence law provides that where a road or lane is fenced on both sides with a lawful fence it is illegal to let stock run at large in such road or lane. This law does not interfere with driving cattle through, but is intended to prevent grazing on the highway.

All letters addressed to the Service Bureau should be signed with the writer's name and address as an evidence of good faith. So many letters are received that it is impossible to answer all inquiries through the paper. Every inquiry is answered promptly by letter if the writer furnishes name and address. It is necessary to observe this rule in order to avoid delay. We do not publish names of those asking questions but merely the initials, and even these may be omitted when a request to that effect is made.

Moldboarad or Disk Plow

1. Which is better for hreaking prairie, a disk plow or a mold hoard plow. As I understand it, a disk plow doesn't need sharpening but once a year and a mold boarl plow has to he sharpenel ahout every three days. Does a mold board plow do enough hetter work to pay for the extra expense on shears? Which pulls the heavier?

2. Would a low down drill with no side wheels carrying all the weight on the trucks and packer wheels, do hetter work and increase yield of winter wheat over a drill that has side wheels and the ordinary small press wheel packers? I have a drill with side wheels and small press wheel packers. Would it pay me to sell it and get a low down drill? I live in the hard land district just north of Yuma, Colorado, on dry land and want the ahove questions answered under dry land conditions.—R. C., Yuma county, Colorado.

The moldboard plow does a better job at breaking or plowing old land than the single disk plow, because it is more thorough. It turns the sod almost upside down with the grass next to the subsoil, whlch absorbs the valuable acids and juices as the rotting process proceeds, and nothlng ls lost. The disk plow scatters the humus and leaves it nearer the surface. The two-disk deep-tilling plows are as good as the moldboard or better, because the second disk following behind the first completely buries the top furrow slice. The single disk plow cuts a circular furrow, not a square one like the moldboard, so that to move as much dlrt as the latter it should be set to cut an inch deeper if you measure from the center of the furrow whlch is the deepest part of it, and when this ls done you will find that one plow pulls about as easlly as the other.

Keep the drlll you have. Heavier packing of the seed row may be advlsable when the ground ls newly plowed and dry; hut you can offset any disadvantage of thls kind by planting deeper. The ordinary press wheel ls the best for planting wheat on the summer fallow or on any other moist soil. The hard solls of your district must not be heavily packed when much moisture is present, or a crust may form.—E. R. Parsons.

Line Fence Question

A and B join farms separated by long established division fence which has been there for perhaps over twenty years. A claims that some of his land is on B's side of the fence. In case a survey is taken and it is found that A is right, can A move the fence onto B's crop and take that part of his crop on the land in question without fully compensating B for it? Has A a right to the land at all after the line has geen established for so long?—Subscriber, Colorado.

I understand that if the fence has been up for 20 years and more that the line of the fence is the line. In no event would A get the crop.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Government Farm Loans

Could you tell me where to apply for government loan to buy a farm? How much can one borrow on improved land? This farm is valued at $3,000.—B. R., Chaffee county, Colo.

Make application for a government loan to the Federal Land Bank, Wichita, Kansas. This bank serves the district in which Colorado is located. We are mailing under separate cover a circular explaining the law which will tell you how to go about it to procure a loan. It is necessary to joln a co-operatlve association of farmers in your own county or nelghborhood. Any group of farmers wishing loans can get together and form such an asasociation, in case there is none in existence. As to the amount which you can get on a farm valued at $3,000, thls depends upon the appraiser of the Federal Land Bank. A recommendation is first made by a local loan committee composed of three members of the farm loan association, then this appraisement is reviewed by an appraiser sent out from the Federal bank, whose recommendatlons are final. The usual amount allotted is one-thlrd the appraised value of the farm. The law provides that loans cannot be made for more than one-half the value.

Income Tax Question

Land that was bought six years ago sold at a profit of $12,000. How will the income tax be figured?—C. S., Washington county, Colo.

Land is recognized as capital invested and should not be considered in any other light until it has been sold, ln which event the net profit received ln cash or its equivalent must be included as income. You must make a return of the entire profit of such a transaction for the year in which the sale ls made. If you acquired the property sold previous to March 1, 1913, you should take its fair market price as of that date, add to such value all amounts subsequently pald out in making permanent improvements, then deduct the total of all claims for depreciation clalmed as deductions on previous returns, and the difference between the result thus obtalned and the selling price is the amount to be reported under lncome. If you purchased the property on or after March 1, 1913, you should add to the cost price all amounts pald out for permanent improvements, interest, taxes and insurance, then deduct from the sellIng price all amounts clalmed as depreciation of value of property on prevlous returns. The difference between these two totals ls the amount to be returned as income. No set method of determining the value as of March 1, 1913, can be given which will adequately meet all circumstances. What that value was ls a question of fact to establish by any evidence which will glve reasonable proof, such as bona fide offers of purchase made at that tlme or sales of adjoining or neighboring land sold on or about that date. Permanent improvements which are put on the land are known as "betterments," and should not be deducted in the returns for more than one year—as for example, if a farmer bought a piece of land and put a fence around lt after the purchase and later sold it at a profit, he would have the rlght to deduct the cost of the fence from the sum he reported as net profit, but he could not do this on his return for more than the one year in which the sale was made.—From "The Farmer and the Income Tax," by C. E. Erickson Company, Des Moines, Ia.

Concerning Soldiers' Homesteads

Will you kindly inform me as to the conditions concerning the soldiers homesteads. How long does it require to prove up on one? Can a man borrow money from the government for improvements? I am an ex-soldier just home from overseas.—J. V., Conejos county, Colo.

Homesteads taken up by men who have been in service are handled just like other homesteads, except that the entryman receives credit for residence according to the length of tlme he served in the army. That ls, if you served eight months or a year ,this period of tlme will be taken from the three-year residence requlrements. So far no plan has been adopted through which a soldler may borrow money from the government for lmproving his homestead. Congress is working on a soldier land settlement law, but it has not yet been passed.

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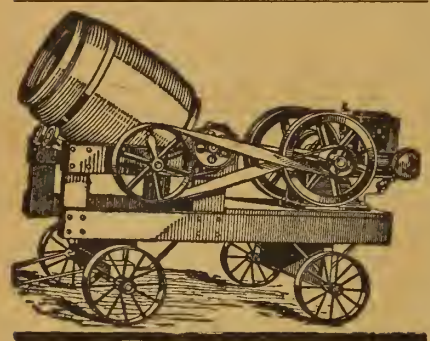

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VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Calf Diphtheria

I have just bad a calf die witb a peculiar disease. He was about three months old and had scours the first month of his life and was rather thin, but had begun to fatten before he got sick. The first we noticed was one eye festered and watery, then a swelling began on tbe same side under the jaw. His appetite was good and he sucked his mother until his throat swelled almost shut. Just before he died phlegm began to form in his throat and run from his mouth and he died several bours later in the greatest agony. Do you think this could have been calf diphtheria; and if so, will my other calves have it and what treatment should I have given?—W. I. S., N, Mex.

Wlth the symptoms given the calf might easily have died from calf diphtheria, blackleg or hemorrhagic septicemla. The last two diseases mentioned may be prevented by vaccination, but curative efforts by the laity are useless. Calf diphtheria is an infectious disease and must be handled accordingly. Clean the calf pens. Examine the mouths of the calves and look as far as possible back into the throat. If there are red areas, patches of false membranes or ulcers, treatment should begln immediately. Calves that appear to be healthy should be kept in a pasture by themselves and their throats examined every day. The membranous patches might be treated with weak solutions of iodine and the ulcers should be scraped and touched with caustic. A five per cent solution of boracic acid should be used freely to disinfect the mouth and throat. This being a germ disease prevention should be first considered. Thls disease is not llke dlphtheria in the human, but control measures must be adopted along the same general lines. Reliance must be placed largely upon isolation of sick anlmals and disinfection. Keep the healthy calves by themselves; "clean-up" and treat individual cases as indicated above. Employ a veterinarian if possible.—G. H. G.

Horse Has Sweeney

Answer to W. S. K., Routt county, Colorado.

"Sweeney" is the common term used to designate paralysis of the suprascapular nerve and is due to mechanical injury to the shoulder. The leg moves backward and outward when weight ls put on it and a gap of variable size is seen between the shoulder and the chest wall. The paralyzed muscles degenerate and undergo atrophy (sweeney) about the second week and this condition is liable to last for several months, or even become permanent if neglected. Light exercise, relief from heavy work, and local irritation, constitutes the treatment. For the latter, mlld blisters applied at three week intervals, hand rubbing or setons, are most useful. One treatment at a tlme is indicated, and do not expect immediate results. Do not blemish the horse. A mild blister is most effective.—G. H. G.

Lameness From Founder

I have a calf that was foundered on alfalfa about three months ago and is paralyzed in the hind legs. I have given him nitre but be does not seem to get any better.—C. M. S., Arizona.

An animal foundered has some of the symptoms of being paralyzed, but is not. The feet are so sore from congestion that the animal simply cannot walk on them. If it ls paralysis of the hindquarters, recovery is doubtful. Twenty grain doses of powdered nux vomlca, mixed with the feed three times a day, may be helpful. If he has been lame all the time from founder, he is probably growing new hoof and in time may make a fair recovery. There is little that can be done by way of treatment.—G. H. G.

Not Whorled Milkweed

Answer to Mrs. S. B. K., Prowers county, Colorado.

The specimen sent is a harmless weed and not the poisonous whorled milkweed. The latter has been found growing near Walsenburg and Trinidad on the eastern slope but there is no confirmed report of it as far east as Lamar. The illustration and description of the plant in Bulletin 211, Agricultural College Experiment Station, should make its identification quite easy. The college will be glad to receive specimens of suspicious plants for identification at any time. We are especially anxious to learn of the extent of the whorled milkweed on the eastern slope of the mountains. To this end we invite co-operation of those who are most vitally concerned. The plant appears to be spreading rapidly and should a patch of it be found at Lamar it should be completely eradicated regardless of cost. The places to look for it especially are along ditch banks, in orchards, and on ground that had been plowed at some time and abandoned. There is a harmless milkweed with a broad leaf that grows abundantly and is often confused with the whorled milkweed. The cause of the confusion is the similarity of the pod which when ripe breaks and liberates cotton and brown seeds. Bulletin 211, Colorado Plants Injurious to Livestock, may be secured for the asking. A post card addressed to the college will bring it and it should be worth while to be able to identify the ten most poisonous plants, which together do fully 98% of the damage.—G. H. G.

Probably Nasal Gleet

I have a horse which discharges a yellowish white stuff from his nose. This substance smells very bad. He has plastered his feed bag with it and of course the feed box retains the awful odor. Some of the other horses refuse to drink after him out of the water tank. He does not gain flesb on extra feed, but has a good appetite and is in good spirits. Damp cold weather makes him worse as to the amount of the discharge and the odor. He is very sensitive to rain or snow and jerks his head about trying to get his head out of the rain.—H. O. W., Elbert county, Colorado.

There ls apparently nasal gleet which probably involyes the adjacent sinuses. If the nasal discharge is from one side only (unilateral), there may be a slight bulging of the facial bone below the eye. Percussion over this area will give a dull sound and different from that of the other side of the face. It probably started from a decayed tooth and should have immediate attention. There is also danger that it may be glanders, or result in glanders later. The state law provides a penalty for keeping a glandered horse, for he is dangerous to people as well as to other horses and to mules. You should consult the State Veterinary Surgeon, State Capitol, Denver, without delay. If lt proves to be merely a catarrhal condition of the sinuses as lndicated above, it is amenable to treatment if glven immediate attention. The farmers and stockmen of the Kiowa district would do well to profit by the experience of Monte Vista. Montrose and Salida. Organize an association and employ a veterlnarian by the year. Why not?—G. H. G.

Cow Has Split Teat

I have a cow which has a split teat. It was torn on a barbwire fence and the milk vein was torn. The wound seemed to heal properly but since the accident the milk continually drips from this teat and also the cow suffers from caked bag.—F. J. R., Weld county, Colo.

The caked udder is lnflammation, due, probably, to infection, either through the natural openlng ln the teat, or through the openlng made by the wound. The way to "dry up" the cow is to quit milking her. It seems practically impossible to close the fistula in the teat while she is givlng milk. Let her go dry two months before it ls time for her to become fresh and in the meantime operate on the teat. This operatlon, while apparently simple, is really quite difficult. By all means employ a veterinary surgeon.—G. H. G.

The poultry building should not be so wide that the rays of the sun cannot reach the back of the interior of the house. Otherwise it will be damp. Fourteen feet is a convenient width.

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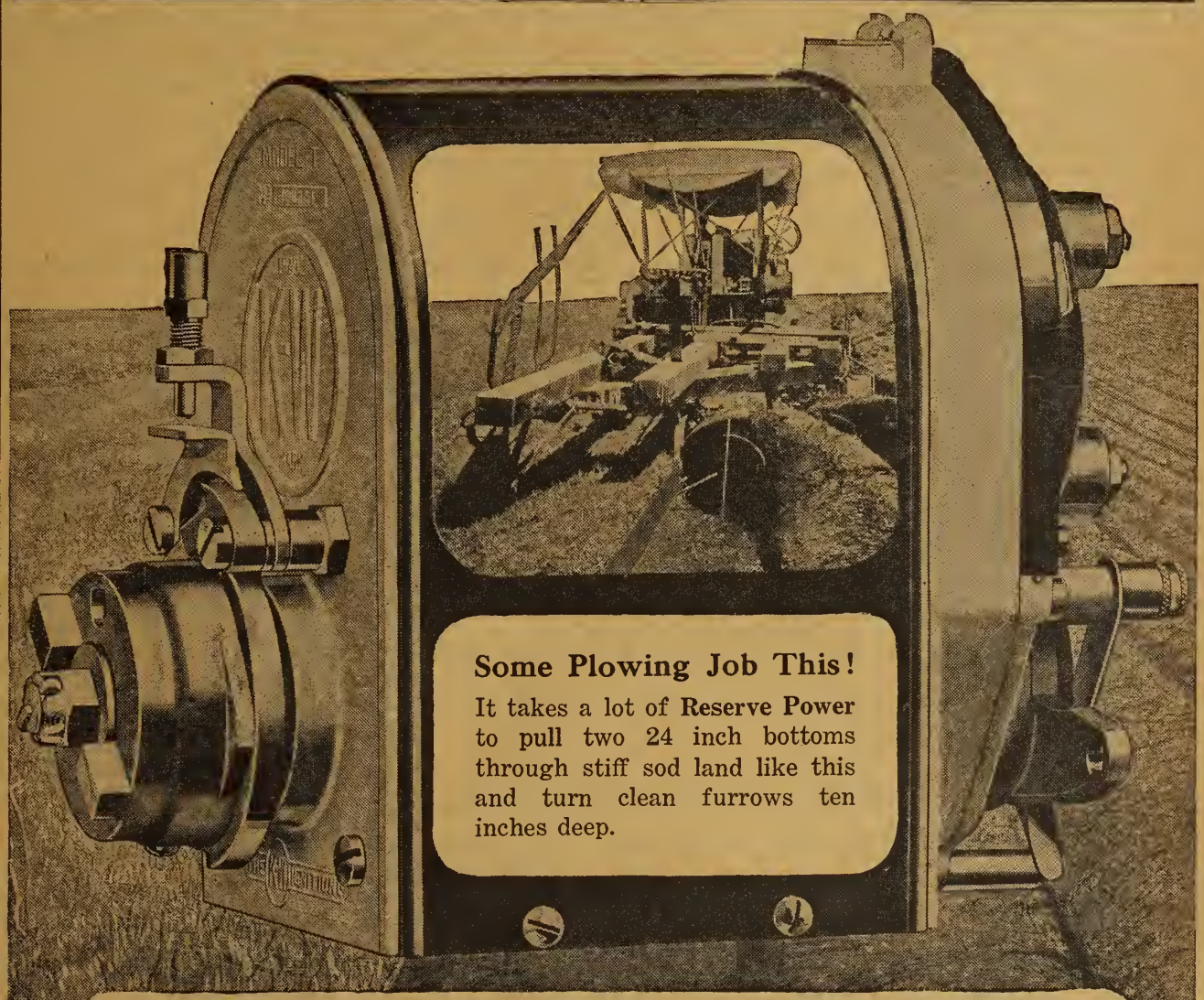

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Who originated the use of sunflower silage in the West? This question has been frequently asked of late. Credit has generally been given to Mr. George La Grange, proprietor of Fama Fruit Farm, Grand Junction, Colorado. In order to get at the facts in the matter the editor addressed a letter to Mr. La Grange, asking him to set forth exact details so that there would be no doubt in the future as to the origin of the use of sunflower silage.

Although sunflowers have been used for many years in Europe as cattle feed, as shown in an article appearing in our issue of June 1, Mr. La Grange had no knowledge of this, but found out by accident that sunflowers were relished by dairy cows. Following is his account of this incident:

"During the summer of 1913 my calves got out and I found them eating the sunflowers which I was raising for chicken feed. This caused me to wonder if the cows would eat them also, and upon trying I found they ate them with apparent relish. The next year I put in a small plot of them, and as I had no silo at that time, I ran them through my fodder cutter into an unused cistern. The tonnage obtained was so great and the results from feeding the sunflower ensilage so good that I built a silo the next year and have been using sunflowers for ensilage ever since.

"It was during the season of 1914 that the field man for the DeLaval Separator Company visited me and saw what I was doing, but as to whether he carried the news to the Huntley Project, as stated in your letter, I cannot say. It is possible he did, as he made all of this mountain territory. I had never heard, up until that time, of anyone using them for that purpose but he told of reading of an experiment made with them in Canada a number of years previous, and the report, as he remembered it, was that they were considered good feed when combined with corn ensilage."

Weld County Pig Clubs

Two more Duroc sows have arrived in Greeley for members of the boys' pig club which was started by the Northern Bank and Trust company under the direction and in co-operation with Prof. F. A. Ogle, of the Agricultural department of the Greeley high school, and County Agent Knapp. This makes a total of 38 pure-bred gilts, all bred, which will be taken care of by the boys and the pigs raised to add to the number of registered swine in the county.

The Northern Bank and Trust company furnished money with which to purchase the pigs which were given to the boys, who care for and raise the little pigs. At the end of the season, the bank expects payment of the money loaned with interest, but the boys will be entitled to all they can make off the pigs. They may either sell the little pigs or keep them. The bank's only interest was to improve the character of swine in the county and assist in the gradual elimination of all scrdub stock and the substitution of pure-bred stuff in its place.

The bank purchased registered Poland-China pigs from the McKelvey pig farm and they were shipped to Greeley in a bunch, 18 of them arriving in one shipment. The pigs were unloaded at the stock yards and the boys secured their pigs by lot. Not all of the members of the club desired the Poland-China breed, however, and Prof. Ogle ordered some Durocs. There are now 18 Poland-China sows, and 18 Durocs and two Berkshires in the club. Eight of the Durocs are pigs which former members of the pig club raised and kept over, the remainder of the 38 pigs are those furnished by the bank and Prof. Ogle, but all are registered stock and of exceptionally fine quality.

At first, the bank and Prof. Ogle thought that the 18 pigs would be sufficient, but as the idea became generally understood by boys of the county, practically every member of the old pig club and many others desired to enter this new club, so the additional pigs were ordered. These are distributed among boys in all parts of the county, some boys taking more than one pig, but all are under the direction and supervision of Prof. Ogle and County Agent Knapp, though known as the Northern Bank and Trust company's pig club, because they are all working together to improve the character of hogs raised in the county.

These pigs will be taken care of by the boys who have duly qualified as members of the pig club, and next fall, at the time set for closing the affairs of the club, there will be an exhibition of the product of the 38 pigs at the Community Fair, and a big auction sale for those pigs which the boys do not care to carry over until next year. It is from the proceeds of this sale that the boys will receive pay for their season's work, and the bank will get the money advaneed for original purchase of the pigs.—Weld County Farm Bureau Bulletin.

Heifer Makes a Record

Boulder county still has a chance to become prominent as a dairy county if a few more heifers are brought to light that will fill a milk pail as often as the Holstein heifer belonging to Lee Johnston does. This heifer is three years old and was brought in from Wisconsin two years ago by the First National Bank of Boulder. She is a registered heifer with a good line

Weld County Pig Club Boys and a Few of Their Purebred Pigs

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of the

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The superiority of the De Laval Cream Separator is more apparent and is more appreciated during the summer months than at almost any other time of the year.

Farmers appreciate the De Laval during the busy summer season because of its large capacity and the fact that it is easy to turn and easy to clean.

With a De Laval, the milk is taken care of in the shortest time and with the least effort — both important in hot weather when a number of other things have to be done.

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Over 2,500,000 De Lavals are in daily use the world over —more than all other makes combined. More than 50,000 local agencies look after the needs of De Laval users.

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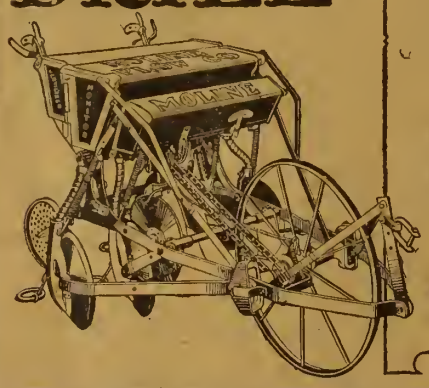

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The double disc in center with single discs on either side equalize the pressure, the caster wheels serve as depth gauges and independent pressure springs make uniform seeding.

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of milk producers back of her. On April 19 she dropped a bull calf, and at present is producing an average of 80 pounds of milk per day, testing 3.8 per cent butter fat. The milk is being sold to the condensary and at the present price of 62 cents, this heifer is returning a gross daily income of $1.88, and although her feed bill is high (about 75 cents per day), she gives her owner a daily net income above the cost of feed of $1.13 per day, or over $30 per month. At present she is being milked four times each day. Of course there are those who say they do not want such a heavy milking cow, but I know herds where it requires five and six cows to get the same amount of milk as this one heifer is producing. Then, when the feed bill of say six cows is deducted, there is little profit left, saying nothing of the extra work of caring for the six.—Farmers Exchange Bulletin.

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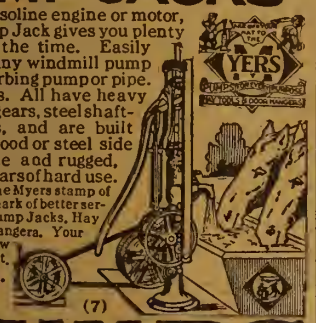

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Advice on Weaning Pigs

Too many farmers follow the practice of weaning pigs when too young, many being weaned at six and seven weeks of age. A good brood sow properly fed has a good flow of milk when the pigs are of this age. There is no better feed for growing pigs than their mother's milk, consequently it should be used to the greatest extent possible. When the pigs are of suckling age the sow should be on full feed. Unless there is some extraordinary reason for earlier weaning the pigs should not be weaned under the age of 10 weeks, and it is better to let them nurse until they are 12 or 14 weeks old.

Often serious results follow weaning at too early an age. An entire change of feed following weaning may create serious trouble. If, however, pigs have access to corn, shorts, middlings or tankage, or fish meal in a self feeder placed in the open where they can eat at pleasure without being disturbed by other hogs, they can be weaned at the age of 12 or 14 weeks, with very little change in their feed, by allowing them to continue on the self feeder.

To obtain the best results pigs should gain continuously until they are ready for market. The best results will not be obtained unless pigs have access all the time possible to good forage crops, alfalfa preferred. If these feeds cannot be procured, rye, oats, barley, cowpeas, rape, or any other grain or grasses that will produce good forage in the locality, should be sown. The pigs should be watched closely to see that they are on their feed. If they are not, the feed should be changed, replacing corn with barley, and using skim milk or buttermilk if possible. The pigs should be kept free from lice by the use of crude or good black oil. They must have access at all times to good pure water. Shade must be provided during the hot summer months. Natural shade is always best, but where this is not obtainable, temporary shade may be provided by setting posts and nailing boards on poles about 3½ or 4 feet from the ground and covering with straw or grass.—U. S. Department of Agriculture.

Build That Silo Now

At the present time the chances are good for another short wheat crop in the dry farming section. We have had less than five inches of moisture since most of the wheat was put in last fall and we need another five inches between now and the time harvest is ready to insure a fair wheat crop. This is something that we do not generally have. If we do get it the chances are it will be in the chunks. It certainly behooves us dry-land farmers to put in corn or some other good feed crop and then put it in a silo so that we can feed a few good cows to pay living expenses. It does not take very many good cows to bring in $100 per month and that certainly looks good when everything else has failed.

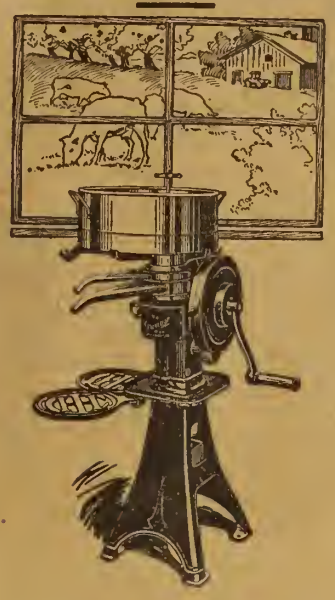
We have been talking silos for some time, but now is the time for action as talking will not build silos, and we should do something definite in the next few weeks or it will be too late. As Putnam says, "put it up or put it down, but for your own good and for your family's sake don't put it off."

Now is also a good time to plow some of that buffalo grass land that we call pasture, to put into early rye for winter and spring pasture. Rye beats buffalo grass about as bad as corn beats rye. Last year I had two fourteen-acre fields, one was in rye, the other in corn. The rye pastured 14 head of stock for five weeks and made three bushels of rye per acre. The corn put into a silo fed 18 head of stock for nearly five months and all the difference in the cost of the two crops was cultivating the corn once and putting it into the silo.

So let's get busy and raise some corn and build that silo or put in the one that we were talking about last winter. Action is what counts.—F. W. Haupert in the Strasburg News.

There are many advantages to a single-pitch roof on the poultry house. This type is most easily built. It gives the highest vertical front exposed to the sun's rays and throws all of the rain water to the rear.

Get All the Butter Fat



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They are the **only** cream separators provided with **two wide open cream outlets.** There is no screw to interfere with the full flow of the cream. The cream outlets are not stopped up in any way, because the regulating screw is in the skim-milk outlet.

A splash oiling system reduces friction to a minimum, lubricating every part, **forcing oil through every bearing,** and adding years to the life of the machine.

The only way to know how superior these separators are is to see them yourself. A nearby dealer will go over every point with you and prove to you that whether your herd of cows is small or large, you can save money with a **Lily** or **Primrose** cream separator.

Full information on separators or any other machines in the list below will be gladly furnished.

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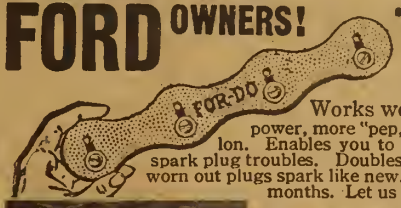

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Continued from Page 5

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Poland-China Futurity

It remained for the Colorado state fair management to do something for the Poland-China futurity and for those who nominated, that no other fair management has yet done. The advance sheet of the premium list, contains the names and addresses of the twenty-four nominators in the futurity.

This is a recognition of the people who made possible the futurity, that no other fair has thought of doing, and it shows what an appreciation the Colorado state fair people have for this show which is to be held for the first time in Colorado.

The new futurity in Colorado is due more to the efforts of A. D. McGillvray, of Boulder, than anybody else. He worked long and faithfully to secure the necessary nominations, and was able to put over the futurity with the aid of Secretary Beaman, of the Colorado state fair.

If the enthusiasm of the nominators, and the cordial support of the fair management means anything, we can look for one of the very best futurities in Colorado, that has ever taken place at an initial futurity show.—American Poland-China Record.

SAVAGE

Chicken Insurance— A .22 Savage Hi-Power

A FLURRY of feathers, a squawk and a red streak going under the fence—another chicken gone!

How long are you going to stand it?

You know that coyote won't look at your traps. And when you sling lead at him with your old slow-as-molasses .30-30, he knows you're guessiog—you don't know how much to hold over bim to allow for the drop of the bullet or how much to hold ahead of him to allow for his speed. And he knows you're half afraid to shoot anyway—the old .30-30 hullet might glance and hit a cow or a neighbor.

You need Chicken Insurance—the .22 Savage Hi-Power—the special tool for the job.

The .22 Savage Hi-Power rifle snaps its wicked little 70 grain Spitzer point hullet out 2800 feet—more than half a mile a second.

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But it is safe to use anywhere, because the bullet will not glance. You can't make it glance, not even from water.

These are some of the reasons why so many United States Forest Rangers and Government hunters and professional wolfers use the .22 Savage Hi-Power. It's the modern, special tool for predatory animals—and,besides that, Captain E. C. Crossman, the United States Army Ordnance Department Expert, called it "The Best Deer Rifle in the World."

Write us for particulars and look at the rifle at your dealer's

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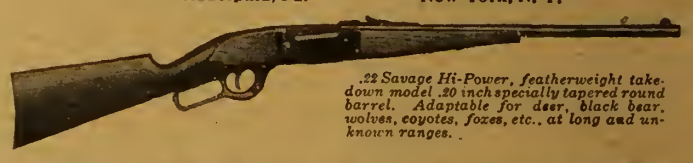

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Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

It's a good thing to eat spring chicken; it's a mighty good thing to have some to sell; it's a very good thing to have some nice tender young chicken next winter; you can peas and corn and other garden sass, why not chicken and so get them off the feed account and out of the way? The young pullets will thrive lots better if given the extra room and care. Here is a recipe and you do it just as you can other things when you use the Coldpack method.

Keep from feed and water twenty-four hours before killing; kill, pick, draw and cut up bird. A quart jar is big enough for a two-pound dressed chicken. Do not pack the giblets with the meat.

1. Have the jar hot.
2. Pack the saddle with a thigh inside.
3. Pack the breastbone with a thigh inside.
4. Pack the backbone and ribs with a leg inside.
5. Pack the leg large end downward, alongside the breastbone.
6. Pack the wings.
7. Pack the wishbone.
8. Pack the fillets.
9. Pack the neckbone.
10. Pour on boiling water to within one inch of the top; add a level teaspoonful of salt; place the rubber and cap in position, partially seal, and sterilize for the length of time given below for the particular type of outfit used:

Water bath, homemade or commercial, (quart jars) 3½ hours. Remove jars; tighten covers; invert to cool, and test joints. Wrap jars with paper to prevent bleaching.

Pressure Cooker—15 to 20 lbs. pressure, 25 minutes.

You should have put away eggs for next winter a month or two ago, they were cheaper and of better keeping quality then. But if you didn't, do it now. Better gather the eggs two or three times a day and put them into the solution immediately and keep the jars in a cool place while filling. Write us for recipe.

Just now we begin to realize some of the advantages of early hatching. In the first place the chicks are all out of the way, requiring very little attention, breakfast, range and supper, and the weekly cleaning of coops or houses. In the second place, a broiler these hot days with new spuds, peas and strawberries makes life worth living, even if there is lots of hard work; then the high prices for broilers make the business worth while. Personally I don't see where advocates of late hatching, in the Rocky Mountain districts, have an argument; but perhaps they are interested in manufacturing incubators.

Quite a number of the pullets are not up to standard; for some reason there are a certain number of "runts" in every flock. Don't keep them but let them go to market with the cockerels. The saving of feed is a big item when it comes to figuring profits.

Vermin

Heavy farm duties, hot weather and vermin all come together. The work has to be done, the heat has to be endured and the lice, mites and bed bugs have a gay old time with the flock. Again, prevention is better than cure. Whether or not you find evidences of these pests on the premises, take time to saturate roosts, supports, nests, etc., with some insecticide. Nearly everybody has a car these days and every car owner should drain his crank case occasionally, the old oil can be put to no better use than as a spray or paint for the poultry house fixtures. We generally use a paint brush and find it as satisfactory as a spray pump. Two applications should be made if the pests are in control, one if none are in evidence. Spray or paint the second time a week after the first.

After the danger of chilling is past the greatest loss in chicks is caused by these pests. When chicks are raised by hens, frequent examinations of the little fellows should be made until one is absolutely sure they are not bothered with lice. Their coops should be inspected and thoroughly sprayed or painted with some liquid as mentioned above on account of mites and bedbugs. Again, the drop in egg yield is often caused at this time of year by reason of the multitudes of bloodsuckers making life miserable for the hens, and eggs at 3c and 4c each are worth saving.

Hens should still be bringing a fifty per cent egg yield; if vermin are the cause of a smaller yield, get rid of the vermin; if the hens have just naturally quit for no good reason, cull out the loafers and get them to market.

Cholera Is Suspected

Am interested in raising turkeys this year and would like to ask you a few questions. I have four hens all seemingly healthy, but have lost two gobblers. They seem to have diarrhea, very foul smelling, won't eat and just droop around until they die. Would mating too young cause it? Does one mating fertilize a whole setting of eggs and will the hens lay without mating? Could you tell me where I could get some literature on turkey raising and their diseases?—V. L. A., Lincoln county, Colorado.

If cholera were common disease in Colorado I should judge from your letter that your turkeys have it. Cholera is rather rare with us, but I have known of some very severe cases and the only thing I can suggest in your case is to clean up the premises where the turkeys have been accustomed to gathering, plowing up, if possible, or covering deeply with straw and burning. Of course this is impossible near your buildings but some form of disinfectant should be used. Then examine your turkeys individually and see whether or not they are free from lice. If not free, use a good lice powder freely and follow with a second dose in a week. Also inspect the roosting quarters and see that there are no mites hiding there. The age of your turkeys would not be the cause of the trouble. Hens will lay just as well without a gobbler in the flock but the eggs will be infertile. Under separate cover we are sending you a government bulletin which will possibly give you some of the information you need regarding turkeys. Should be very glad to hear whether or not you are able to control this trouble.

Legs at Bargain Rates

Old Lady (to severely wounded soldier)—"Poor man, have you lost your leg?"

Tommy—"Yes, mum."

Old Lady—"Oh, poor fellow! Do have an apple."

Tommy (to his chum, when the old lady had departed)—"Bill, I think I'll have my other leg off before she comes next week. I might get a banana."

—Tit-Bits.

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The Tread That Is Geared-to-the-Road

The emergency brake is almost useless if the car slides on when the wheels are locked. Every motorist has had that experience and knows the dangers, especially in slippery weather.

What is most needed for country driving are the Uniform Miller Tires with the famous tread that is **Geared-to-the-Road.** This principle is just as essential to automobile wheels as to tractor wheels.

Miller's many caterpillar feet lock with the ground so the car can't slip or slide. In motion this scientific tread gives positive traction, full power ahead and safety. And its cog-like principle helps the speeding car to ***hold*** the road.

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Geared-to-the-Road would make any tire desirable for country driving, but coupled as it is with Uniform Mileage, it makes the Miller doubly valuable to the farmer. Our workers are trained to build tire after tire, not merely some, to a single long-distance standard.

When thousands of farmers are using these championship tires why don't you, too, insist on having them? Have the protection and roadability of the **Geared-to-the-Road** Tread. Have mileage certainty ***in every tire,*** not luck in some and trouble in others.

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Miller
GEARED-TO-THE ROAD
UNIFORM MILEAGE
Tires

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

An Angler's Wish

'Tis not a proud desire of mine;
I ask for nothing superfine;
No heavy weight, no salmon great,
To break the record, or my line.

Only an idle little stream,
Whose amber waters softly gleam,
Where I may wade, through woodland shade,
And cast the fly, and loaf, and dream.

Only a trout or two, to dart
From foaming pools, and try my art;
No more I'm wishing—old-fashioned fishing,
And just a day on Nature's heart.
—Henry Van Dyke.

The Bees

There is a fanciful old tale of Stockton's called "The Bee Man of Orn," which tells of an old man who was so fond of bees that he lived in an enlarged hive and kept bees even in the pockets of his coats to furnish him with honey on his rambles. The strange part of the story is that he had a chance to begin life all over again and live twice on this earth instead of just once, and he chose not to become a Lord of a Great Domain, nor a wonderful scholar; but to live exactly as he had the first time, surrounded by his beloved bees in a poor little old hut with not much to eat but honey and bread.

Few of us would ever have selected such companions to begin with, nor would we have found enough of interest about them to fill two lifetimes. But there we seem to have been mistaken, for so carefully organized is the life of a hive that whole histories and sociologies have been written on the "Rise and Fall of the Aparian Empire."

The next time you see one of these insistent insects don't just bat him out of your way as something that might sting you and you want nothing more to do with him. But stop and consider that as the business man of the insect world, he is part of an organization so thorough and intricate that our own civilzation suffers in contrast.

He lives in a city as carefully planned as Washington, D. C., where beautiful and finely modeled dwellings are placed in as definite and regular order as though they meant to be an ideal route for city postmen to follow. The city is ruled over by an autocrat as capricious and full of royal whims as though a world war had never been staged, but who must nevertheless abide finally by the dictates of her people. She has a regular court, commissary department and retinue of retainers.

There are under the care of some of her people regularly established day nurseries, schools and community kitchens where careful dietaries are studied and fed to the boarders. There are manufacturing plants evidently watched over by efficiency experts who decree that all the gatherers of raw material shall come and go to and from the factories only along certain parts, with a "safety first" sign at the head of every one; and who have worked out a system of storage for the manufactured product which eliminates all duplication of shifting in the plant and renders spoilage well nigh impossible.

They have such a complete system of government that they know how to restrain virulent forms of pro-Prussianism in their rulers and exactly how to deal with the Bolshevik element whenever it arises.

If you don't believe all these things, don't dispute them until you have taken the opportunity to watch the bees coming back to their hives from perhaps a mile afield. They never become confused as to which hive is theirs. They also follow a certain route through the hive itself and deposit the pollen at certain spots and in certain ways. Different egg cells are fed different foods, some with "royal jelly" and some with ordinary "honey." Each worker follows his own definitely assigned task.

We can't take more space to tell of these things here, but if you are after more fascinating reading than any fairy tale, take Maeterlinck's "Bees" and read until you have to stop. The "Bee Man of Orn," by Frank R. Stockton, is another tale you will find interesting, though not so fascinating.—E. D.

The cost of getting common tea from the tea-plant to you is twice the tea-garden cost of the tea. Is it worth your while to pay this heavy cost and get poor weak tea-flavor and a lot of tannin?

Don't you see now why Schilling Tea costs less per cup than common tea? It costs no more to get it to you than common tea, and it has an abundance of fine tea-flavor.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

A Schilling & Co San Francisco

What Mary Wants

Dear Sarah:

Please ask Marvin if he often takes upon himself the remodeling of the universe and the remedying of such social evils as picnics. His remedy this time is a wonder and the acceptance of his invitation to a "man-made" picnic goes without saying. For once, at any rate, my spoutings have gotten me somewhere, even to the length of a different picnic, which my doubting soul had ever dreamed possible.

Before that outing comes off, however, Sarah, I am wondering if you can't come over and spend a day or two and go with me to the best of our little Chautauqua, coming off next week. Now, please don't plead too much to do, but wait until I tell you a story.

You know I heard of a woman the other day upon whose head there should be a crown of laurels for her ability to grasp at Opportunity and grab the lady's hands and waistbands without having to snatch at her back hair.

One lady in my story shall be May and the other Gertrude. May's husband came down to Gertrude's house and looked in upon her.

"Hey!" said he, "May wants you to come up and spend the day."

"Can't," says Gertrude, "I've got to wash and bake bread. Why didn't you bring May down?"

"She's washing and baking bread, too. But she's started and you haven't. Why can't you take your washing and bread up there?"

Gertrude knew there was an enjoyable and much-needed visit to be had. The car was waiting and there was a motor washer in May's kitchen. She didn't even hesitate. "All right," said she, "if I'm going to be gone all day I'll have to take the baby chicks, too. Back the car up to the door so we can load up!" They went, including both the baby chicks and the baby boy!

Now, that isn't a Tomlinson story; it's true. I know the women. And the moral is this: whatever there is that you just have to do, bring it along, even though it's the butter to mould. For the Chautauqua is good and, anyway, I need your moral support to help me think up a scheme to get our neighbor women more interested in this selfsame Chautauqua.

We need it even if the talent for our little one isn't just as wonderful as some of the big symphony concerts that the big circuits have. And I am perfectly aware that the housekeeping expert who appears the third afternoon may tell us that the way to ease our farm work in summer is to shut out some of the unused rooms in our big farmhouses, when she isn't even aware that we have to "double-deck" on our little western ranchos in order to have room enough.

That isn't the point. It's some place to go where for an hour or two we'll have to talk of something besides bean bugs, or Daisy's latest calf, or the best feed for the Duroc Jerseys, or how to make baby's rompers out of pa's shirts, or—oh, anything that every man, woman and child on every farm is always talking about anyway.

I'm not going to be uplifted—in fact, I don't want to be uplifted; but the days for the rest of the summer will be filled with better work if just for these two or three I can be carried away by the lilt of a song or laugh with the impersonator, or, listening fascinatedly to the lecturer who has reformed all the political problems of the republic, decide whether his front hair shouldn't be cut or not.

There isn't anyone who doesn't work better for a little of the outside world dropped upon him, even if it scandalizes him. So come over, Sarah. The community needs the Chautauqua, you need it and I need you. Love.—MARY.

Canning Compounds Injurious

Very considerable quantities of canning compounds are being used throughout the country. Prof. Inga M. K. Allison of the Colorado Agricultural College, declares these compounds are deleterious to health. She says:

"Housewives should know that when they take this means of insuring the keeping qualities of canned foods they are engaging in a doubtful practice and one that cannot be continuously and extensively carried on with impunity. Members of the family, and especially the children, who are dependent upon the intelligence and wisdom of the mother, have the right to food that is free from harmful effects: No housewife who uses so-called canning compound preserving powders can give to her household that assurance.

"Intelligence, cleanliness and care will enable the housewife to can successfully the fruits and vegetables at her command without the use of any chemicals such as those contained in the powders referred to.

"Foods spoil because of microbic action. Approved canning methods give one adequate means for the destruction of or the restraining of the growth of microbes. Chemical preservatives owe their preservative power to their poisonous effect upon bacterial protoplasm. It is fair to assume that the cells of the human body are as easily injured. It is fair too, to assume that the cumulative effect is bad. Evidence has not yet been established that these compounds can be continuously used, even so minute quantities as those named in the directions that come with canning compounds, without eventually undermining health."

Wisconsin had 65,418 silos on farms May 1, 1918, a gain of 13 per cent in one year, according to returns from assessors. In Ohio the number of silos reported by assessors for April 1, 1918, was 30,788, a gain of 44 per cent in one year.

The Story of a Delta County Holstein Herd

Continued from Page 3

thereby increasing its value twice and reducing its cost of production one-half. Thus with the same effort the net profit must be increased to at least double.

"The county agent is not a spirit going among the farmers and telling them how to do things, but an ordinary human being trying to help solve the farm problems in an organized way.

"Your county agent is a direct representative of your agricultural college and brings the aid of that institution and of the Department of Agriculture to the farmers. Through the farm bureau organization you are able to make the best use of these institutions together with the knowledge of the best farmers, gained through experience, with all of which the county agent should be familiar.

"The greatest problems of the farmer are production and distribution. By this I do not mean that a farmer must increase his production but he must so systematize and plan his production that there will not be a surplus or shortage of any one product. He must then standardize his products so as to increase the demand, thereby facilitating, to a great measure, the distribution of such products. Farm products, standardized as to quality, will always demand permanency. Naturally, the demand is increased, which tends to raise the market value.

"The farm bureau cannot correct all conditions in an instant. One thing should be accomplished at a time. While the farm bureau has in its plan the building up of and carrying on of all phases of agricultural development, yet each particular part of that plan must be worked out by those most interested in it.

"The wool pool is a splendid example of what can be accomplished through farm bureau organization. However, pooling of wool is only one phase of the farm bureau program of work and should be developed by those interested in wool production. The farm bureau sees the need of pooling in order that each producer of small quantities of wool may have the same advantage in marketing as the man who produces large quantities and sells in carload lots. From this need springs the Wool Growers' association, which is organized for the specific purpose of pooling wool, while it yet is a part of the farm bureau organization.

"Many other such organizations have their origin in the farm bureau and are a part of the farm bureau program of work, each having for its purpose the development of a specific part of the program, such as cowtesting, livestock, grazing, potato growers', beet growers' and seed growers' associations, etc.

"The farm bureau plan, based upon the county-wide program of work, naturally tries to keep a balance in the development of these aforesaid special phases of the program. Individuals within a community work upon their community program, developing each part of it and keeping a balance. The communities then in turn, within the county, work on a county-wide program, aiming to keep a balance throughout the county of the development of the different lines of agriculture.

"The farm bureau is yet in its infancy and needs the support of every farmer, for there is undoubtedly a great deal of good that can be derived from the developing of an organized program of work. Such a program will extend not only throughout the county but throughout the state, as the farm bureau is a national organization."

Cactus Jelly

From out in Kit Carson county Colorado, comes an interesting tale of a real use for our plains "prickly pear," and that is to make jelly.

Don't try it, however, unless you can discount Job and his patience, for the "prickly" part makes them very hard to work with. The process of manufacture is much the same as for any jelly, extracting the juice with a little water and then boiling it down with sugar, and the resultant product is of beautiful color, flavor and texture, as these "pears" have a great deal of the jelly-making pectin in them.

Miss Amelia Alexander at Flagler, Colorado, can give any of the readers who are interested in trying it a more detailed and exact description for preparing this jelly, as she is the one who wrote of making it.—E. D.

A Knock and a Boost

My dear Editor:

In your issue of May 1st you publish a letter to Mr. E. A. Sherman by Billy Hill. I wish you would circulate that letter for signatures and then hand it to Mr. Sherman. You bet I will sign it, strongly endorsing every word. The Forest Service is like a cow that gives a full bucket of rich milk and then kicks it all over.

Before the Forest Service took possession of this dictrict Pinal mountain was kept almost denuded of timber. The range was overstocked; stockmen were more or less at dagger's points. Now these conditions are vastly improved. BUT, the Forest Service gives plenty of evidence that it hates the settler with a pure heart, fervently. The bona fide settler is the best and most valuable citizen.—F. H. Chadwick, Globe, Ariz.

Suffolk Downs for Idaho

The Suffolk Sheep Society of England pays a distinct compliment to the animal husbandry department of the University of Idaho in its decision announced in this issue to present the institution with a representative group of Suffolk Down sheep. These will further strengthen the well known flocks of the university and make more valuable its collection of breeds for student judging, investigational and public exhibition purposes.

A letter just received from E. M. Prentice, secretary of the Suffolk Sheep Society announces the purpose of his society to send the flock to the university this summer. Secretary Prentice writes as follows:

"The presentation group of Suffolk Down sheep which should have reached the University of Idaho last season is to be shipped in July. The Suffolk experts who are very keen on sending a thoroughly typical group were unable to get what they wanted late in the season owing to the wide-spread demand for this breed and the large number of would-be flock owners snapping up every available ewe for foundation stock. The Suffolk Sheep Society has registered between forty and fifty new flocks, as a result of last season's sales, in no less than 19 counties widely scattered over the British Isles, making a total of over 100 new flocks in the last three years, and making a total number of members the largest on record. The demand for Suffolk Down sheep has been widespread, average prices high, and the breed's pre-eminence as a mutton producer indicated by high honors won in competition with other breeds at the London Smithfield show."—Idaho University News Letter.

Onamesa Duroc Sale

The third annual sale of Duroc Jersey hogs of Onamesa Farms, is scheduled for Saturday, August 2nd, at Delta, Colo., and it promises to bring a big crowd of buyers from all over the Western Slope. V. A. Phillips, owner of Onamesa Farms, was the pioneer in starting sales of swine breeding stock on the Western Slope, and his efforts have met with great success because of the quality of the offerings. He started with big type Durocs about six years ago and has had a remarkable record for large litters. Three sows sold at various times have produced 17 or more pigs each at a farrowing, and one sow farrowed two successive litters of 18 each.

At last year's sale all but three of the sows sold outside the county and the litter records of these show up big.

The Colonel's Reflection, One of the Onamesa Farms Brood Sows

Farmers who attend the coming sale will have opportunity to select breeding stock of either sex on which they cannot go wrong. The stuff is bred right and Mr. Phillips is an experienced hog man, with an established reputation.

THIS thirty-two page illustrated booklet is of vital interest to every farmer in the United States. It answers the questions you have been asking. It solves the problems you have been wrestling with. It gives you just the kind of information about tractors and tractor farming that you have been looking for. Sent free to any one. Mail the coupon today for your copy.

Why the Cletrac TANK-TYPE TRACTOR Best Meets Your Needs

The *Cletrac* is a "year round" tractor We believe that we can conclusively demonstrate to the average farmer that he can get *more* work out of the Cletrac *more* days in the year than out of any other tractor on the market. The Cletrac is invaluable in winter as well as in summer. It pays you dividends in the fall as well as in the spring. It is a "year round" machine. Send for the booklet shown above. It will open your eyes to the tremendous possibilities of tractor farming with a machine that serves you *twelve months in the year.*

The *Cletrac* has a wider range of use It is small enough to be used economically on light jobs, yet powerful enough to handle the majority of the so-called *heavy* work about the farm. It plows, harrows, plants, reaps, binds, threshes, hauls, cuts ensilage, fills silos, saws wood, and does practically all the work formerly done by animal and stationary power.

The *Cletrac* is built to stand hard usage It is rugged—*and powerful.* It is designed and built by practical men who know what a farm tractor must stand. It is economical in its use of kerosene and oil.

Don't wait! Get your *Cletrac* now Orders are coming in fast and we are filling them as rapidly as we can. In another month we will be behind again. If you want your Cletrac promptly *order it now—today!* Don't wait! Every day's delay means a later start in reaping the greater profits that are bound to come with year round Cletrac farming.

Send for this booklet "Selecting Your Tractor." It goes into *your* problems—*and solves them.* It doesn't do a lot of theorizing but gets right down to cold hard facts that are of real live interest to every progressive farmer. Fill out this coupon *now*—and mail it *today.*

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POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 8, La Junta, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

PARK'S BARRED ROCK EGGS, $1 to $2, 15; $6 to $7, 100; baby chicks 15c. Bourden Red pure bred turkey eggs, $5 for 12 prepaid. N. P. Jones, Speed, Kans.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

CORNISH

INVINCIBLE DARK CORNISH. OFFERING 50 high class utility y arling females at $3.00 each, 10 big heavy yearling cock birds at $4.00 each. Lots of 12 hens and cockbird for $35.00. All stock guaranteed to please or money back. Order direct from this ad. R. H. Jandebeur, Alma, Nebr.

SEVERAL VARIETIES

SEVERAL VARIETIES—BUFF LEGHORNS, R. I. Reds; best layers on earth. Buy cockerels now and save money. Champney, 25 So. Logan, Denver.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—BIG BONED STRONG HEIFER calves, Holstein or Guernsey. $35.00 delivered. Liberty bonds accepted. Herbert Taft, Whitewater, Wis.

FOR SALE—REGISTERED HOLSTEIN BULL, 2 years old, Jewelfield Rag Apple Karem No. 231483. Tel. Wiggins. Chas. McDermott, Hoyt, Colo.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $150 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis.

FOR SALE—PURE-BRED HOLSTEIN BULL, one year old. This sire is a son of Rag Apple Korndyke 8th, the greatest bull in the world. The dam, A. R. O. cow of fine breeding. Price $200.00. Mrs. Katie Le Fevre, Gunnison, Colo.

FOR SALE—PURE-BRED AYRSHIRE BULL calves, one to eight months, choice individuals. Sire—Cavalier's Rising Tide. G. A. Somerville, Limon, Colo.

HOGS

FOR SALE—A FEW BIG TYPE POLAND-China boar pigs. Weaned. Write or come and see them. W. J. Peterson, Seibert, Colo.

BIG TYPE POLAND-CHINA PIGS, APRIL AND May farrow, for sale at weaning time. Correspondence solicited. Gad Barney, Haswell, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND another registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo.

SHEEP

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamb, $35.00 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 398J.

FOR SALE—400 HEAD PURE BLOOD COTSwold breeding sheep, one to four years. Reason for selling, lady owner and poor health. Price $25 per head. An income of $8,500 per year can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 398J.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

640-ACRE HOMESTEADS—STOCK, GRAIN. Duff, Casper, Wyo.

WANTED—TO HEAR FROM OWNER GOOD farm for sale; state cash price, description. D. F. Bush, 26A, Minneapolis, Minn.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

WANT TO HEAR FROM OWNER OF FARM FOR sale. Mrs. W. Booth, H. P. Sta., Des Moines, Ia.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

79 ACRES INSIDE CITY LIMITS OF DENVER on car line, good water rights, all cultivated. 7-room brick house, several barns; on boulevard. Price $25,000, liberal terms. A. J. Simonson, 314 Cooper Bldg., Denver, Colo.

ATTENTION PATRONS OF HUSBANDRY: WE are members of the order and are doing a legitimate land business. We handle grain, stock and dairy ranches. Irrigated and dry. Also garden tracts, and Denver property. If you wish to buy or sell it will pay you to call or write. Johnke & Miller, 1410 Stout St., Denver, Colo.

400-ACRE EQUIPPED FARM. INCOME LAST year over $5,000. Nearly new 12-room house, baths, hot, cold water, gas-lighted, cement-floor main barn, big second barn, litter and feed carriers, garage, storehouses, all good. Smooth machine-worked fields wire-fenced pasture, much wood, timber, fruit. On main road, convenient town. Aged owner for quick sale includes 10 cows, long list farm implements, etc., at low price, $8,000, easy terms. Details this money-maker page 41 catalog bargains 19 states, copy free. Strout Farm Agency, 831B. A., N. Y. Life Bldg., Kansas City.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

MASON SOLD 18 SPRAYERS AND AUTOWASHers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

NEGRO SOLDIERS IN WAR. BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

HUNDREDS RAILWAY MAIL CLERKS WANTED immediately by U. S. Government. $1100-$1600 year. Vacation. Examinations everywhere Aug. 23rd. Common education sufficient. Sample questions free. Write immediately. Franklin Institute. Dept. H. 171 Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

INVENTIONS COMMERCIALIZED. CASH OR royalty. Adam Fisher Mfg. Co., 204, St. Louis, Mo.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

FOR YOUR SUNDAY READING. WRITE SILver Publishing Co., Dept. 9. Bessemer Bldg., Pittsburgh, Pa., for "Give God a Chance." McConkey's vital little devotional booklet. Sent absolutely free, postpaid.

KODAKS

KODAKS—FREE WITH FIRST ORDER AND names of five Kodak owners; a beautiful 5x7 enlargement from any film. Developing 10c, prints 3c up. Foto Art Co., Dept. D., Lincoln or Norfolk, Nebr.

GROCERIES & SUPPLIES

100 LS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1528 Nincteenth St., Denver., Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR Direct to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

FARM MACHINERY

FOR SALE—12-25 CASE TRACTOR AND plows complete. Cheap if taken at once. Chas. McDermott, Hoyt, Colo.

FOR SALE OR TRADE, 16-35 HART PARR tractor. Six disc plow; ten foot tandem disc. All in good condition. Price reasonable. John Prendergast, Carr, Colo.

FOR SALE OR TRADE FOR LAND OR LIVEstock. For quick sale a bargain. 110 H. P. Case steam engine, 40x62 Case separator, water tank, cook shack and two sets of plows, disc and moalboard. G. W. Hixson & Sons, Simla, Colo.

CASE THRESHING OUTFIT, COMPLETE; 25-75 H. P. Steam engine with fuel bunkers. 16 lbs. water wagon, 36-56 separator; Ruth feeder, 16 ft. extension feeder, all in good order. Albert Frey, Weldona, Colo.

CORN HARVESTER, ONE-MAN, ONE-HORSE, one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25 with fodder binder. Free catalogue showing pictures of harvester. Process Corn Harvester Co., Salina, Kan.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

Livestock Field Notes

Elsewhere in this issue is the advertisement of Hall Bros. Ranch, five and one-half miles southwest of Denver on the Morrison road. They are offering some fine Holstein cattle. Read their announcement.

Onamesa Farms at Cedaredge announces the Third Annual Sale of Duroc Jerseys to be held at Delta, Colo., on Saturday, August 2nd. This is a fine opportunity to secure some pure-bred hogs of the big-type Jersey variety. Read their announcement in this issue.

Mr. M. E. Penrose, proprietor of the Denver Holstein Herd, advertises elsewhere in this issue a number of choice bull calves and some females. His cows hold the California record. This is the home of the first Colorado bred cow to beat 30 pounds.

Canary Repeater Herefords

Sired by

Repeater 63rd

FOR SALE—A carload of 1-year-old Bulls and a car of 1-year-old heifers.

Also a Few 2-Year-Old Bulls

J. D. Canary Denver, Colo.

720 Majestic Building

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

FRANK P. HEALY

Breeder of Shorthorns

Forty years in Iowa, now has for sale a Yearling Scotch Bull and some heifers. Write, or come and see them.

Fort Collins, Colo.

YOUNG HOLSTEIN BULLS

Two extra good bulls coming two years old; and bull calves under one year old; all nicely marked; good type—King Segis, De Kol, Ormsby, and Pontiac breeding.

For further information and prices write,

W. A. PURVIS, Johnstown, Colo.

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.

Elbert, Colorado

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted

Col. G. M. Banks

LIVE STOCK AUCTIONEER

Residence

709 East 11th Avenue

Phone York 7625 DENVER, COLO.

Col. H. E. BUCHANAN

Live Stock Auctioneer

1904 Logan

DENVER, COLORADO

Pure bred Sales a Specialty

For Sale Dates at My Expense

PHONE CHAMPA 5655

Anywhere in the United States My Territory

WYNNEWOOD RANCH

BIG TYPE POLAND CHINA HOGS

Junior Champion Gilt, Denver Stock Show, 1919, exhibited by Wynnewood Ranch

FOR SALE—Two young boars, sired by the Sensational BIG BOB WONDER No. 252967, dam Master Queen 2nd No. 696650, weight 600 pounds.

These boar pigs are out of a litter of ten, their color and marking are perfect. They are six months old and weigh 200 pounds, not fat. They are of the best Poland China blood lines.

Also have weanling pigs of both sexes, same breeding as above.

L. G. DAVIS, Owner

Address C. E. GORDON, Manager, Overland, Colo.

Registered Hereford Bulls

Very Attractive Prices

Some good Registered Hereford Bulls of our own raising, and ready for immediate service.

Any Number From One to a Carload

Write your wants, or come and see them. Everything we sell is fully guaranteed.

JOHN E. PAINTER & SONS

Roggen, Colo.

Registered Hereford Cattle

Prince Domino—499611 Sire of the Champion Futurity Bull and Heifer

BEAU ASTER

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER

Holyoke, Colo.

Glendale Stock Farm

Irvindale Rowdy Grand Champion Belgian Stallion, Chicago, 1917 Denver, 1918 and 1919

Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.

DENVER, COLO.

2055 Humboldt St. Phone Main 5713

ONAMESA FARMS Third Annual Sale of DUROC JERSEYS

AT DELTA, COLO., AUGUST 2, SATURDAY

ONAMESA'S KING DEFENDER, 105671

FIRST PRIZE JUNIOR YEARLING 1917

Here's Big Type for You:

Backed by Generations of Big Type

THE ONLY BIG TYPE TO TIE TO

This Boar's mother was from the same litter as Defender Major, Defender Maximus, Bonnie Defendress. His Ancestry includes within three generations, such Boars as, Jack's Friend, Defender, Disturber, Instructor, King of Colonels, Rajah, and such Sows as Bonnie M, Orion's Lady A of Idlewild, Helen Blazes VIII, Lena J.

Our herd sows carry the blood of Defender, Chief Defender, King the Colonel, Cherry Chief—Big Type all Through.

40—BRED SOWS AND GILTS—40

(Given double treatment for Cholera January 11th)

THE BIG, STRETCHY HIGH-BACKED KIND

The daughters of Onamesa's King Defender will be bred to a grandson of Orion Cherry King, Jr., and King's Colonel. Balance bred to Onamesa's King Defender.

Write now for our illustrated catalog, and plan to be with us Sale Day. This ad will not appear again.

ONAMESA FARMS, Cedaredge, Colo.

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 5½ miles southwest of Denver on the Morrison Road.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

REGISTERED DUROCS

Lakeside Herd

We are offering tried sows and gilts of SENSATION, KINGS COL., DEFENDER, ORION CHERRY KING, and GOLDEN MODEL breeding, bred to farrow in August and September, to our Big Type Boars, DIAMOND ORION and DIAMOND MODEL SUPREME.

All Hogs Immuned. Write Us Your Wants

DR. F. T. DALY, Cambridge, Neb.

The Greatest Purebred Livestock Center in the West

Milking Shorthorns

THE OTIS HERD

To Dairymen:
Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

DRAFT HORSES AND BEEF CATTLE

I can show the buyer 288 imported and American Bred Percheron and Belgian draft stallions and mares. Will weigh at maturity and in fat condition 1600 to 2350 pounds. Prices, $450.00 and up. Also 396 young beef cattle consisting of Durham, Polled-Angus, Galloway and Hereford calves, yearlings, two-year-olds, cows and bulls. Prices $85.00 and up. Pedigrees with each one, also guarantees. Write to R. I. LITTLE, 55 years with Livestock, Good Block, Des Moines, Iowa.

Build a silo this summer.

OUR PRICE INCLUDES SAFE DELIVERY AT YOUR EXPRESS STATION

20 lb. DAM

33 lb. SIRE

Pahgre Valley Ranch

MONTROSE, COLORADO

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE BRED AND REGISTERED

Hereford BULLS and HEIFERS

1 car 2-year-old bulls.

130 head yearling registered and pure bred bulls.

Several cars yearling heifers, 2-year-old heifers and cows.

Good Bone, Colors and Markings

Write or phone us for prices

715 E. and C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

FOR SALE

DUROC-JERSEY AND POLAND-CHINA BOAR PIGS

Practically all farrowed in March. No sow pigs for sale, as the Boys' and Girls' Pig Clubs took all we had to spare.

THREE HOLSTEIN BULL CALVES

One of these is out of a 26-pound cow, is 17 months old, and was third in his class at Denver.

A GOOD SHORTHORN BULL

By Scotch Mine, 2 years old in July. Red color.

ANIMAL HUSBANDRY DEPARTMENT

COLORADO AGRICULTURAL COLLEGE, FORT COLLINS, COLO.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name, "Majesty" in a Jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty and is related to many in my herd, and to my herd bull, "Majesty's Feather Lad." My herd numbers 40 head now, and I can sell you one, or a car load.

I have some very promising young cows and heifers. Some fine bull calves, nothing older than September in bulls.

In Durocs am sold down to November pigs. They are sired by a son of Top Sensation.

Have just gotten two extra fine gilts from the East, to farrow in March, and we are expecting something fine. Write me your wants.

A. M. McCLENAHAN, Greeley, Colo.

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

We Will Hold a Bred Sow Sale, August 6th, 1919

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

GEO. R. GILMORE, Ft. Morgan, Colo.

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

SQUARE TURN

NO CLUTCH TO SLIP NO GEARS TO STRIP

Note these Four Great Improvements Not Found in Any Other Farm Tractor

Note Pulley for Belt Work—35 H.P.

Drives Like Your Team

"The Levers are the Lines"

Two handy driving levers (one for each hand) are all you use to stop, start, turn or back the Square-Turn Tractor. It's just as easy as handling the reins of your team and much quicker. You have no foot work to do—no clutch to throw in or out—no steering wheel to spin—just shift the two levers and the tractor itself *does everything by power.* No other tractor is so completely power controlled. No other tractor will turn so short and quickly.

"The Levers are the Lines"

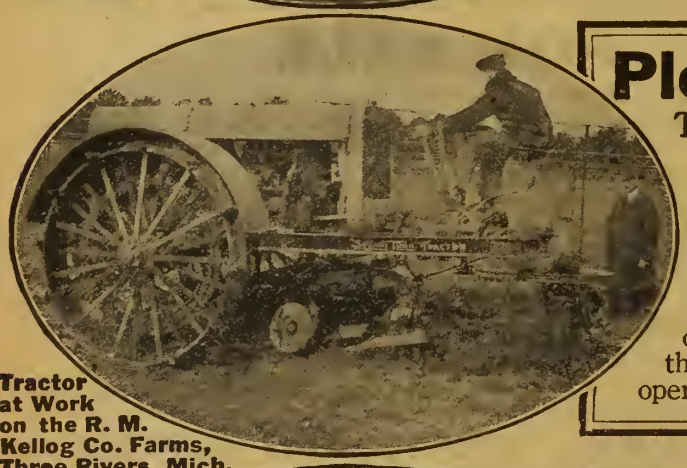
Pulls Three 14-In. Plows

Plows are Underslung

Easy for One Man to Watch and Operate

Your work is always in plain sight. No twisting of the neck to watch the plows—no need for the help of an extra man—no getting off to clear trash from your plows nor to make adjustments. The adjusting levers for your plows are right at your side and you can instantly stop, lift your plows by power, back to clear trash, set plows any depth you wish and go ahead — all without leaving the driver's seat.

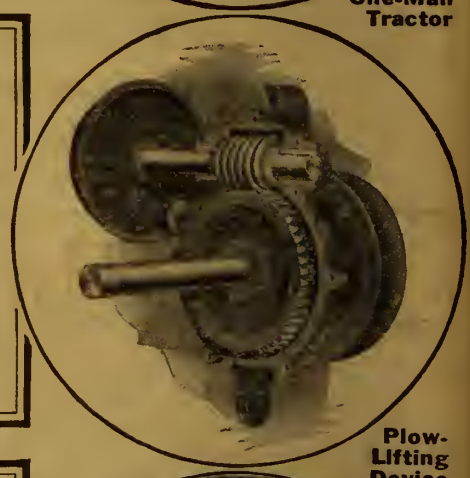
A Real One-Man Tractor



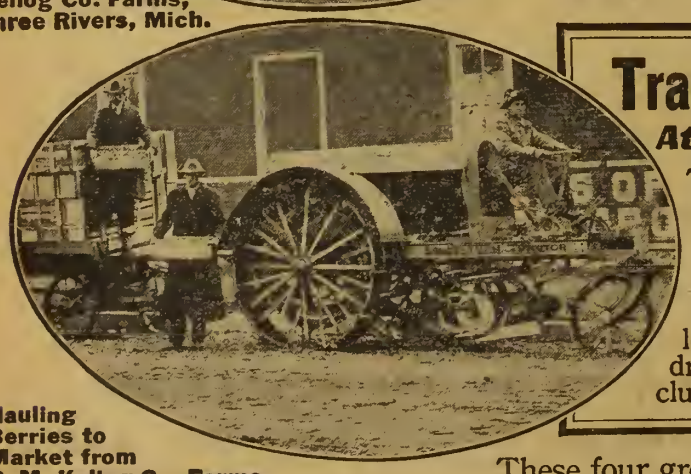
Tractor at Work on the R. M. Kellog Co. Farms, Three Rivers, Mich.

Plows Lifted by Power

Touch one convenient foot pedal and your engine automatically lifts your plows out of the ground. Touch another pedal and they are instantly lowered. The tractor does *all* the work with the smallest amount of effort and attention on the part of the operator. When help is scarce, even a boy or girl can do a man's work successfully with the Square-Turn Tractor. It is so easy to operate and always under such perfect control.



Plow-Lifting Device



Hauling Berries to Market from R. M. Kellog Co. Farms

Travels In Either Direction

At the Same Speed and Power

The Square Turn Tractor operates equally well in either direction. All you need to do is to swing the driver's seat around, to face the direction you want to go and you drive with the same two handy levers and in the same manner as you would drive a team. You have no gears to shift—no clutch to throw in or out—no foot work to do.

A Two-Way Tractor

These four great advantages are not found in any other tractor because no other tractor can use the patented "Giant Grip Drive."

Our free catalog tells all about this remarkable invention—shows how it does away with transmission gears, differential gears and clutch; how it reduces all possible tractor troubles more than half; how it does away with costly repairs and enables you to do things and go places where you can not go with any other Tractor. *Write for Free Catalog today.*

SQUARE TURN TRACTOR CO. Dept. 13 Norfolk, Nebraska

AUG 14 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, August 1, 1919 Semi-Monthly

VIEWS ON THE EL PASO COUNTY LIVESTOCK TOUR

1. Purebred Shorthorns on Allen Cattle Company's Ranch 2. Cathedral Rooks Ranch, Owned by Gov. Shoup 3. Purebred Herefords on the Bar X Ranch of E. C. Immer

Has the Farmer any Opinions of his Own

AFTER listening to the arguments with which some tractor salesmen try to convince him, you might suppose that the farmer never did any thinking for himself.

You will hear them telling him how many wheels his tractor ought to have, or what it ought to look like, or some other inconsequential detail—appealing to his eye instead of his intelligence.

Now, the farmer is a practical man.

He is looking for facts—not theories or impressions.

He is looking for a tractor that will do his work, and do it economically, and last a long time.

And the more critical he is, the more determined to get at the facts, the quicker he comes to the G O Tractor.

For eight years the G O Tractor has been the standard among practical farmers all over the country. Because of its advanced driving mechanism, it is the easiest tractor on the market to control and the most economical to operate. It has six speeds forward and six reverse—a right plowing speed in any sort of soil; a right speed at the belt for any kind of machine. It is the most powerful tractor in America for its weight.

Years are added to its life by the dust-proof casings on its gears. It was the first tractor to enclose its gears in an oil bath. It has no gears or chains on the traction wheel to be cut by sand and gravel.

The G O Tractor is the four-wheel, four-cylinder type—the simplest and most practical type of all. Every part of the motor and driving mechanism is instantly accessible. Adjustments can be made by anyone right on the ground, without the aid of special tools.

The farmer with a practical mind, who is looking for indisputable facts, and good sound horse-sense—not "talking points"—we shall be glad to send some further information about the most advanced tractor in America and about the company behind it—its guarantee and the service that goes with it.

The General Ordnance Company
Tractor Division
Western Sales Office and Factory:
CEDAR RAPIDS, IA.
Executive and Eastern Sales Office:
TWO WEST 43rd STREET, NEW YORK
Eastern Factory:
DERBY, CONNECTICUT

Published Semi-Monthly by The Farm Life Publishing Co., Denver, Colo. 14th and Arapahoe Sts.

Entered at the Denver Postoffice as Second Class Matter

WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, AUGUST 1, 1919 | Number 15

The El Paso County Purebred Livestock Tour

FARMERS AND BUSINESS MEN MIX FOR A PROFITABLE DAY

ALVIN T. STEINEL

ONCE each year the people of Colorado Springs have their attention directed to the fact that the prosperity of the world-famous Pikes Peak region is not due alone to summer tourist trade, but that it is the agricultural wealth of El Paso county which brings an uninterrupted stream of wealth throughout the four seasons. The occasion for demonstrating this fact is the annual farm tour participated in by farmers and business men, who spend a day in motoring over a fixed route, inspecting farms and ranches, enjoying a dinner in the woods and listening to brief addresses on agricultural topics.

The 1919 tour, which bad livestock in view as its specialty, was run July 11, under the auspices of the El Paso county farm bureau and the agricultural committee of the Colorado Springs Chamber of Commerce. There were nearly sixty automobiles in line, the route followed being northward from Colorado Springs through the foothills country, with a stop for lunch in the Black forest and winding up in the Table Rock country.

County Agricultural Agent W. H. Lauck, was in charge and among the participants was Gov. Oliver H. Shoup, who is a ranch owner and very much interested in agricultural development.

The agricultural college was represented by Dr. George H. Glover, head of the veterinary department, and Prof. Charles I. Bray, of the animal husbandry department. County Agent H. L. Ford of Elbert county, made a return visit, as Mr. Lauck had visited with him during the Elbert county Shorthorn tour recently. Visitors from out of the state were J. B Hisey, county agricultural agent of Texas county, Oklahoma, and F. S. Hurd, president of the First National bank of Broken Arrow, Oklahoma. Miss Mary Collopy, county home demonstration agent for El Paso county, was "on the job" as usual for the farm women.

The schedule included stops at the Holland dairy farm, Pine Valley ranch, Cathedral Rocks ranch, the Allen Cattle company ranch and the Immer ranch. At the latter place a demonstration was given in the use of a serum which is said to be preventive of contagious abortion. The claim made for this serum is not yet recognized by the veterinary authorities of the state.

On the Holland farm the visitors had opportunity to inspect model dairy barns of concrete construction and to see a herd of about 125 purebred Holstein cattle. The milk is supplied to the high-class custom of Colorado Springs.

To many of the farmers the second stop—that at the Pine Valley farm—proved the most interesting, because it is the home of a famous herd of milking Shorthorns. Manager S. G. Rose piloted the party through the barns. Ten of the cows in this herd are on official year's test at present, with the indications that some remarkable records will be established. Victoria, one of the cows bred on the farm, has already produced over 9,000 pounds of milk in five months, during which the test has been running; Pine Valley Lady, in her fifth month, has gone over 6,000 pounds. Ury of Pine Valley, Pine Valley Myrtle 3d, Pine Valley Rose, Blue Belle, Overbrook Myrtle, Lady Colorado and Pine Valley Rose are others on test that show indications of high milking records.

Duke of Glenrose is the principal herd sire, and one of the famous bulls of the breed. There are 112 registered Milking Shorthorns on the farm, this being by far the largest dual purpose herd in the West.

Scientific handling is given these fine cattle, and they live in surroundings ideal for the development of a milk and beef type—a foothills pasture country with good grazing and plenty of cool, pure water. The barns are built of native stone, set in concrete, and are equipped with every modern convenience, including electric lights, milking machines, litter carriers and other devices that simplify feeding and care of the cows. The home of Manager Rose and the houses for the workmen are in keeping with the general architectural scheme, which provides a harmonious group of buildings, surrounded by well kept lawns, and flanked on three sides by native pine groves and on the west by a rampart of steep wooded mountains.

Over the hills a few miles away the auto party reached Cathedral Rocks ranch, the country home of the governor, which nestles in a beautiful valley. Here the visitors inspected a herd of purebred Galloway cattle and some fine Belgian draft horses. Governor Shoup declared that this ranch was a comparatively new enterprise and that he was just beginning his development plans on the property, which has great possibilities as a beef cattle breeding proposition.

The Allen Cattle company's ranch was next visited. This is the home of the famous Divide Herd, its owner, Benjamin C. Allen, being one of the best known Shorthorn breeders in the west and a director of the American Shorthorn Breeders' association. Some of the fine young bulls were found in the stalls, but the cows were out under the pines, where the grass was found to be knee high. Pasture conditions were excellent on all the ranches visited, but especially so on the Allen ranch, where closely wooded groves alternate with open, sunny stretches of grass.

Lunch was spread under the trees and then followed the speech-making. W. H. Paul, president of the El Paso County Farm Bureau, presided, first introducing Governor Shoup, who made a brief talk. The governor spoke of the great progress which the county had made agriculturally in the last seven or eight years and declared that it was due to the efficient work of County Agent Lauck and the farmers co-operating with him.

Prof. Charles I. Bray followed with a talk on the necessity for more purebred sires in livestock improvement, complimenting the farmers on the character of the stock that was everywhere evident, but urging a wider use of purebreds in bringing herds to the standard demanded under present high cost of production.

Dr. Glover was then called on. He said he had lived in Colorado forty-six years and had seen a wonderful transformation in agriculture and livestock during that period. When he came there wasn't a silo anywhere between Denver and Fort Worth; grain raising was the chief business of the farmers and periodically they were forced to move out by drouth. Now, he said, all this had been changed by the development of scientific dry land farming and livestock raising. This development had not lessened the losses from animal diseases and poison plants, but rather had caused an increase because of the great expansion of the industry. He declared, however, that discovery of serums had taken the sting out of blackleg and hog cholera and that more was being learned every year through scientific research regarding the control of diseases among farm animals. The most serious menace at present is the whorled milkweed which, he said, had caused a loss in one year of something like $275,000 worth of sheep in two southwestern Colorado counties. But here, too, there was another side to the story, the efficient work of county agents having resulted in charting the areas of milkweed infestation, and the consequent avoidance of these areas in grazing, thus cutting the loss to a minimum.

At present the college is working on oak poisoning, which he declared, to be due to the presence in the oak leaves of tannic and gallic acids. He also touch upon the efforts that are being made to control contagious abortion and closed with the statement that prevention is the chief thing in all lines; keep the cattle in good condition by proper feeding and care and the development of many diseases will be prevented.

The last place on the schedule was the Immer ranch, located in the Table Rock district. This property comprises 3,770 acres and includes two sets of improvements, the east end being the old Bar X. After a brief stop for inspection at the E. C. Immer residence, which is located at the west end of the property, the visitors were piloted through the pasture, a distance of four miles to the east end, where the demonstration in the application of the anti-abortion serum took place.

Mr. Immer is a breeder of registered Herefords and has a fine herd, as is indicated by one of the illustrations appearing on the cover of this issue. The ranch is fenced and cross fenced, with fifty miles of barbed wire and eight miles of five-foot woven wire. Dwellings are supplied with every modern convenience and the water for domestic uses and for the cattle comes from living springs which flow by gravity into tanks, and are led off into ponds stocked with mountain trout, The fortunate dwellers on this ideal ranch may, on any morning, walk a hundred yards from the ranch house and, with a dip net, catch a mess of trout for breakfast.

Some 700 acres are under cultivation, bringing good crops of oats, rye, barley, potatoes and corn. There are a thousand acres in timber and great stretches of open pasture land, all of it arable, but now used only for grazing, and covered with a splendid growth of timothy, bluegrass and white clover. The native mountain bluegrass shows up wherever the timber is removed, and as there is not a pasture on the ranch without running water and living springs, the grass grows luxuriantly. Like all the surrounding country, locally known as "the Divide," this is a perfect paradise for cattle.

Some sections of the state have suffered from drouth this season, but up on the Divide there are showers two or three times a week; crops are flourishing and grass is literally knee high. If ever there was a cattle country it is the district over which the El Paso county livestock tour took its course.

Upper View—Dairy Barn on Pine Valley Ranch
Lower View—Professor Bray Talking to Farmers on El Paso County Livestock Tour

Government Review of the Beef Situation

DEPARTMENT OF AGRICULTURE IS URGING FEDERAL CONTROL

The article which follows comes officially from the United States department of agriculture, having been sent out over the signature of Clarence Ousley, assistant secretary of agriculture, to the farm press. It is well worth careful study by every farmer and ranchman as it deals with the problem of beef prices, directing attention to the efforts now being made by congress to enact regulatory legislation, the object of which is, according to Mr. Ousley, "in order that both producer and consumer may have a square deal."

CLARENCE OUSLEY, Assistant Secretary of Agriculture

THE beef industry in the United States faces a most serious crisis. For a decade before the outbreak of war in Europe farmers and ranchmen had been urged to increase beef cattle production because the industry was not keeping pace with the growth of population. The lowest ebb in production was reached in the fiscal year ended June 30, 1914, when we practically ceased to have fresh dressed beef for export, but began to import it from the southern hemisphere. The campaign for increased production began to bear fruit with the outbreak of the war and beef again gained volume in our exports. Prices rose and farmers were encouraged to expand their beef-making operations. With the entrance of the United States into the war a vigorous and successful effort was made to increase the supply of meat for our army, especially beef, by civilian self-denial. Hotels and restaurants, at the request of the government, reduced the size of their beef portions and regularly left beef off their menus. Private families by thousands did likewise. Farmers and ranchmen exerted themselves to the utmost at great risk in order that our soldiers and sailors could have the best food that skill and loving care could produce. The result is history. From an export of beef and beef products of 151,000,000 pounds in 1914, we exported 590,000,000 pounds of beef and beef products in 1918—almost equalling the great surplus of 1901, when our population was 35,000,000 people less than now. The exports of 1918 were treble the three-year pre-war average.

The war is over. In a little while the presence of American soldiers in Europe will be a memory of noble sacrifices. We must not forget that the principal use for the beef which we shipped overseas in such quantity was for the men in uniform. Europe, short of food though it is, does not need beef from the United States so much as it needs our pork. The stocks of cattle in the most of Europe have not suffered seriously in numbers during the war. Indeed, outside the areas actually overrun by the contending armies, cattle stocks have fairly held their own and in some cases even increased. Stocks of hogs and sheep have suffered much more severely than have cattle. It is also well known that Europe turned to South America and Australia for beef and lamb as soon as shipping conditions permitted. England and Italy are now buying in those markets. The United States, however, is the only large pork surplus nation, and Europe, suffering for fats with her stocks of swine reduced, can consume our pork surplus readily. The beef and lamb now awaiting market on our farms and ranges must, therefore, find its outlet not overseas but at home.

In 1918, for the first time in many years, the production of meat animals gained ground in the losing race with growth of population. This was made possible by the earnest and patriotic efforts of our livestock producers, and unless beef and lamb consumption is now increased to its potential maximum, without needless waste, we are in danger of throwing away the advance we have made under war pressure.

It is important to present the facts concerning the prices for livestock and the prices for meat wholesale and retail. The following comparison exhibits the decline in the prices of cattle on foot:

Prices of Medium and Good Beef Steers on Foot at Chicago

(Cents per pound)

March 1, 1919	$13.50–$18.50
July 1, 1919	12.00– 14.60
Decline	$ 1.50–$ 3.90
Mean per cent decline	14%

Prices on Choice and Prime Beef Steers on Foot at Chicago

March 1, 1919	$18.50–$20.25
July 1, 1919	14.35– 15.50
Decline	$ 4.15–$ 4.75
Mean per cent decline	23%

The alleged reason for this situation is the stoppage of export for army use aboard and the failure of civilian beef consumption to resume its normal status. The hotel and high-class family trade are not consuming the quantities of choice beef which they used before the war, and the families of moderate income are eating only cheaper cuts, the price of which must compensate in part for that of the cuts for which there is a smaller demand. The fact is evident that many persons who desire to eat more meat, especially beef and lamb, are denying themselves.

People do not realize that the necessity of conservation of foods, especially meat, no longer exists, except as a matter of reasonable economy and prevention of sinful waste. We have in prospect the greatest wheat crop in our history; we had in 1918 by far the largest production of pork we ever had, as well as a great increase in our beef, lamb and dairy production. Yet one sees everywhere in hotels, restaurants, and dining cars the "Save Food" signs, which were such a vital influence in the successful prosecution of the food campaign and incidentally, the winning of the war. These "Save Food" signs should now be disregarded. Consumers are unconsciously working harm to themselves and to livestock producers by now restricting their consumption of meat.

This situation is a real menace to the farmer and to the consuming public as well. Many cattle raised in response to the demand for meat production for the army are now maturing and if marketed on a falling market will cause heavy loss to the producers, with the result that declining production may be expected in the future. Stockmen do not deserve to be penalized for their patriotism, but should be supported by the consuming public in an effort to restore consumption to the normal without delay.

The department is aware that much of the reason for the hesitation of the average housewife to increase the amount of beef in the family diet is the excessive retail prices which now prevail. These prices are not justified by the wholesale quotations.

Then follows a comparative statement by which it is shown that retail prices have not declined in due ratio to wholesale prices of beef and also that prices on hides have advanced very sharply, the statement being made that "this is a fair indication of the profits made by the packing industry on by-products." Space limitations do not permit the publication of the comparative tables, but the showing is made of declines in wholesale beef prices varying in different eastern markets from 15 to 29 per cent, with declines in retail prices varying from nothing to 25 per cent, and in many instances showing actual increases on July 1 over March 1 prices. The percentage advance in hides as of July 1 compared with March 1, Chicago basis, is 50 per cent on native steer hides; 60 per cent on native cow; 80 per cent on native cow buffs, and 57 per cent on country hides. Commenting further the statement goes on as follows:

The daily market reports of the bureau of markets show that prices of good and choice beef cattle on foot at Chicago have declined about $4 per hundredweight or nearly 25 per cent since March 1, while lower grade beef cattle have declined as much as 15 per cent. During the same period, wholesale dressed beef prices show on the average approximately a corresponding percentage of decrease, which varies however, in different cities from 15 to 30 per cent. Hides, however, have advanced decidedly while the cattle market has been breaking rapidly. The packer hide market at Chicago has gone from about 27 cents to 42 cents per pound, an increase of about 50 per cent. It is estimated that this offsets about 70 cents per hundredweight in the wholesale cost of beef and that increased prices of stearin, tallow and other by-products added to the increased prices of hides brings the total saving on beef costs up to about a cent a pound since March 1.

While the live cattle and wholesale dressed beef markets have gone down to the extent of 25 per cent the price of retail beef cuts to the consumer has been at a standstill in many cities, has even increased as much as 20 per cent on some cuts in some cities, and where retail prices have been reduced, the reductions usually are only from 5 to 7 cents per pound which means only about 10 per cent reduction from prices prevailing March 1.

The department has not the time in this emergency to do more than to present these outstanding facts, but thus presented, the facts demonstrate clearly the commanding need for governmental supervision over the manufacture, sale and distribution of meat products. Federal supervision of the interstate industry may well be accompanied by state and municipal legislation providing supervision over the intrastate and local industry, to the end that federal, state and municipal supervision may be correlated for the prevention of unfair dealings, speculation and profiteering by furnishing to the public from unimpeachable sources all the facts with regard to the industry from the farm to the table, in order that both producer and consumer may have a square deal.

A good and a poor plant of sweet clover, showing effects of inoculation. Note nitrogen nodules on the roots of the larger plant

Bacteria and Legumes

I have been studying a good deal of late about this bacteria proposition on the legumes. Last year I had in some soy beans and while they did fairly well as far as pods went, they had a sickly yellow look all summer. My sweet clover that I planted last year is the same way. It has a pale yellowish green look and is not growing well.

I have had several men out on the place looking at the sweet clover; one of them was a man that had made sweet clover his hobby, and he said: "Fred, your ground is too hard, what you want to do is to take a spring-tooth harrow and tear it up in good shape." That did not look right to me, because once in a while there would be a nice, healthy looking plant among the sickly ones. The next man that came along was a bacteria specialist and of course he said the seed should have been inoculated before planting. That sounded reasonable, and I am trying that out this year. I am going to plant some that is inoculated and some that isn't, and then I can have a check on it. But that didn't explain the good plants.

One day the county agent came along and we got to talking about dry farming and what to grow, and naturally we drifted to legumes, because that seems to be the only way we can keep up our soil. I asked him what he thought about inoculation. He said he had thought a good deal about it, and from what he could find out he thought that it would pay a man to do it. Then I told him about the sweet clover, and like all county agents he wanted to get out in it and look around. I told him what the other men had said about the ground being hard, etc. As we walked over the ground and came to the big plant, he said, "Fred, it isn't hard ground, it must be something else. Let's dig up some of these plants and see what we can find out. I'll bet the good plants have bacteria nodules on the roots and the others haven't." So we dug up several of the good plants and several of the poor ones, and sure enough the poor plants did not have a sign of any bacteria, while the others had several nodules. This solved the sweet clover problem for me. The seed from which the good plants came had by some hook or crook been inoculated, probably they had gotten some dirt on them in the field. Well, next year I can tell if this is the case or not, as I will have a field that will show up the results.

The accompanying picture shows two of the good plants and two of the poor plants dug within a foot of each other. You can see the nodules on the roots of the good plants and the absence of the nodules on the others. These plants were dug the middle of May and were planted last spring.—F. W. H., Bennett, Colo.

Our Greatest Resource

The boys and girls of the nation are the best natural resources we have. If those who are constantly talking about developing the natural resources of the nation will turn about and develope the boys and girls they will not need to worry much about the development of the material resources. You could not then stop them from developing the material resources.—D. F. Houston.

"This is the foist time inny of these corporations hev done innything to binnifit the workingman."

"How is that, Pat?"

"It is this sivin-cent fare. I hev bin walkin' to and from me work and savin' tin cints, and now I kin save fourteen cints."—Boston Transcript.

Colorado Ships 2,500 Cars of Cabbage Each Season

STATE NOW RANKS THIRD IN PRODUCTION OF THAT VEGETABLE

CABBAGE has become such an important factor in the prosperity of the truck growing sections of Colorado that the crop has been made the subject of a special bulletin by the United States Bureau of Markets. This bulletin, which will be ready for distribution among growers in the near future, calls attention to the fact that Colorado is now third among the cabbage shipping states of the union, New York and Wisconsin, in the order named, preceding her. The annual movement is between 2,000 and 2,500 cars. Production districts are Denver, Brighton, Greeley and Pueblo. It is pointed out that while New York leads in cabbage production and Virginia is another large shipper, those states are not in competition with Colorado, our competition coming principally from Iowa, Wisconsin and Minnesota. Because of the fact that crop conditions and movement in those states have a bearing on the distribution of Colorado cabbage, the bulletin goes extensively into facts and figures of a comparative nature, including freight rates, prices and car movement.

Denver ships largely to the southern markets, demanding a small to medium sized head. This necessitates cutting the cabbage before it is fully matured and while this reduces the tonage per acre in the Denver district, as compared with the tonnage in the other Colorado producing sections, the Denver growers usually get about $2 per ton more for their product. Much cabbage is shipped out in mixed cars of vegetables and the shipping season usually lasts from early in July to the middle of September.

Authorship of the bulletin is credited to H. E. Munger, assistant in market surveys; Minnie D. Davis, assistant in market surveys, and Stuart L. Sweet, field agent in marketing. It is worthy of careful study by all truck growers, as the marketing problem is the most serious that they have had to contend with, our growing conditions being ideal for cabbage. Copies are to be had free on application to the Office of Markets, Custom House, Denver, or the Extension Department, Colorado Agricultural College, Fort Collins. Following are extracts from the bulletin:

Loading Cabbage at Brighton, Colorado

Colorado cabbage is in competition on the principal consuming markets, first with Iowa cabbage and later with shipments from Minnesota and Wisconsin. In order to maintain this market for over 2,000 cars of Colorado cabbage and approximately 1,100 cars of mixed vegetables, which are shipped annually, and in which cabbage comprises a large part of the load, Colorado producers and shippers will do well to co-operate fully and deliver consistently throughout each season a superior quality and a carefully graded and packed article.

The old adage "a satisfied customer is the best advertisement," may well be changed to "a satisfied consumer is the best market." The quality of product shipped should constantly keep the trade and consumers on our markets satisfied with Colorado cabbage. It is possible to build up a reputation for Colorado cabbage, so that Colorado cannot only compete successfully with other states, but can actually command a premium over the cabbage shipped by competing states.

One of the biggest opportunities before Colorado growers and shippers is the development of nearby markets. Such a plan offers a saving in freight charges and it will tend to secure a greater consumption of Colorado cabbage in markets in which there is now comparatively little competition.

The plan, in brief, is the development of the markets in the smaller towns of the states of Kansas, Nebraska and Oklahoma. Take Kansas for example. There are thirty-three towns in this state with a population between 3,000 to 5,000 people and ninety-nine towns with a population ranging from 1,000 to 3,000 and over, 400 towns ranging with a population of 200 to 1,000. Nearly all of these are potential outlets for Colorado cabbage. In studying the statistical data presented in this bulletin, it will be noted that there are one-hundred and thirty-three towns in Kansas to which carlot shipments of cabbage were made during the 1918 season. This number can be and should be increased. The same possibilities await an energetic marketing campaign in Kansas, Nebraska and Oklahoma. Statistics show that there are approximately four million people in these three states. * * *

During the 1918 shipping season the following grades were used by the Colorado Cabbage Shippers' association, a subsidary organization of the Colorado Potato Shippers' association.

Grade No. 1.—This grade shall consist of sound, partially trimmed and reasonably hard heads, weighing not less than one and one-half pounds, nor more than ten pounds each; which are free from cracked or overripe heads, stem rot and other diseases, and practically free from dirt, worm holes and lice.

In order to allow for variations incident to comercial grading and handling, five per centum, by weight, or any lot may be over or under prescribed size, and in addition, three per centum, by weight, of any such lot may be below the remaining requirements of this grade.

Grade No. 2.—This grade shall consist of sound cabbage not meeting the requirements of Grade No. 1.

Terms Defined

"Over-ripe" means such cahbage as shows signs of going to seed and turning white from age.

"Partially Trimmed" means that not more than three outside leaves shall be left on the head. * * *

It has been the aim in the preparation of this bulletin to point out the more important factors which govern the marketing of Colorado cabbage. These points may be summarized as follows:

First. The Colorado cabbage crop amounts annually to between 2,000 and 2,500 cars of straight cabbage, exclusive of the cabbage contained in over 1,000 cars of mixed vegetables which are shipped each season. This total movement places Colorado third among the ten principal cabbage shipping states of this country.

Second. The following leading varieties are preferred in the three principal producing sections of Colorado: Jersey-Wakefield, Winningstadt, Copenhagen Market, Glory of Enkhausen, Danish Ballhead (short stem), Danish Ballhead (long stem), European Market and Scott's Cross.

Third. Small to medium sized heads are preferred by the southern trade and in Kansas City. Large, solid heads are desired in the small markets in the middle-western states.

Fourth. Colorado cabbage is very largely distributed to the principal markets in the states east and south of Colorado.

Fifth. Colorado cabbage is brought into competition on the terminal markets at the beginning of the season with shipments chiefly from Iowa, and during the latter part of the season with Minnesota and Wisconsin cabbage.

Sixth. Shipments of mixed vegetables from the Denver section and shipments of cabbage, with potatoes and onions from the Greeley district have materially stimulated the demand for cabbage and have been instrumental in widening the distribution of this crop from Colorado.

Seventh. Higher prices prevail during the early part of the shipping season, but prices usually react and advance after the heavy movement is over.

Eighth. Storage houses are needed in the larger cabbage producing districts. They will be a means of securing a more efficient distribution of the crop and will make it possible for the growers to take advantage of the higher prices usually found during the latter part of the season.

Ninth. Proper methods for the loading of carlot shipments of cabbage should be followed. Care is needed to insure the proper ventilation of this highly perishable product. If approved methods are used, it will do much to insure the delivery of cabbage of a satisfactory quality and in satisfactory condition on the consuming markets.

Tenth. The total movement of Colorado cabbage and mixed vegetables from Colorado during the past three seasons has averaged 3,320 cars. Grades should be adopted and used in the further standardization and distribution of Colorado cabbage.

Self Feeders For Hogs in the Mountain States

THEY HAVE A PLACE IN ALFALFA BELT IF WISELY USED

GEORGE E. MORTON

MUCH interest has been shown in the self-feeder during the past few years. The Iowa experiment station has done much to popularize this method of feeding all classes of hogs. A few years ago I heard Mr. Evvard, in charge of animal investigations at Ames, give some of his early results in handling hogs by means of self-feeders with separate compartments. His results seemed conclusive with regard to gains made, the evidence showing that hogs at self-feeders make greater gains than hogs that are hand fed. It indicated also that hogs would make a very sensible and well balanced selection of feed stuffs where they are given access to self-feeders containing the feed stuffs in separate compartments.

I have been somewhat slow in adopting the self-feeder idea for Colorado conditions. I shall not, in this article, attempt to give positive conclusions based upon experimental evidence, because we have not carried on experimental work with self-feeders at this station. I shall simply try to outline the conditions governing economical pork production in this state which are different from the conditions existing in the corn belt, and the results of observation and personal experience with regard to the economy of self-feeders

Pork production in Colorado is based largely upon spring farrowing. Comparatively few hog raisers make a practice of producing fall litters in this state. Grain feeds cost higher than in the corn belt because of the freight rate differential, the price of our small grains following the price of corn pretty closely. For winter growth of pigs we are at a disadvantage, because there is not green feed available in the winter, and pigs must be raised upon this expensive grain.

Dairying and hog raising is not a typical combination here, and consequently we do not get the growth upon our winter pigs that we do on our spring pigs running upon alfalfa. The reason for this is shown in one of my recent articles, discussing Dr. McCullom's discovery with regard to the growth power to be found in milk and in the leaves of plants. The result of the combination of high priced grain and lack of a feed stuff with growth power in it, has curtailed the production of fall litters.

Limit the Grain Ration.

In the production of spring pigs we have much the same conditions to face. Grain is high; milk not available, and we must depend upon alfalfa pasturage, not only for the necessary growth promoting nutrients, but must also depend upon it as a cheap feed which will reduce the cost of producing a pound of pork. But where pigs have free access to both grain and alfalfa pasturage, they fill up on grain mostly and eat alfalfa occasionally when they feel like it. We must force them to do the other thing: make alfalfa pasturage the main part of their ration, and give them a limited amount of grain, if we are to produce pork in competition with the corn belt.

Let us consider the various classes of hogs, and their adaptability to the self-feeder under our conditions. Brood sows will, of course, keep too fat if they run to a self-feeder. The evil of this condition is well known. A sow will not farrow so many pigs nor will she take care of those that she does farrow. A dry brood sow may, and I believe should, run upon alfalfa pasturage without other feed for two months during the summer, if she farrows two litters a year. If she farrows only one litter a year she may run upon alfalfa pasturage without grain from the time she weans her pigs in the spring until pasturage is gone in the fall. During the two months prior to farrowing, she should, of course, have some grain in order to produce strong, large pigs.

Young pigs, not yet weaned, should, I believe, have access to a self-feeder. They are not large enough to utilize alfalfa pasturage, and as the cheapest gains made upon pigs are while they are upon their mothers, full advantage should be taken of this natural growth-force at this period, and they should be crowded along rapidly. After they are weaned they may be left at the self-feeder for a time, in order to reduce to a minimum the shock incidental to the withdrawal of the milk which is so important a part of their ration. They will be eating some alfalfa prior to weaning time, and will eat well after weaning even while they are upon the self-feeder. A short time after weaning, probably a month under average conditions, the self-feeder should no longer be used. Pigs like grain, and while we may grant that they will grow faster and make greater gains if left upon a self-feeder while they are also getting pasturage, it is well known that the greatest gain is not always the cheapest gain.

Hay vs. Alfalfa Pasture

The value of alfalfa pasturage, or any grass pasturage in the corn belt, must be based to a considerable extent upon the value of hay. Alfalfa hay is worth approximately double at the Missouri river what it is here. Corn on the other hand is worth about forty-five cents per hundred here more than it is in the corn belt, because of the freight rate and cost of handling. We cannot afford to feed the same proportion of corn and alfalfa pasturage that they do in the corn belt. We must force pigs here to eat more alfalfa and less grain, whether it be barley, corn or oats. This to my mind means only one thing, the abandonment of the self-feeder from a short time after weaning to the time when we are ready to put the feeder pigs up in a dry lot for the final full feed for finishing.

From one to two per cent of the live weight of a pig is sufficient grain to feed each day. The percentage will depend upon the relative prices of

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Rotations On Mountain Ranches

CROP LIST IS RESTRICTED BY CLIMATE

GORDON KENT, the Mountain Farmer

IT is harder to rotate crops properly in the mountains than it is anywhere else. This is because the limitations imposed by the climate hold one down to so small a variety of crops, and some of the soils will not raise all of even this limited list. It is not practical to give any given piece of land four different kinds of crops in four successive seasons.

Yet we cannot dodge the necessity of giving our fields enough change and variety to keep them fresh and productive. The best potato patch will come to mighty small potatoes if we plant it to spuds year after year, and if oats follow oats on the bottom land the richest will fall down in time. This is a matter of experience. When we plant a crop it grows and draws from the soil so many pounds to the ton of elements it needs. When we harvest this crop and take it to the barn or the root-cellar it is obvious that we have taken away from the field hundreds of pounds of the food elements that the next crop will need. The following table shows how many pounds of the main elements of fertility are removed with a ton of various crops.

Kind of Crop	Nitrogen	Potash	Phosphorus
Alfalfa Hay	44	34	10.60
Oat Hay	24	50.80	13.40
Potatoes	4.20	5.80	1.40
Rutabagas	3.80	9.20	1.80
Turnips	6.60	7.80	2.00
Carrots	3.20	10.20	.20

It is up to us to put this fertility back in some way, or else admit we are soil robbers, and that our farm is the poorer for our occupying it.

Where does the soil get these and the other less plentiful elements of plant food in the first place? They are a part of the soil itself. Then where does the soil come from? It comes from the breaking down, or disintegrating, or decomposition, or reduction, or rotting of the rock masses of the earth's crust. Part of the content of any farming soil is humus, which is decayed vegetable matter.

The decrease of the fertility of a cultivated field is owing to a decrease of humus. Why?

For several reasons, the main reason being that the decaying vegetable matter produces an acid, called humic acid which acts upon the mineral elements of the soil, continually dissolving them. Phosphorus, potassium, and calcium are the main elements so dissolved. When dissolved they impregnate the soil water, the roots of the plants drink up this water with mineral elements in solution, breathe out the water through their leaves, and retain the mineral salts.

When we haul away a crop we remove nearly a ton of humus so there is less humus to produce humic acid to dissolve the mineral to make mineral plant food available for the crops of next season.

If you dried all the water out of a ton of potatoes you would have left only four hundred pounds. If you then burnt this you would have about fifteen pounds of ashes, assuming perfect combustion. What you have lost would be organic matter. What you have left as ash would be the mineral elements as shown in the table above.

If we keep up the humus, the humus will, by means of humic acid, dissolve the mineral soil, and keep up the supply of phosphorus and potash.

The obvious and quickest way to keep up the supply of organic matter in the soil is to haul the manure pile out on the fields. Even then the potato patch will get tired of spuds, and the oat patch weary of oats. Nor is it sufficient to put rutabagas in the potato patch or grass on the oat field. The land wants as complete a change as possible. The root crops are the hardest on land because they leave nothing to pay for what they take. A crop of oats leaves all its roots and a lot of stubble to be turned under. Grasses contribute a rich sod. Alfalfa yields back to the soil not only its roots and a sod, but the nitrogen bacteria it has gathered from free nitrogen gas in the atmosphere and the soil air, and fixed in the little white warts on its roots.

An ideal rotation for the mountain ranch would be: plow under alfalfa or sweet clover, plant potatoes, next plant oats, then rutabagas, and seed down again to alfalfa or sweet clover, with a nurse crop of oats or barley.

But this is on paper. In practice one man wants most of his land in oats each year, another wants a bigger proportion of alfalfa, and still another pays little attention to anything but potatoes, his cash crop.

Then again the bottom land won't raise potatoes, or roots, or alfalfa. So there you are.

Most any mountain ranch consists of two kinds of fields, bottom and slopes. The soils are different, the drainage conditions are different, and the crops that can be raised on them are different.

Rotation for the slopes will consist simply of a change from oats to roots or potatoes, and back to oats for two years. When under this treatment the land shows signs of running down the only course left is to put it into alfalfa. Alfalfa has to be left in several years, as it does not yield well at high altitudes till the third year. To include it in a rotation would soon mean that you raised nothing else on your slopes. In fact some of my neighbors are convinced that the right practice is just this, to get all the land into alfalfa that they can, and as soon as they can.

It is possible that sweet clover is

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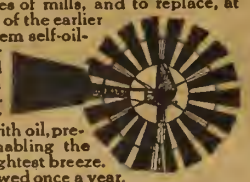

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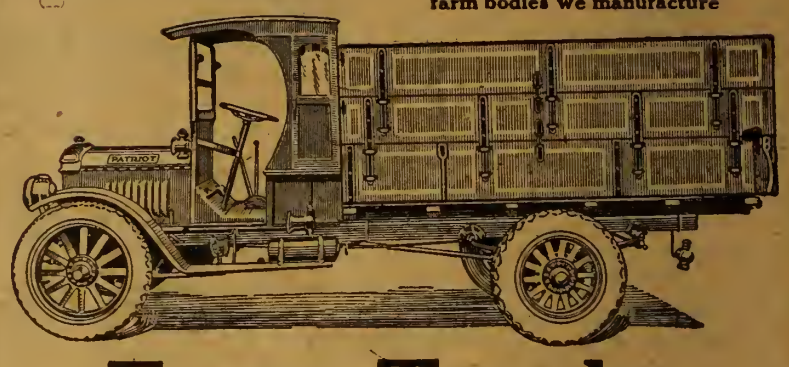

Farm Trucks

If you own 160 acres or more, you can save money by using a Patriot Farm Truck. They are built in two sizes—1½ and 2½ tons—one of which will just fit your needs.

A size less than 1½ tons is too small to bother with, and over 2½ tons is getting too large for all-purpose farm hauling over fields and country roads.

Ask for information as to what a Patriot Truck will do for you, and prices.

HEBB MOTORS COMPANY
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Built for Farm Loads

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That Keeps Tractors Powerful

Tractors need an oil different from automobiles. Their operating heat is higher—especially when kerosene is the fuel. Ordinarily light bodied motor oils are neither most effective nor economical.

STANOLIND
TRACTOR OIL

is made for this particular purpose. It stands the high cylinder heat—keeps a gas-tight piston-to-cylinder seal that assures maximum power—oil-cushions the engine's vitals against wear. It's the oil tractor manufacturers recommend.

Use "Stanolind" and you will keep your tractor full-powered—and keep down bills for over-hauling and repairs. Join the thousands of satisfied users of this oil.

Buy it from our nearest distributing station or from your dealer.

THE CONTINENTAL OIL COMPANY
(A Colorado Corporation)

Salt Lake City Denver Pueblo
Cheyenne Butte
Albuquerque Boise

Stockmen Oppose Transfer

Do the western stockmen approve he bill now before congress to trans-er the forest service from the de-artment of agriculture to the depart-ent of interior?

No.

In the early days of the service and uring the formative period of pro-ulgating rules and regulations for uidance of forest range officials there as considerable complaint from large ow outfits who objected to the olicy of the department in protecting he interests of thousands of small per-ittees. However, this antagonistic eeling has now disappeared and fully 5 per cent of the more than 40,000 tockmen, users of the national forest anges are protesting against this ransfer. In fact, a change of the upervision of the national forest from he department of agriculture to the epartment of the interior would mean burden on our small livestock men if he present policies of the department f the interior were carried out on the ational forests.

Millions of acres of lands which ere almost hopelessly overgrazed ave, under forest service handling rior to war necessities, been restored practically their original fertility, nd year after year cattle and sheep ome from the national forest ranges prime condition. Millions of acres land originally included in the forest oundaries have been eliminated by he secretary of agriculture because, close inspection, they were not elieved to be either potential forest nds or necessary for watershed pro-ection. Practically every elimination this kind was bitterly opposed by he stockmen interested in the particu-r range, for we realized that the rotection given such lands by the ontrol exercised over them was ab-olutely necessary to the welfare of he range livestock industry.

There are a dozen bills now before ongress backed by the stockmen pro-osing to add purely grazing lands to he national forests, so as to give them he same protection as the forest anges are receiving. Congressman aker of California, secured the pass-ge of a bill at the last session that dded over 500,000 acres of grazing nd to the Modoc national forest in hat state. Similar additions were ade in Wyoming and Idaho. At least ree of the bills now before congress over land in Colorado, parts of which ere once within the forest but were liminated and now the stockmen ant them back. The legislatures of he states of Nevada and Idaho last inter each passed resolutions urging ongress to pass the necessary legis-ation to place all the remaining public omain in those states under the con-rol of the forest service. The Colo-ado livestock associations as well as ve other western states have also assed similar resolutions. It is doubt-ul if there is on record a single in-tance where stockmen have expressed desire to have either the public omain or the forest land administered y the interior department.

The agriculture department helps us n innumerable ways; whether it be rees or grass, the questions involved re purely those of producing and arvesting a crop, a matter of agri-ulture exclusively.

The agricultural department is fully quipped for such work. Is it a ques-ion of the forage plants on the ranges, he bureau of plant industry advises he forest officers. If it is predatory nimals, the biological survey under-akes their extermination. If a doubt xists as to the soil characteristics of ertain areas, the bureau of soils is consulted. If the pine bettles are destroying the trees, the bureau of ntomology studies the matter. All hese several bureaus are members of he one big family in the depart-ment of agriculture and they constant-y call upon each other and advise and co-operate which, under one head as hey are, is easily carried out. The department of the interior has no such sources to which to turn for advice and would, therefore, be forced in the final analysis to go to the department of agriculture for such co-operation, in-volving a loss of time and undoubtedly friction between the two rival depart-ments.

We want to eliminate friction.

The only argument which the department of the interior has to advance so far as I can see is as to the question of land titles. This does not come up excepting in the few scattered cases where settlers are securing homesteads on national forest lands. In such cases, if the land has been properly classified and declared open for settlement, the case is turned over to the interior department for future handling. There are no complications, no unnecessary red tape involved, and the settler secures the title to his land exactly as easily and promptly as the settler on any land outside of the national forests.

The reasons why permittees are not given an opportunity to have their troubles decided in court is due to the fact that the act of congress creating the national forests, placed certain powers, issuing permits and in general administering the national forests within the sole discretion of the secretary of agriculture.

With this understanding, courts can not and will not assume to dictate to the secretary of agriculture what congress has exclusively placed in his hands.

Over and over again the courts have decided that the action of the secretary of agriculture could not be overturned through court decisions, and further, if I remember right, in other instances where the validity of the secretary's action has been attacked in the courts as unconstitutional, both the local and supreme court of the United States have invariably supported the secretary's action.

If the stockmen of the west desire to secure a remedy for their disagreements with the forest service through court action, they should petition congress to amend the law, taking away from the secretary of agriculture these discretionary powers.

However, I do not think that this is necessary. Our association has an advisory board which reviews with the forest service department any complaints of the permittees, and this board will at all times look after the interests of the 5,500 permittees of this state.—John P. Klug, president, Colorado Stockgrowers' association.

Home-Made Coffee

The way coffee prices keep going up we will all have to make our own coffee before long. I have a recipe which has been handed down in our family since the time of the civil war, when nearly everyone had to make his own coffee or go without. This is the way my grandmother made it: One cup of cornmeal, two cups graham, mixed to a paste with one cup syrup. Spread on a baking dish and brown very carefully in the oven. Break up or grind up, and use as you would any ground coffee. Mrs. Nancy Ferris, in Oklahoma Farmer-Stockman.

The best of everything is none too good for the women and girls of our farm homes. They deserve conveniences that will give them comfort and pleasure; see that they get them.

Do These Things NOW If You Want a Big Wheat Crop Next Year

1. Plow the stubble under immediately.

2. Keep the soil well disked and pulverized to hold the moisture until seeding time.

The wonderful wheat crop that has been harvested this year, due to a favorable season, is no assurance that you will have a big yield in 1920.

Shrewd farm owners realize this fact and they realize also that a maximum yield next year depends largely on the seed bed you prepare today.

Not a single pound of water should be lost from the soil, for to produce one pound of wheat requires 428 pounds of moisture.

Stubble ground plowed now and kept mulched by frequent disking and packing will save enough moisture to give the crop a good start when seeding time comes.

Summer plowing and frequent cultivation are made easy with the tractor and tractor farming tools.

Oliver tractor implements—mouldboard and disk plows, disk and spike tooth harrows, the culti-packer and the seeder—are designed for modern power farming. They are the result of over 60 years experience.

Oliver tractor implements used *now* double your chances for a big wheat crop next year no matter what kind of a season 1920 may bring.

Plow now!

Oliver Chilled Plow Works

Plowmakers for the World

South Bend, Indiana

18 Branch Houses 53 Transfer Stations

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TRACTOR TILLAGE IMPLEMENTS

Strasburg Pig Club

Tuesday, June 10th, 1919, was like circus day for Strasburg. The streets were lined early in the day with vehicles of all descriptions and men, women and children from far and near were here.

The occasion for all this activity was the arrival of sixteen purebred Poland China gilts, averaging 258 pounds, accompanied by Walter Groom, county agent, and J. T. Robertson, county club leader, and upon arrival all were taken in charge by Grover E. Totten, local leader of the Strasburg Pig Club.

Arapahoe County Pig Members Selecting Their Registered Stock

The pigs were placed in the pens on Dan Lee's ranch, where they were viewed and admired by many people, and pronounced to be the best bunch of sows ever seen by those present.

At two o'clock the crowd was assembled at the pens, and, after numerous pictures were taken of the pigs and the club members, a drawing was held and the pigs were assigned to the various club members by lot. They were so nearly uniform in size, shape and appearance that it was almost impossible to select one as being the best, so therefore each member was highly satisfied with the pig secured and each resolved to make a determined effort to raise the best litter of pigs.

The balance of the day was spent in loading the pigs to be taken to their homes, where they will be taken in charge by the boys and girls and prepared for the county exhibit to be held at Strasburg this fall.

These pigs were selected by County Agent Groom and County Club Leader Robertson, from the best herds in the state and cost the club members $75, being cheap at that.

The club members are very enthusiastic over their club work, and if their "dads" are not careful, we'll show them some things in the way of raising farm hogs.

The importation of 16 purebred hogs into Arapahoe county is a splendid start in the right direction, and I only hope the good work will continue.—J. T. Robertson, County Club Leader, in Strasburg News.

County Agent and Vet.

Evidently the "Senior Veterinary Student" who wrote in your May 22 issue has had the required amount of common and high school education and is just about to finish all there is to know in veterinary work, but he lacks experience and judgment, else he would not make such comments on the work of county agents. If a graduate and licensed veterinarian cannot compete with a county agent, who does not claim to be a veterinarian, in the treatment of animal diseases and surgical work, then there is something radically wrong with the veterinarian, or the veterinary courses of study. Students taking courses in agriculture are required to take some work in diseases of farm animals, not so they can do the work of a veterinarian, but so they can recognize diseases and symptoms and know what action to take in cases of emergency.

In my experience very few county agents have been found who promiscuously try to diagnose cases and give medicines or perform operations requiring surgical training and skill. On the other hand, I know some county agents who could make any student veterinarian ashamed of himself when it comes to the diagnosis of cases and the performing of minor operations. I have also known a few graduate veterinarians, having agricultural training and experience, who have become county agents, and can give the names of several more who have applied for such work.

The argument that a little correspondence with a veterinary college would bring plenty of veterinarians to a locality is weak, as this has been tried by many agents. In localities where veterinarians are most in need they will not take up a practice, because they say that the farmers are too poor to pay for their services. And right there is where the county agent with some veterinary training and a level head can do a lot of good. A county agent, and men training for such work, should take all the veterinary subjects they possibly can while in school. The one criticism of our agricultural courses at the present time is that men who expect to go back to farms, or into county agent work, do not get enough work in veterinary subjects. If county agents get only a few hours of superficial veterinary instruction, it is time they changed the college courses and gave prospective county agents what they need. A farmer once told me that he would rather have a county agent with good judgment and common sense do his veterinary work than a veterinarian with his head full of theory and no judgment.

No county agent should try to compete with a veterinarian. A competent veterinarian is a necessity in every agricultural locality, and the county agent who does not recommend a veterinarian for all cases of sickness, disease and surgery is not carrying out the instructions of his extension division, or the policy of the Department of Agriculture. As to such things as blackleg vaccination, the county agent is placed in a county to assist the farmers to become successful, to help them to make money, not spend it. He gives demonstrations in vaccinating, to assist the farmer just as he would assist him in marketing his crop, regardless of whether it affects the business of the veterinarian or the commission merchant. Did the veterinarians who were successful in discovering immunizing serums for livestock against disease give their discoveries for the veterinary profession, or for the good of mankind and the benefit of the dumb creatures which are afflicted?

Let the "Senior Veterinary Student" get the broadgauge view and admit that county agents have done a world of good for farmers and stockmen. As soon as a veterinarian establishes a reputation for conscientious service, square dealing and good judgment, he does not have any trouble competing with county agents. The county agent is ready and willing to recommend such a veterinarian in his locality.—Earle G. Reed, Agricultural Agent Burlington Lines, in The Breeder's Gazette.

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Because of Waterloo Boy Dependability

you can take quick advantage of favorable weather and ground conditions for plowing, harrowing, seeding, harvesting, threshing, silo filling, hay baling, grinding, hauling, etc.

Does Double Duty When Called For On the farm of Col. Samuels, near Dallas, Tex., the Waterloo Boy pulled a 4-disc plow 7 inches deep, cutting 40 inches wide in "Texas Black Wax" and dragged a 5-foot harrow, leaving ground in fine condition, in one operation.

The Waterloo Boy is noted for its success as an economical kerosene burner, for simple, strong construction, for easy control and ready response to every power demand.

Investigate this tractor. Write us for free illustrated catalog which gives construction details and proof of its efficiency in the hands of many farmers.

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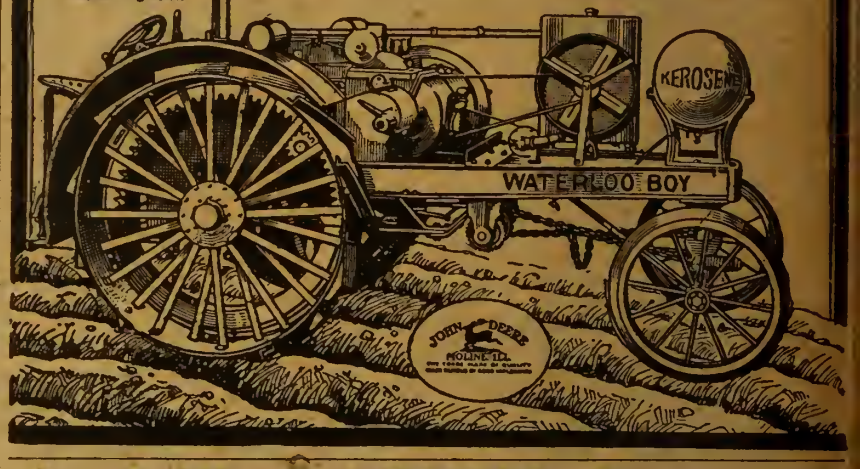

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30x3	$5.50	$2.00
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32x4	8.75	2.45
33x4	9.00	2.50
34x4	9.25	2.60
34x4½	10.75	2.80
35x4½	11.00	2.90
36x4½	11.50	3.00
35x5	12.25	3.20
37x5	12.75	3.30

Reliner Free with Every Tire—State whether you want straight side or clincher, plain or non-skid. Send $2 deposit for each tire; $1 deposit on tubes; balance C. O. D. subject to examination, or 5% discount if full amount is sent with order.

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a big knee like this, but your horse may have a bunch or bruise on his ankle, hock, stifle, knee or throat.

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will clean it off without laying up the horse. No blister, no hair gone. Concentrated—only a few drops required at an application. $2.50 per bottle delivered. Describe your case for special instructions, and Book 8 R free. ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; allays Pain and Inflammation. Price $1.25 a bottle at druggists or delivered. Liberal trial bottle postpaid for 10c.

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MICA AXLE GREASE

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78 farms, most of them improved, and growing big crops now. All within one to five miles of main line of Santa Fe Railroad. A fine paid-up water right. Write for FREE PAMPHLET and MAP giving prices—only one-third to one-half of usual irrigated prices.

WHY NOT FIND OUT ABOUT THESE FARMS?

The information is free. It may be worth money to you.

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The Wheat Control Plan

The complete government plans for handling the mammoth wheat crop now being harvested, together with copies of contracts the United States Grain Corporation will execute shortly with all the millers, wheat and flour dealers and elevator men and bakers of the country, have been sent to the house and senate agricultural committees by Julius H. Barnes, president of the government grain organization.

Fundamental with the plan, of course, is that the wheat farmer shall get the government guaranteed price for his grain, and at the same time permit meeting the possibility of the world wheat situation forcing the price below that mark.

Mr. Barnes sets forth that it manifestly would be impossible for the grain corporation to make individual settlements in such an event with a million or more raisers. Accordingly the machine provided obtains for the farmer, when he sends his wheat to market, at least the guaranteed price, together with any storage premium that may be due him. In turn, should the then price be below the government guarantee, the miller or elevator man settles directly with the grain corporation, which makes up the difference.

Throughout the entire crop year, however, the price, in event world conditions force a reduction below the present guarantee, will be fixed by the government grain corporation. It is manifest from the plan worked out that Mr. Barnes does not anticipate in the near future any danger of the world market being glutted to any such extent with wheat that the price will tumble below the $2.26 a bushel based on Chicago and $2.18, Kansas City, for No. 1 wheat.

But in a few words if that situation should ever come about, the grain corporation will then name $2 a bushel, $1.80, or whatever figure it believes justified, and fix that as the price. The millers will then buy from the farmer at $2.26 and the government makes up the difference to the miller. But flour in that event would be based to the public on the reduced price, so that domestic consumers would have the same advantage as those in foreign countries to which the flour or wheat were exported.

To provide the machinery for handling the crop, the grain corporation now is executing individual contracts with five thousand flour millers, fifteen thousand grain dealers, three thousand flour jobers and fifteen thousand bakers. All have to be licensed from the grain corporation and make certain statements of wheat or flour handled, except bakers who use less than fifty barrels of flour a year.

The government already has announced preferential rates to gulf ports in order to divert as much of the wheat for European shipments to those ports instead of having them tie up rail facilities throughout the Eastern seaboard.

The rules require that country grain dealers and mills in buying wheat from farmers shall pay the guaranteed price at the most accessible terminal, minus freight charges, and a reasonable carrying charge.

If any controversy arises between the farmer and the wheat buyer as to grade, dockage, or price, it may be submitted to the nearest zonal representative of the United States Grain Corporation who has authority to decide the case. In the Kansas City territory, the deciding authority is D. F. Piazzek, agent of the United States Grain Corporation in Kansas City.—Washington dispatch to the Kansas City Star.

Most Hogs in Iowa

In number of hogs on farms, Iowa is by far the most distinguished state in this country. The estimate of the bureau of crop estimates for 1919 is 10,925,000 hogs in Iowa, 5,724,000 in Illinois, 4,943,000 in Missouri, 4,668,000 in Indiana, 4,266,000 in Ohio, 4,250,000 in Nebraska, and 3,043,000 hogs in Georgia. Every other state is below 3,000,000. Iowa's hogs are about one-seventh of the nation's total.

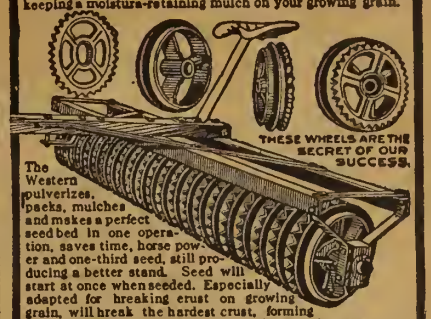
A silo is insurance against drouth and grass famines.

Farmstead of G. D. Boyoe, Washington county, Colorado

Twelve years ago G. C. Boyce landed in Washington county, Colorado, with $384 in cash, three cows, two calves, team, wagon and harness and a load of household goods. He took up a homestead on the raw prairie. Today his quarter section is worth $10,000 and he has 21 head of cattle, 18 head of horses, two automobiles and a full line of modern farm equipment. He has made a success of dry land farming and is helping to build up the agriculture in his section by aiding in the organization of pig club among the boys. He and Mrs. Boyce are counted among the progressive community builders.

GOOD FARMING PAYS

Protect your crops against drought by using the Western Pulverizer, Packer and Mulcher for preparing your seed bed and keeping a moisture-retaining mulch on your growing grain.



The Western pulverizes, packs, mulches and makes a perfect seed bed in one operation, saves time, horse power and one-third seed, still producing a better stand. Seed will start at once when seeded. Especially adapted for breaking crust on growing grain, will break the hardest crust, forming it into a moisture-retaining mulch without injuring growing grain and will raise a crop with half the moisture during growing season.

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The Foot on the Pedal Starts the Multi-Motor at its Task

AND the power produced is as constant and dependable as the electric current. The motor is a small gasoline engine installed under the tub, just as the electric motor is attached to the electric washer.

It does both washing and wringing and is easily operated by a woman or even a child old enough to be a helper about the house.

More than 100,000 are now in use, and four years of progress and refinement in manufacture have established the Multi-Motor in absolute supremacy among power washers for homes not electrically equipped.

The Maytag Electric Washer, the favorite in electrically appointed city homes, is adapted to use in connection with any standard farm electric lighting plant.

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The Beef Situation

On another page of this issue will be found an official statement from the United States department of agriculture regarding the beef situation. The department, through one of the assistant secretaries, points out that beef producers have suffered heavily through the slump in prices that followed the ending of the European war. Some decline was to be expected, but the official statement shows that the producer has been made to bear the brunt of it. There might be little cause for complaint if there had been any compensating declines in the things that the beef producer is compelled to purchase, but the fact is, he is still paying war prices for everything and forced to accept less for his cattle, after he has increased his herds and his general operations as a result of national necessity. There is injustice in the situation that seems to be recognized down at Washington, so let us hope that if the relief is to come through legislation it may be wisely provided.

There is, of course, no way in which to make up losses so far suffered, but there is undoubtedly a way in which, by legislation and organization, the beef producer can be safeguarded against market changes that sometimes engulf him like a tidal wave, wiping out the profits of several years in one visit to the market.

If the government statement is correct—and we have no reason to doubt it—the producer is carrying almost the complete load in the present crisis, the consumer sharing it somewhat, the packer taking out of hides what he is losing on dressed beef, and the retailer still sticking to war prices and profits. The department of agriculture professes to see a solution of the producer's difficulties in the establishment of federal supervision of the meat industry. Many producers are of the same notion, although mayhap not quite so enthusiastic, after an experience with federal control of railroads, as they once were.

Opinions differ as to the remedy, but all are agreed on the need for stabilizing beef production so that the man out on the range can have some assurance of a fair return when his crop of beef ripens in two or three years. The haphazard method of beef production was good enough in the old days of free grass, but nowadays every bite the cattle take costs money and if the producer cannot see profits ahead he must get out of the business.

Nothing will help more toward crystalizing sentiment in favor of effective legislation and regulatory measures than close organization—such an organization as the Colorado Stock Growers' association, which recently took on new life and laid out plans for a statewide association from the grass up. Too often, in the past, the stockmen have been organized from the yards down. This time, it seems, the movement originated out on the range with the men who have been up against range problems for years, who know the game from the saddle and not from behind a rolltop desk. If the new association will phrase its call for help in range language congress will sit up and listen.

✦ ✦ ✦

A State Fair Suggestion

Dates for the Colorado State Fair at Pueblo are September 22 to 27. Preparations are being made for the biggest and best state fair ever held. The livestock and crop divisions will be especially strong and farmers and breeders are urged to give the exposition their support, not only by attending, but by making exhibits. The management is endeavoring to make this fair truly representative of the great agricultural industry of Colorado, but their best efforts cannot succeed without public support.

Colorado is able to sustain a fair that will compare with any in the middle western states, in point of interest of events and exhibits, but we must have a greater percentage of the population through the gates than has been present in past years, if the state fair is to be put on a sound financial footing. This support should come from two sources—the farmers throughout the state and the city people, especially those from the northern sections, including Denver. The capital city has, heretofore, practically ignored the state fair, and thought of it as a Pueblo enterprise, rather than as a state institution. Let the business men of Denver turn out in force and attend, at least for one day. Here is work for the agricultural and livestock bureau of the Denver Civic and Commercial association. This bureau is always on the job when it comes to boosting the National Western Stock Show and other Denver enterprises; now let us spread our activities so as to include the other commercial centers of the state. Pueblo is not asking for this; the suggestion comes from Denver itself, and Pueblo will appreciate a showing of our good will, evidenced through an automobile tour of two hundred cars, containing a delegation of Denver business people.

Up in Larimer county there used to be considerable jealousy between the two leading towns, Fort Collins and Loveland. Nothing but hard feelings ever came of this and one day somebody had a bright idea of an exchange visit between the two places. An auto trip was arranged and several hundred Fort Collins people made a neighborly call on Loveland; there was speechmaking and a band concert. Later Loveland returned the call, and now these exchange visits are a regulr thing, and when Fort Collins has "something going on" Loveland is there, and vice versa. The county fair, which is held at Loveland, is one of the events which always finds Fort Collins people in the neighboring town to help out with the gate receipts—and that is what counts.

Come on Denver; show Pueblo that we are back of the state fair. This will not only help Pueblo, but will have its effect on attendance from other parts of the state.

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Stack the Wheat

President Jardine of Kansas agricultural college is urging Kansas farmers to stack their wheat. His advice is just as applicable to other western wheat producing states. As a matter of fact, it will be impossible to provide threshing facilities to meet the enormous demands, consequently stacking will be the only alternative.

"Of all possible methods of holding wheat this season," says President Jardine, "stacking as soon as possible after harvest would seem to be the safest method for a majority of farmers. Considering the conditions that prevail, there ought to be more wheat stacked in Kansas than ever before. It will help provide profitable work through a greater portion of the year for the farmer and his sons as threshing from the stack can be done when other work is not crowding and more and cheaper labor is available. Wheat in the stack cures better and the grain has a better color and is of higher quality. Wheat stacked is safe from injury from rain."

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The Cost of Poor Roads

The farmer needs good roads just as much as he needs a good plow, cultivator, wagon or anything else that he uses. Good roads are just as essential to the farmer's welfare as they are to the city man who drives over them for pleasure. Not long ago I met a farmer hauling out a load of silo tile with a four hourse team. There was a bad stretch of road and this farmer got stuck. After nearly pulling the life out of his horses he finally gave it up and unloaded about half of the tile and tried it again, but still his horses were unable to pull it out, as the wheels had sunken into the soft dirt to a considerable depth. Finally he had to unload all of the tile and his four horses had all they could do to pull out the empty wagon.

He loaded up half of the tile again and took them home quite late that evening. He spent the greater part of the next day in getting the other half of that load, thus requiring two days to do what he should have done in one had the roads been in good condition. This is only one case of a great many. Farmers are put to a great expense in pulling loads over bad roads, and many of these roads in Otero county could be put into good condition at much less expense than what the farmers are at under present conditions.

Of course it is impossible for the county to immediately put all of the roads in Otero county into first-class condition, unless taxes are very much increased. There are over 800 miles of roads in this county and the most work must necessarily be done where the greatest amount of traffic is carried on. Thus some of the less traveled roads are often neglected. It will be largely up to the farmers to help the county in putting some of the by-roads into better condition. The county commissioners have expressed their willingness to co-operate with the farmers to bring this about.—County Agent W. F. Droge, in Otero County Farm Bureau Reporter.

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COLORADO FAIR DATES

Larimer county fair, Loveland, August 27-29.

Arkansas valley fair, Rocky Ford, September 2-5.

Boulder county fair, Longmont, September 2-5.

Morgan county fair, Fort Morgan, September 2-5.

Routt county fair, Hayden, September 3-5.

Adams county fair, Sterling, September 9-12.

Delta county fair, Hotchkiss, September 9-12.

Logan county fair, Sterling, September 9-12.

Moffat county fair, Maybell, September 10-12.

Trinidad-Las Animas county fair, Trinidad, September 16-19.

Western Slope fair, Montrose, September 16-19.

Central Community fair, Greeley, September 16-20.

Yuma county fair, Yuma, September 17-20.

Baca county fair, Springfield, September 18-20.

Saguache county fair, Saguache, September 18-20.

COLORADO STATE FAIR, Pueblo, September 22-27.

Colorado-New Mexico fair, Durango, Colorado, September 23-26.

Inter-Mountain Livestock and Fair, Grand Junction, September 23-27.

Grand county fair, Kremmling, September 25-27.

Douglas county fair Castle Rock, October 7-9.

Huerfano county fair, Walsenburg, October 8-10.

Wyoming Fair Dates

Sheridan county fair, September 1-5.

Big Horn county fair, September 2-5.

Washakie county days, Worland, September 5.

WYOMING STATE FAIR, Douglas, September 9-13.

Uinta county fair, September 25-27.

The Branding Iron

Applied by Elias M. Ammons

Experts are predicting that for the first time, the Colorado corn crop will be greater this year than the wheat crop. Last year the production of wheat was two million bushels greater than that of corn.

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Under the new law the minimum wage for country school teachers in Colorado is $60 per month. A country school teacher in France, the other day, said she was paid sixty cents a day and out of that she had to pay her room and board.

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Kansas is harvesting the greatest wheat crop in its history and also the greatest wheat crop ever harvested by any state. It is estimated at 225,000,000 bushels or, approximately, one-fourth of the entire wheat yield of the United States.

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During the dry weather in Colorado, the web-worm attacked the beets and apparently destroyed many fields. The coming of showers destroyed the worms to such an extent that many of the beet fields revived and the damage is not nearly so great as was at first supposed.

Mr. Rudolf Durtschi of Wood River, Nebraska, recently marketed a carlot of yearlings averaging fourteen months in age with weight 1,120 pounds. These cattle were Shorthorns and were raised and fed by Mr. Durtschi, they were of fine quality and notwithstanding the slump in the market amounting to several cents a pound, they brought $154 a head—certainly not a mean price for a fourteen months old calf.

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The drouth in the northern Rocky Mountain district has caused a great shortage in grass. Sheep, especially from northern Colorado and Wyoming, are being sent to the cutover lands in Minnesota and many thousands of cattle are being either marketed or sent east to pasture in Nebraska, where rains have been plentiful and grass unusually good. Owners are paying a dollar a month a head for pasturing these cattle. Some shipments of cows and calves have even been made from the northern ranges to river markets with the intention of sending large numbers in case these trial shipments shall bring satisfactory prices.

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One of the circumstances which is now affecting the meat market seems to be the fact that people either do not know that the conservation campaign has ended or, that they are satisfied with the substitutes they have been using and are not buying as much meat as they did formerly. This is especially true of beef. Hogs still bring very high prices. Beef maintained its prices until the demand from Europe was cut off this spring and an amount, estimated at 100,000,000 pounds of fresh beef was thrown on the domestic markets which, under previous circumstances, would have been needed abroad. Feeders and packers both lost money, 'though the consumer still complained that he knew no difference. What the final result will be no one can foretell; the situation is chaotic. Good feeder steers have declined in proportion to prices of beef and stockers are in little demand. While posted men insist that the consumption of beef has fallen off at least 25 per cent per capita, how much of this is due to the conservation campaign and how much to the high prices is problematical.

The birds, the trees, the clouds, the flowers don't bring any ready cash to the farmer; but they help make him glad that he's alive, says a Kentucky philosopher.

Utah Fair Dates

Cache county, Logan, September 23-25.

Iron county, Parowan, September 17-19.

Sevier county, Richfield, September 18-20.

Summit county, Coalville, September 25-27.

Comment by Farmer Putnam

DIVIDES THE HONORS WITH GOVERNOR SHOUP ON EL PASO COUNTY LIVESTOCK TOUR

THE folks down in El Paso county was sure tickled because they had such extinguished guests with 'em on their livestock tour. I'm referrin' to me and Governor Shoup. We was the main attractions—that is barrin' Doc. Glover when he took his hat off. The governor is a purty nice sort of a man, considerin' everything, and he likes to mix with the farmers because he is one hisself. He had his family with him and when we got out to his ranch, which he calls Cathedral Rocks, he invited us all up to the house to have some refreshments in brown bottles. The stuff fizzed and foamed so durn much that it made me homesick, but it didn't have no kick in it. It was called ginger champagne and it used to be used fur coverin' a kick, but now it's drank straight.

While we was lookin' up at the sun through them brown bottles and thinkin' of happy days gone by, I tried to draw out the governor about farmin' but he didn't have much to say. He is keepin' Galloway cattle. Them is a fine breed, especially fur fur overcoats and auto robes. The governor was a tellin' us about the history of the ranch, which was the old Barnard place, and I sez: "Well, Governor, I hope you'll be governor as many years as Mr. Barnard lived," and he sez: "Now look here Farmer Putnam, don't you wish me any such bad luck, my term's one-fourth over now."

"Shucks, we're a-goin' to give you more'n two years," sez I, tryin' to be polite.

"Well," he sez, "it ain't likely that the people will do it; they seem to think two years is enough fur a governor and I don't know as how I blame 'em."

He talks kind a sensible, don't he? Us folks in Colorado hain't got much respect fur our high officers. We pay 'em a measly salary and kick 'em out after they've been in just long enough to spend more'n they git back in the two year-term. Back in Missouri, in the old days, we used to give 'em at least four years and if they proved good Democrats why they staid in till some other feller wanted to handle the reins fur a while. We sort of left it to the governors to say how long they wanted the job. Out here it's different. We got a regular colony of ex-governors in Denver—enough to form a lodge—and as they is only two jobs open in the U. S. senate from this state we allus got more ex-governor applicants then we kin provide fur. The rest of 'em has to git out and hustle a honest livin'.

Governor Shoup is wise; he ain't a-goin' to take no chances. If the people, with the kind assistance of the Democrats, kick him out at the end of this term why he kin settle down on Cathedral Rocks ranch and at least make a livin'. The governor kin herd cattle, and Mrs. Shoup and the children kin take care of the chickens and do the milkin', and they'll be lots happier then up in the state house bein' pestered by politicians lookin' fur jobs. You're on the right track governor; stick to ranchin' and you'll allus have your bread and butter and maybe git so's you kin lay by a little in the bank later on and buy more land.

The Shoupses lives in a frame ranch house, and it's painted up nice and new, and they showed us some fine Belgian draft hosses. The ranch is laid out nice, but not much under cultivation yet. I know it costs like the dickens to buy machinery and implements and I reckon the governor is goin' a little slow. That's the way; don't bite off more'n you kin chew. Too many of us farmers tries to go in too heavy and fust thing you know a drouth comes along and then the bank has to foreclose on us.

We took in the Holland dairy farm where they has Holsteins; then next to the Pine Valley ranch, where they has milkin' Shorthorns; then the governor's then Allen's, where we had a picnic dinner. I was a little out of condition and could only eat with one family, though havin' three invitations which I accepted. The people I ett with was the Hodginses. They brought Cliff and Everett along and I got acquainted with them two lads, which was potato club prize winners at the stock show last winter. They are fine young fellers and will make rattlin' good farmers, follerin' in the footsteps of their Dad—and believe me the old man has got some footsteps!

Mrs. Hodgins had a nice lunch fixed up; I guess they must-a thought I'd be thar, because they had a whole pan full of fried spring chicken. While we was eatin' Mr. Sawyer come up and borrowed a cruller offen the Hodginses. He is fond of crullers and his wife didn't have time to make none fur the picnic, but up in the Monument and Table Rock country why everybody makes hisself at home and if your own grub don't suit you, why you try your neighbor's. That's what they call co-operation in the El Paso farm bureau.

The Paulses was thar, of course, and they wanted me to eat with them and I promised to do so, but by the time the fried chicken was cleaned up on the Hodgins table why the Paulses was ready to make an asignment and all I got was a ice cream cone, which Mr. Paul hustled up fur me, and fur which I hereby wish to extend my heartfelt thanks.

After dinner the governor give a short talk; then Prof. Bray and then Doc. Glover. Doc liked to spoiled my dinner when he begin to talk about germs and pizen plants, but we has to excuse him; that's the way he makes his livin'. Everything has a place in this here world; if we didn't have no pizen plants and no germs why them vets would starve to death.

I would like to write a lot more about the trip, because I seen so many friends, but the editor sez he wants some space fur sensible articles so I got to hurry along.

THOMAS JEFFERSON PUTNAM.

Rotation on Mountain Ranches

Continued from Page 6

exactly the thing we need to round out our crop rotation, but so far it has not been tried. Mountain farmers have too often been stung on experimental crops to be very keen on trying more experiments.

Neither sweet clover nor alfalfa solves the question of what to give the bottoms for a change. Neither will grow there. The practice has been to plant oats for a few years, and then to seed them down to timothy. Then in a few years break up the timothy and put the land into oats again. That is, half one's bottom land should be in oats, and half in timothy, and every few years change each crop to the other half of the land.

These bottoms are deep rich soil. and will stand for treatment which would be nothing but abuse of poorer soils. Timothy tends to run out, choked by dandelions, sod-bound, and weakened by over-grazing before the oats decline below a satisfactory yield.

The Rewards of Punishment

"Doctor," called the small boy, "come up to our house quick!"

"Who is sick at your house?" asked the doctor.

"Everybody but me. I'd been naughty, so they would not give me any of the nice mushrooms that pa picked in the woods!"—Country Gentleman.

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE. Denver, Colorado.

A subscriber, who failed to sign his name, or give any address, wants to know whether he can be forced to pay for seed furnished him under contract to grow a certain crop, when the crop failed and the parties who furnished the seed failed to keep their part of the contract, which included advising farmers how to plant and care for the crop. In the absence of a copy of the contract this question cannot be answered intelligently. Furthermore, this subscriber failed to follow the simple rule of giving us his name and address, consequently we have been unable to discuss the matter with him by letter.

Lawful Wire Gates

What constitutes a legal gate in a wire fence? Is there any requirement in the law covering this point?—Subscriber, Colorado.

The fence law makes the following provision regarding gates: "All gates shall be kept in good repair and shall be equally as good as the fence." That refers to a lawful three-wire fence, consequently your gates must be of three wires, built substantially like the fence.

Fencing a Homestead

Can I be compelled to build a fence around land that is a homestead on the forest reserve and has been filed on only a year, and is not patented?—A. B., Colorado.

A homesteader is not required by law to fence his land, although most of them who can afford it do so to protect their crops.

Legal Width of Road

Have the county commissioners the right to accept a roadway only forty feet wide? Does not the law require a road to be sixty feet in width?—P. K., Colorado.

Section 5834, Revised Statutes 1908 and following, provide for roads. There is nothing in the act making it obligatory upon the commissioners to make the road 60 feet wide. The road could not be wider, but it could be made narrower.—Hamlet, J. Barry, Attorney, 724 Equitable building, Denver.

Hogs Must Be Confined

What is the law regarding the running of hogs at large in Colorado? I have been bothered with a bunch of hogs destroying my crops and have notified my neighbor to keep them penned up. Am I correct in my understanding that hogs cannot run at large?—Subscriber, El Paso county, Colorado.

Section 150 of the revised statutes of Colorado is as follows: "No hogs or swine shall be permitted to run at large, and the owner of any hogs or swine trespassing on the property of any person shall be liable in treble the damages occasioned by such trespassing or a fine of not less than $5.00 or more than $10.00 for each offense." You will note from the above that you are correct and that you can bring legal action against your neighbor by complaining to the deputy district attorney, or the sheriff, if your crops are being damaged by your neighbor's hogs.

Why Wheat Winter Kills

Please tell me why Turkey Red winter wheat is not a success here in lower Routt county. The fields are spotted in the spring after the snow goes off, and the wheat starts up. It seems to kill out in spots. I feel that winter wheat is a better dry land crop than Defiance spring wheat which they all raise here. Some are growing the new Marquis wheat and it gets ripe before frost, but the Defiance quite often gets frosted.—G. S. Routt county, Colo.

There are so many causes of winter killing that it is pretty difficult to pin the specific cause down. If the snow would thaw and freeze in spots so as to make a sleet on those spots, it would quite effectually kill the wheat under it. If the spots are on exposed knolls, which the winds uncover in the winter and spring especially, that might be the cause of killing. Sometimes there are low spots in the field in which water accumulates as runoff from higher surrounding ground, thus killing out the wheat in the low spots. All of the above instances have actually been pinned down as causes for winter killing and there are many others. I have seen whole fields killed by one sleet storm which was not followed by thawing wind afterwards to break up the impervious blanket which the sleet put on the surface. The killing from sleet is a question of smothering rather than cold. The young plant simply cannot get oxygen enough to live under the sleet blanket. Ice spots from other causes will often do the same thing.—Alvin Kezer, chief agronomist, Colorado Agricultural college.

Must Get Right-of-Way

A natural draw passes through my land and through an adjoining farm. Part of my land has been ruined by seepage from an irrigation ditch. The only possible outlet for this seepage is through this natural draw from my land on to and through the land of my neighbor. He is farming this draw. I want to know whether I could make an outlet for the seepage into the draw regardless of the effect it would have on my neighbor's land. Has he a right to obstruct a natural drainage outlet on his own land? What course would I have to adopt in order to get the seepage from my land through his place? Would it be necessary for me to go to court to get a right-of-way through the adjoining land?

In my opinion you would have to go to court and condemn a right-of-way through the adjoining land.—Hamlet J. Barry, attorney, 724 Equitable building, Denver.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Is Probably Cowpox

How do you handle the breaking out of ringworm and cowpox on cows udder and teats?—Custer county, Colorado.

Cowpox (variola vaccina) is a highly infectious disease. It is the same thing as variola or smallpox in the human, but in cows invariably runs a mild course to complete recovery. The attenuated virus of the cow is used to vaccinate the human against smalipox. A cow having become affected, there is no way known to prevent the disease from running its course, and there is no reason for making such an effort, since the disease is invariably mild and of very little consequence. Cows contract the disease from the human, but have it in a benign form. People may con-

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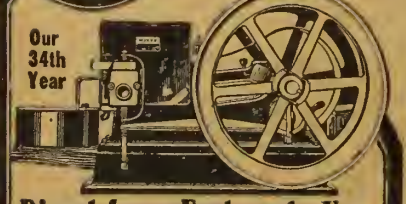

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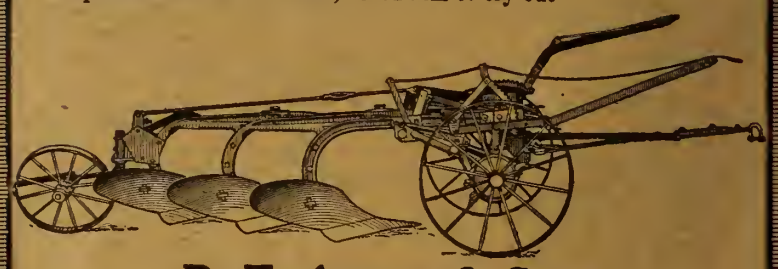
Two Different Tractor Plows Failed to Suit Mr. Johnson. THEN—

Mr. E. S. Johnson owns and operates a 420-acre farm near Boone, Iowa. Last year he bought a tractor plow of well-known make, which did not measure up to his expectations. Being a man who takes pride in his work, he bought another plow of different make. Result, the same. Having been twice disappointed, Mr. Johnson was very much in a "show me" frame of mind when Miller & Son, implement dealers of Boone, asked him to try out



B. F. Avery & Sons Tractor Gang Plow

When Mr. Johnson put this plow to work—but let him tell his own story:

Boone, Iowa, April 21, 1919.

B. F. Avery & Sons Plow Co., Omaha, Neb.

Dear Sirs: This spring I bought one of your three-bottom tractor gang plows from Miller & Son, of Boone, and my experience with it has been so satisfactory that I am writing to tell you about it.

My 420-acre farm is made up of several types of soil—some of them the kind that makes hard going for any plow, especially after a spell of wet weather. Before trying the Avery I had owned two other makes of tractor plows. They didn't come up to my idea of a tractor plow at all and I disposed of them; so, naturally I was a little bit skeptical about tractor plows.

When I put the Avery to work there had been only three clear days after nearly three weeks of wet weather. I started in a field of timothy sod underlaid in places by gumbo, in other places by sand, then waxy black soil. In spite of these hard conditions the work of the plow was perfect. At one place, at the bottom of a draw, the wheels of the tractor went in over 18 inches. I backed up, easily raised the plow bottoms with the levers and pulled through. If I had been using either of the other two plows, I would have had to dig it out with a spade.

I was surprised that a brand new plow, without a land polish on the bottoms, would go through this sticky mess. You have a fine plow. So have I. Yours truly,

E. S. JOHNSON.

Don't buy a tractor plow until you examine this one. If there is no B. F. Avery dealer near you, write

B. F. Avery & Sons Plow Co.

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Public Needs and Public Obligations

THE ability of a public utility to serve the public depends upon the attitude of the community toward the utility.

The initial appearance of a needed utility in a community is always cordially welcomed. It is recognized not only as filling a decided want, but also as an evidence of the growth and development and prosperity of the community. So long as appreciation of the utility finds expression in the public's willingness to grant to the enterprise revenues adequate to meet its honest requirements under efficient management, so long will the utility be able to serve the public satisfactorily.

But there must be mutual understanding and mutual confidence. Neither a public nor a private enterprise can build permanent success upon revenues derived from a public that has no faith in nor respect for the institution.

The utility's obligation is to serve; the public's obligation is to create such conditions as will make it possible for the utility to serve.

The Telephone Company is subject to the same economic laws and principles as those governing other industries. The permanency and adequacy of telephone service depend upon the same factors as are involved in the security and permanency of every other established industry.

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The Mountain States Telephone and Telegraph Company

tract the disease from cows, such as in the process of milking, and are vaccinated against smallpox. The disease will run through the herd in spite of all that you can do and prevention is seldom worth considering. A pustule on the teat may be irritated by the milker and cause a little inconvenience, but will readily respond to simple treatments. Ringworm more often appears as a yellowish-brown crust around the eyes and on the face and shoulders of young cattle. It would be very unusual for it to appear on the udder, but this is possible. A very satisfactory remedy is tincture of iodine applied at intervals of two or three days.—G. H. G.

Bull Has Sore Mouth

Please tell me what ails a young bull which I have had since last fall. He cannot eat anything except bran and oats. His mouth is full of sores; his breath is very bad, and when he tries to eat he throws his jaw to one side as if he had bad teeth. Our veterinary pulled all long teeth and he did not get a particle better, so he has come to the conclusion that the bull has an abscess on his liver and says there is no cure for him.—H. G. M., Gunnison county, Colorado.

The bull is apparently affected with necrobacillosis. This is a germ disease and in sheep causes the lip and leg ulceration; in pigs, bull-nose; sore mouth in cattle, and in sheep contagious foot rot; in calves, calf diphtheria, and in all animals necrotic stomatitis or sore mouth. It is doubtful if the bull can be saved. The mouth should be examined carefully, at the same time trying to get a view of the throat if possible. The deep-seated ulcers should be burned out with lunar caustic held by artery forceps. The mouth and throat should be washed two or three times a day with a saturatel solution of boracic acid. It will do no harm if some of this solution is swallowed, but in using the caustic on the ulcers, common sense will tell you to be very careful. It is very likely that these ulcers extend through the throat and even into the digestive tract, and I know of no further treatment that is worth trying.—G. H. G.

Inflammation of the Udder

Answer to Q. W., Larimer county, Colorado:

The enlarged hard condition of your cow's udder is due to inflammation of the tissues. She probably is producing little milk in these quarters. You would not get milk from the udder by making an opening, you would simply ruin the udder. If the udder is still hot and inflamed, there is a chance to do something with it. If the fever has gone out of it, and it has remained swollen and hard, it is probably permanently ruined.

The best way to reduce the inflammation is by means of application of hot cloths, and rubbing and kneading with the hands. These hot cloth fomentations, with kneading of the udder, will do more than the application of any drugs can do. It means a good deal of work, as it must be done a number of times each day until the inflammation is reduced. This treatment ordinarily should be started when the trouble first appears in an aggravated form, as it is much more difficult of treatment after it has gone some time.

If this is a real infection of the udder you will have more serious trouble on your hands, but it does little good to inject anything into the teats. After the inflammation begins to go down, as a result of massaging, you can put on a paste of antiphlogistine, or some similar mild reduction agency, and will not need to use the hot cloths. A hot flaxseed poultice can be used, but it is more difficult to handle than the antiphlogistine. The cow's udder should be clipped with a pair of clippers before putting on an antiphlogistine poultice, as the paste will dry into the hairs upon the udder.

Co-operative Forest Grazing

More than 175 small stockmen living adjacent to the Pecos division of the Santa Fe National Forest in New Mexico are now grazing their small bunches of stock within that forest. Before going into the forest these stockmen used the public lands just outside of the forest reserve, but soon these lands were taken up by farmers under the 640 acre grazing homestead act, leaving them without sufficient range. They were not financially able to purchase lands and proper ranch equipment. They needed cheap range, or they would be compelled to dispose of their stock.

The San Miguel County Farm Bureau took the matter up with officials of the National Forest, especially J. C. Kircher, the forest supervisor, and found that range was available within the forest for this stock at a nominal fee per animal. They worked out the scheme of organizing co-operative grazing associations, and as a result of a series of meetings in that section, the stock was pooled and turned into the forest, each owner paying his pro rata of the expenses. One man is placed in charge on the reserve. Others are employed as the number of livestock increases. The expense to each owner is much less under this arrangement than when he used the land outside of the forest.

Self Feeders For Hogs

Continued from Page 5

grain and alfalfa. Sometimes in a given restricted locality the price of alfalfa hay will go very high, while grain will run about normal. This is the outlook for the irrigated district in the Cache La Poudre and part of the Platte Valley this season. From Longmont, north to Fort Collins and around through Greeley, as well as on north through Wyoming an unprecedented drouth has occurred. The first cutting of alfalfa hay was very light and on most farms there will not be much of a second cutting. This will make alfalfa hay very high in price in these localities and consequently a high valuation must be put upon alfalfa pasturage. More grain, therefore, should be fed pigs than we would ordinarily feed. It is probable that in these sections this year, pigs could profitably be allowed to run to the self-feeder.

The Finishing Period.

For fattening hogs, in the last month or six weeks before they go to market the self-feeder reduces labor greatly, and if a variety of suitable feeds is offered, the pigs will be found to make very rapid gains with a minimum of labor, and, if the self-feeders are properly constructed, with a minimum of feed. The hog should not be compelled to utilize alfalfa pasturage at this period, and inasmuch as he is upon a concentrated ration, the self-feeder has been demonstrated as economical for the handling of such feed stuffs.

There are a number of different styles of self-feeders in use. The chief point difficult to work out in the self-feeder is to prevent waste of feed without providing so complicated a construction that the self-feeder is difficult to make. Some sort of an adjustable slide must be provided at the opening to allow for enlargening or reducing the opening, according to the fineness of the feed stuff being used. This usually is either a board sliding up and down in guides at each end of the feeder, or a gate running against rollers.

The agriculatural college of Guelph, Ontario, has put out a plan for such a gate that seemed to possess one very especial advantage. Feed is inclined to stick at the bottom of a self-feeder, particularly such products as tankage or bran, when they get a little moist. The slide on the Ontario self-feeder is attached to strips of spring steel. These strips are fastened to the self-feeder at the desired points by thumb screws. The slide is not held rigid by guides at each end as in the case of most self-feeders. As a result the pig in working at his feed in the outside portion of the trough, presses against the slide which gives in because of the spring steel. This crowds down a little grain into the middle of the trough, and allows space again at the bottom of the self-feeder when the pressure is removed and the slide comes out in place.

The self-feeder is a desirable thing to have upon any hog farm, and is valuable equipment for certain portions of the feeding period. We have one in use upon the college farm, and I have one of a different style in use upon my own place. I am satisfied that their steady use throughout the year for pigs from weaning time until they are turned upon the market can result only in loss upon one's feeding operations, but if used wisely, at the time when they are of most advantage, they are labor savers, and will result in heavy pigs at a given age.

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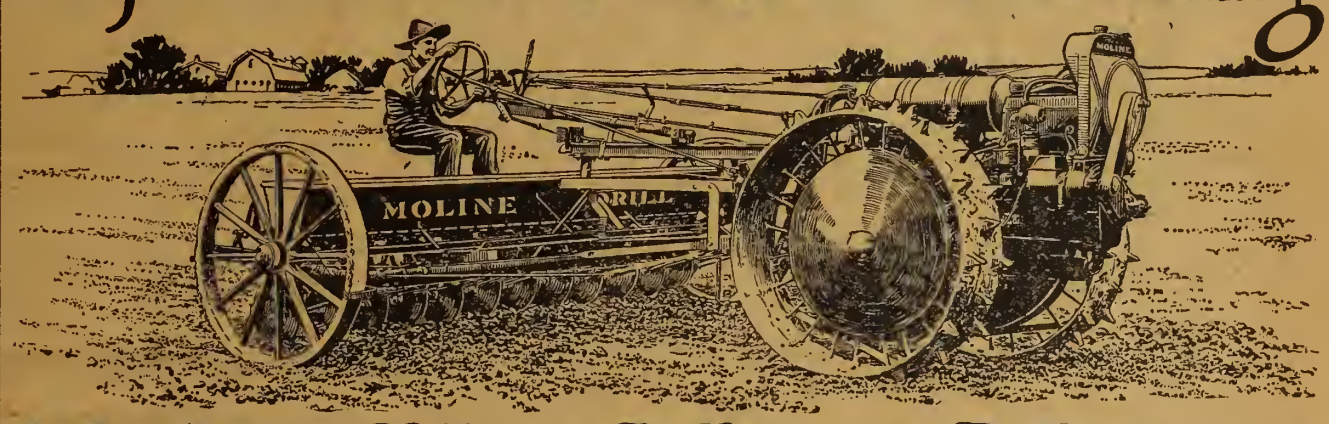

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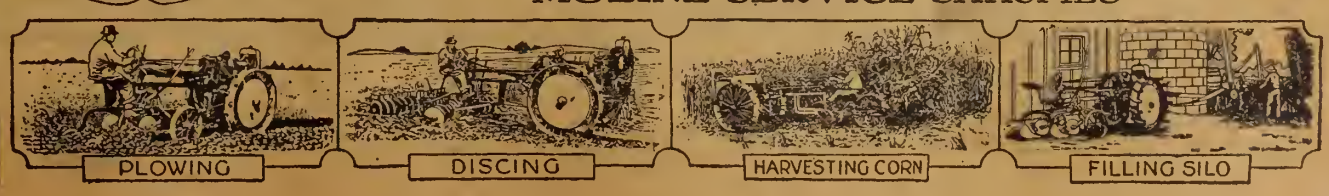

Dairying and Hog Raising

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Cow Testing Results

Interesting figures regarding results of cow testing are given in the following statement from Roy M. Curtis, tester for the Johnstown and Boulder associations:

In one case the herd owned by C. H. McNeil & Son was increased from 6,610 pounds of milk per cow for the year to 9,100 pounds of milk. Butterfat was increased from 237 pounds to 326 pounds. The feed bill for the year was $31 per head higher and the profit was increased from $56 per cow to $101 per cow, or from $728 profit above feed to $1,313 on thirteen cows. The same cows were tested both years and the average price of milk for both years figured to practically the same, while the price of grain was higher. The rations were made out each month for each cow the last year by the tester and the cows fed accordingly.

The Johnstown and Boulder associations were run together last year and out of the 250 cows tested at Johnstown, 45 produced over 365 pounds of fat for the year. One registered Holstein herd owned by Lohry & Wailes produced an average of 396 pounds of fat per cow from 11,230 pounds of milk. Our high cow, Rocabie, owned by W. A. Purvis, produced 634 pounds of fat from 17,230 pounds of milk and had two calves during year, causing her to be dry twice. One registered Holstein cow, owned by Lohry & Wailes, produced 585 pounds of fat from 11,200 pounds of milk and had an average test of 5.2 per cent for the year.

Last month thirty cows produced over fifty pounds of fat per cow. The high cow for the month was Alice, owned by W. A. Purvis, and produced 83 pounds of fat from 2,555 pounds of milk. She did give as high as 89.7 pounds of milk in one day.

D'Arcy Buys Fine Bull

Mr. N. R. D'Arcy, our widely known Douglas county Holstein breeder, has just returned from the East, where he picked the cream from the sale held by Arden Farms, near St. Paul, Minn. Mr. D'Arcy has selected a number of cows from his own breeding, and from sales, that show great individuality, and are large producers, and wished to head his herd with a bull second to none, and from the backing the calf has he surely has picked a bull of wonderful promise in Sir Ollie Homestead Pontiac Segis. The sire of this bull is a son of the world's record heifer, Beauty Girl Pontiac Segis, she having broken twenty world's records in her first two lactation periods. Her seven day test shows 37.15 pounds butter and 715.50 pounds milk, and has a yearly record of 1,112 pounds butter and 24,924 pounds of milk. His dam is now on year test and is averaging 80 pounds of butter for thirty days.

The dam's side also shows wonderful production and the basis for production is taken from yearly tests which are beginning to have more weight than the seven or thirty-day tests. Mr. D'Arcy not only believes in swatting the scrub bull, but goes further, and breeds only the best, and a good herd headed by a bull of this breeding should make a wonderful showing.—Douglas County Farm Bureau Bulletin.

Wyoming Buying Cows

The local creamery plays a very important part in building up a dairy community. The failure of a creamery usually results in a serious setback for the dairy industry in that community and every effort should be made to aid them. The creamery is the dairyman's market and helping the creamery is lending assistance to the dairyman. There are small creameries in every state in the West that need help. Usually the trouble is the small volume of raw material available.

When G. D. Turnbow, dairy field agent in Wyoming, discovers a creamery running under such difficulties he begins a survey of the community and usually finds that a number of farmers would keep dairy cows if good ones could be obtained at a reasonable price. This has resulted in Mr. Turnbow making a trip to the middle west and he has just returned with nine carloads of dairy animals. He also has orders for six carloads to be delivered this fall. This not only saves the creamery, but strengthens the industry to such an extent that the organization of cow testing associations and bull associations is made possible. —J. E. Dorman, in charge Western Dairy Extension, U. S. D. A.

Big Type Hogs

Mr. Morton seems to have invited a discussion of hog types in the issue of June 15 and along certain lines I agree with him, where he states that the Poland China was too fine and "quick maturing" up to some ten years ago. The change toward the big type really came some 20 or more years ago, when the Duroc began displacing the Polands on so many farms, but the Durocs were too gross and coarse and the tendency among breeders and farmers was to modify them. This was easy in the true corn belt. At any rate the reds soon developed the same tendencies of the earlier Polands and I have seen many mature reds weighing but 200 pounds.

Then in spite of purebred propaganda corn belt hog men cast their eyes toward the big Chester Whites. It did not seem to take the Duroc men as long to see the error of their ways as it had the Poland men before them and big type Durocs are already with us before they have lost a great deal of their popularity among farmers. But we see the white breeders falling into the same error that the black and red breeders encountered. The big rugged whites were what appealed to the farmers and notwithstanding this the breeders began advertising and setting as their ideal a quick maturing hog. They could not stand the gaff of the breeders of the blacks and reds of coarseness and slow maturity and now in fact the whites are rated smaller hogs than either of the others.

I am not a breeder of pedigreed stock but am of the great army of meat producers and as my interests have always been among them, I profess to speak as one of them. We let go the Poland Chinas from 15 to 30 years ago because they were losing their size, virility and potency. Among my own folks we made frequent crosses with the old-time coarse Chester Whites. One specimen I used with excellent results was 48 inches high on his shoulders and above 7 feet long. Old John sired us above 150 pigs and his half blood progeny topped Omaha market at 10½ months, weighing 303 pounds for a whole carload of barrows. Later, our neighbors gradually let go the blacks and went into the reds. At first they got size, virility and wonderfully large litters, but of late years the size is diminishing. Some have since turned to the Chesters, but that breed is so modified now that it bears little resemblance to the Chesters of 30 to 40 years ago, save in color. Quoting Mr. Morton: "The demand for big type hogs became so keen that breeders sought for size at the expense of everything else that goes to make up a hog. As a result many long leggy, high backed, shallow bodied, light hammed and hard feeding hogs were produced." (This evidentally had reference to the Poland China).

And in the above he was right; such hogs had little utility from a breeder's standpoint; they won no ribbons and were the laughing stock of the competing breeders, but another side to the same story. I had one of those long leggy, high backed, shallow bodied, etc., Poland Chinas. I bred

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him to sows that were too fine to suit me, and the result was as good pigs as ever went to market. I got size—400 pounds at a year old. I got vitality—scarcely a dead pig and almost everyone went to market. I got potency—his litters were 7 to 9 and the litters of sows sired by him are 8 and 9 this spring. The point I wish to make is that those coarse pigs do have great value when it comes to injecting size and profit into farm herds even though they would not catch a judge's eye.

Peter Mouw was a hog man that builded wisely. He knew the farmers' wants and needs. One of the greatest of big type breeders penned a classic not long ago in an ad for his own hogs. He said, "You must breed hogs into the air, anyone can feed them to the ground." There are other things that go with constructive breeding, but he has a true grasp of the first essential. My whole life has been spent in or near a hog pen and I will say that the average American corn belt farmer can take any rugged strain of big type hogs and by feeding too much corn and too little bone and muscle-forming food, and by breeding immature gilts, which nine-tenths of them do—and can run out a virile strain of hogs in four generations, unless worms and cholera beats him to it. I now have a son of a ribboned Poland China that is almost the picture of his sire. He would sell for several times as much as my last year's pig and would be picked up by a breeder of fine stock as something desirable because he is a smooth, big type. But he is not as good a hog for the average farmer as the other one was.

Now, let us look a little further into the whys of big type hogs. The fastidious American public has acquired a liking for pig meat and cares little for the harder fibered oilier flesh from mature hogs. On the other hand, handy weight hogs, weighing about 225 pounds, are most economical for the butcher. They make nice sizeable cuts without being over large. So we see that we must have a hog still a pig, that is not nearly mature, and weighing from 200 to 250 pounds. Those small early maturing hogs won't furnish the carcass, for by the time they reach the weight of 250 pounds they are finished, solid fibered mature hogs—packer hogs—in other words. We will view it from another angle: it is proved that pig meat is more cheaply produced than is the last hundred pounds of super-lard finish, so the practical hog man demands a type that will grow big while he is yet a pig, and it requires a great big type to furnish us a 250-pound carcass of pig meat.—E. W. Ferguson, Jr., Long Pine, Neb.

Home Remedy for Bloat

Editor, Western Farm Life:

I saw your editorial with the request of farmers for more discussion of farm problems by the farmers themselves. As I have lived about half a century already and have had a great variety of experiences on the farm, as a gardener, a fruit grower, irrigation farmer and dry farmer, I have been thinking lately that a few at last, of your readers might appreciate and be benefited by reading some of my experiences.

In your last issue I saw an article on "Bloat," with instructions as to methods of treatment. To save thousands of cattle, I will give you my experience as to what to do when a calf or steer or cow bloats on alfalfa or clover. And let me say right here, that white blossom clover will bloat cattle and sheep too and we have had cows and calves bloat on it for the past seven years or more, especially when we take the cows out of the field in the evening and turn them back in, next morning after milking. The earlier they are taken out and the later they are turned in next morning, the greater the danger. Until we completed a partition fence last week, we had to take the cows and young stock out of the field at night and have them herded in the day time, and we had bloat every day or two. Since we finished the inside fence, and leave the cattle in day and night, we have not had one case of bloat.

We had the same experience last year with one exception, that was a yearling steer. He bloated so badly he couldn't get up and we got our knife and prepared for the operation, but fortunately, there was a large hole right by into which we rolled him, with hips down in the hole and shoulders up on the bank. Then we took him by the ears and nose and stretched his neck and head as high as possible. This caused him to belch up the gas, and he did it so rapidly that we did not have to use the knife. This same steer is now a good sized two-year-old. He would have died several times this summer if we han't got him in time and shoved his hind legs into a ditch or hole about 18 to 20 inches lower than his forefeet. We have had three cows at a time with hind legs down in a hole or ditch, with front legs up on the bank, with my wife and one of the girls or boys and the "old man" hugging the cow around the neck while she belched up the gas.

Seven years ago we had a little full blood Jersey calf that was staked out in the orchard on sweet clover. He wasn't long in learning to eat it and in about a week he would puff up. We rushed him over to the garden fence where we had an empty apple pit into which we put his hind quarters and then tied his head up as high on a post as we could stretch his neck. He was always ready to go back to the clover in about twenty minutes, and he was safe until the next morning.

I have had over thirty years' experience with bloat in cattle, and we are sure that over 99 per cent can be saved by the hole or ditch method, but the safest, cheapest and best treatment which has never failed with us, is leaving the cattle on the clover day and night all spring and summer.—L. B. Burnham, Redmesa, Colo.

Getting Rid of Coyotes

Ans. to E. E. O., Pueblo county, Colo. It is pretty hard to fool the coyote with any kind of a scarecrow that you could rig up. They might keep away for a few days, but they are smart enough to know whether a thing is alive or not. Shooting or poisoning is the only way to get rid of them. If you put out poison, of course it will have to be placed where the chickens cannot get at it. Strychnine is the poison generally used, the powder being inserted in bits of meat or fat. It should be put in two-grain capsules for this purpose. If you can locate the coyote dens, the poison can be placed near them and out of reach of your chickens.

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Big Hog Sale at Pueblo

A remarkable thing has come to pass in the hog breeding business; and still it is not remarkable when one stops to reason it out. We refer to the fact that cornbelt farmers are beginning to come to the mountain states for breeding stock. Ten years ago such a suggestion was unheard of. It would have been laughed at. Today it is true in hogs as it has been for a long time in beef cattle, that eastern breeders are making selections of herd toppers from our western bred herds. To the Blue Ribbon Livestock

Blue Ribbon Sensation, a $1,000 Boar Owned by C. F. Burke

of high altitude and ideal climate, such as prevails in Colorado are hardier healthier and usually more prolific than animals bred and reared under the more or less depressing climatic conditions of the Mississippi valley. The second reason is that here in Colorado the eastern breeders have found blood unsurpassed even in the finest herds of the corn states, where the hog industry has flourished for half a general fact that purebred farm animals developed in the environment breeders and farmers of the cornbelt.

There is a reason, of course. One might say, two reasons: first, the usual order by showing western bred hogs at the big eastern fairs and shows, and selling breeding stock to company's Duroc herd at Pueblo belongs the distinction of reversing the century or more.

These statements bring to mind the fact that often our home people fail to appreciate the quality of livestock which they can buy at home, and fix their minds on distant objects. It is a natural trait that sometimes costs us money and a bit of hard experience before we learn to appraise what is immediately at hand. So if you are looking for registered Durocs bear in mind the big annual sale that is to be held on the state fair grounds in Pueblo August 21, when C. F. Burke the well known breeder, who is at the head of the Blue Ribbon Livestock Company's farm, is to offer some 40 head of bred sows and gilts and several boars.

The Blue Ribbon herd has furnished grand champions at state fairs as far east as Illinois and west to California; in fact, Mr. Burke has in his possession no less than 1,500 ribbons, including more than 75 championships. With such a record at the shows and fairs it is not surprising that he is known to hog raisers from Indiana to the west coast.

The blood lines on which his herd have been developed have always been among the recognized leaders of the Durocs. As far back as 1907 Mr. Burke was to be seen at many of the big shows of the east and at the ringside of big sales of the best herds in the land, picking out good animals of the different offerings and shipping them to Colorado, regardless of price or distance. Illinois, Indiana, Ohio, Iowa, Missouri, Nebraska and other states contributed of their best Durocs to build the foundation for this herd, and in the hands of a constructive breeder ,this blood has been mated, remolded and improved until some of the best show men of America have looked to Mr. Burke and the Blue Ribbon herd for show animals to head their herds and to exhibit at the big shows.

As an example of this we call attention to the giant boar, Burke's Good E. Nuff, that came directly from the Blue Ribbon herd, stepped into the show arena at Springfield, Ill., and carried off first honors in his class, senior champion and grand champion at the Illinois state fair where the Swine World reported 1,007 Durocs on exhibition.

Again at the biggest hog show in the world in 1917, the National Swine show at Omaha, one of the present herd boars, Burke's Good E. Nuff Again, was a winner in the aged boar class where he defeated a number of noted show boars, among them a grand champion of Nebraska.

Western breeders will remember Burke's Good E. Nuff Again as the giant Duroc that won the blue ribbon in the aged class at the National Western Stock show at Denver in 1918 and again in 1919. He was also first at the last Colorado state fair, and has won other firsts and championships. Big Cherry King, another great herd boar now in service in the Blue Ribbon herd, was also among the winners at the National Western Stock show the last two seasons and was first at the state fair in Pueblo, 1918 He has proven a sensational sire, having sired every first prize pig and litter in the state futurity show, and every second prize pig and litter except second on futurity sow. Several other winners at the same show were sired by him. This was the more remarkable when it is remembered that there were twenty different herds entered in the futurity and over fifty pigs actually showing in these classes alone. About half the sale offering on August 21 is sired by Big Cherry King.

Another of the great boars in service is their new herd boar, Blue Ribbon Sensation, for which the owners paid $1,000 at nine months old. A number of Big Cherry King gilts will be sold, bred to Blue Ribbon Sensation. He is a real big type boar with winderful bone and great scale, and breeders are predicting that he will be the next grand champion of Colorado.

It is frequently and truly said that "the boar is half the herd," but it is equally true that the other half has to come from somewhere.

The giant sows of Blue Ribbon herd are a wonder to those who see them for the first time, and some very famous ones are found among them. One of these is Alfalfa Queen, called "the best known sow of any breed in the extreme West." She is the dam of Burke's Good E. Nuff Again, of Daggs Good E. Nuff, grand champion of Cali-

Turn to Page 22

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Mr. Parsons Is Called Down

Western Farm Life:

In the issue of February 15 there is an article by Mr. E. R. Parsons, "Spring Wheat the Cash Crop for Dry Lands." I wonder why Mr. Parsons has to discredit the work done at the Federal Experiment Station at Akron? Mr. Parsons must not have watched the work of the government men whom he condemns.

After a seven year test on several plots, fall plowing gave poorer results in all years except one, when the precipitation was unusually heavy in November, a heavy rain having fallen.

They also found that plowing over eight inches was waste of labor and horse flesh. The land in Colorado I presume differs as much in type as the inhabitants. I am personally acquainted with a number of the experiment men and I believe them to be exceptionally careful in their statements, and no half baked experiments have been made. To illustrate from what I saw: Mr. E. C. Chilcott laid off the grounds for the station at Akron. I and three men from Washington assisted. Time was very short, but when Mr. Chilcott found that one of the helpers placed a wire stake first on the inside of the handle and then on the outside, making a variation each chain of the width of a No. 12 wire, he stopped the work and made us measure 80 rods over again to starting point. He said he wanted the land measured, not guessed at. I wonder if Mr. Parsons is as careful. There probably are locations where deep plowing in the fall will give good results, but this part of the plains will not follow that rule.

Let Mr. Parsons ask Mr. Holdredge of the Burlington what he got from the 30 acres that Mr. D. W. Irwin had plowed for Mr. Holdredge near Akron eighteen inches deep, subsoiled to that depth. The first year the corn did not get a foot high, while the scratchers got average crops. The land here is such that when it is wet a wagon rod can be run down eighteen inches or more, but when dry it can hardly be dug with a spade. Now, Mr. Parsons, kindly let up abusing these men, for they are forbidden to enter newspaper conflicts. Their reports are carefully examined before they are given to the public by the secretary of agriculture and must have his O. K. to pass. I have resided here twenty-six years, farmed over forty years, and would say to fellow farmers you can get no better reliable information on dry farming than Uncle Sam hands out to us. "Prove all things, hold fast that which is good," but don't go too large a scale until you are sure the method adopted suits your farm. What is good for your neighbor may not be good for you.—James Brunker, Akron, Colo.

Mr. Parsons' Reply

In answer to Mr. James Brunker, I would say that to the best of my recollection I mentioned neither Chilcott nor Akron nor any other experiment station. What I wish to discredit is jumping to conclusions from plot experiments. They amount to very little and the results are often startling in the extreme. At the conventions of the Dry Farming Congress I have heard plot experimenters say that the summer fallow conserved less rainfall than the hard land around it, that cultivation did not conserve moisture, and that deep plowing was no better than shallow! So you see that if we follow the plot experiments we might as well quit dry farming.

I quite agree with you that Uncle Sam is doing the best he can for us. Here are some excerpts from Bulltin A-68, dated September 8, 1909, by Dr. S. A. Knapp, who was not a plot experimenter, but made his experiments on hundreds of different farms in many different states and all kinds of soil.

"Prepare a deep and thoroughly pulverized seed bed by plowing in the fall to a depth of 8, 10 or 12 inches, according to the soil. Use intensive tillage during the growing period of crops. In many cases, if the plowing is done in the fall it pays to subsoil 15 or 20 inches. The object of deep fall plowing is mainly to increase the supply of plant food and the storage of moisture in the soil."

When men in the department contradict one another, whose opinion are we to take? Naturally that of the one with the widest experience and who gets the biggest results. Dr. Knapp increased the yield on thousands of farms, and had the widest experience of any man ever in Uncle Sam's employ.

As regards experiments, I would quote County Agriculturist E. D. Smith, of Colorado, who reports increases in the yield on 750 acres in La Plata county 8 bushels per acre by deep plowing.

According to what you say about Akron, there may be some peculiar soil condition found in streaks which might account for the result of experiments there, such as alkalinity, gopher clay too near the surface, or a sedimentary deposit containing too much of some infertile substance which deep plowing brings to the surface and injures the texture of the topsoil. We can never tell what a piece of land has been through in the last thousand years or so.

I am glad to hear that Mr. Holdredge has had some land plowed and subsoiled 18 inches deep. You cannot plow land that deep and obtain results right away. Moisture must be conserved in it first. You will all be admiring his crops on it for the next five or ten years. On the 750 acres in La Plata county we could probably find several plots where the crops were poor, land differs so much; but that wouldn't prove anything, would it?

To determine anything in an agricultural way requires a large acreage and a number of years. I used to get letters from all over eastern Colorado, also from Dakota, Wyoming, New Mexico, etc., about some peculiar soil they had that could not be plowed deeply, but at the present time there is in nearly every one of these districts some farmer who has doubled his crops by deep plowing. At Wray, Colorado, they had this same idea, but Mr. Cosby took my advice, plowed deeply in the fall and instead of raising 15 and 20 bushel crops is harvesting nearer 40. If you wish to try what depth will do at Akron I would suggest that if you are not yet fixed for deep plowing, you have your garden spaded a foot deep this fall and watch results.—E. R. Parsons.

Winter Rye for Pasture

Winter rye sown in August or September makes a good fall and spring pasture. A few years ago Mr. Arthur Voss sowed two acres of rye the first part of September. This rye afforded good pasture all fall and was ready to be turned in on as soon as spring opened up. Mr. Voss says that the stock were left on until June 1st, after which the rye came on, producing seventy-three bushels on the two acres. On our own place we have sowed as early as July 4th and after pasturing fall and spring cut a good crop of hay when the plant was a little past the blossom stage. Then in a few weeks another crop which would make a small tonnage of hay or seed. Rye will stand more hardship, will do with less water than most of the other grains. On nearly every ranch there are a few acres which could very profitably be used as a rye pasture.—C. D. Hyatt, County Agent in Monte Vista Tribune.

Filler and Fooler, Not Feed

Witness, if you will, the young farm lad hitching up a team to sled or wagon, and going out to the field to gather cornstalks from the shock, cornstalks which at that time of the year have lost all palatibility as well as valuable protein through action of rain and air. Watch the lad apply axe or mattock and tug and pull until he finally gets a load of feed for the milch cows. Feed indeed! Filler, possibly "fooler" more surely, failure certainly—failure to really meet the needs of the animals for succulence, palatability, digestibility—Farm Bureau News (Fall River County, S. D.)

The youngest age at which veterinarians recommend testing calves for tuberculosis is six months. In special instances, however, numbers of animals under this age have been satisfactorily tested with tuberculin. The present regulations of the bureau of animal industry prescribe a dose of two cubic centimeters of tuberculin for calves ranging from six months to one year of age.

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Mr. L. C. Henry of Utica, Minn., purchased an International Motor Truck to haul his live stock and farm produce to market and to bring return loads from town. He says, "We use the truck for nearly every kind of hauling. It saves more time than any other machine in our farm service." Five of Mr. Henry's neighbors bought International Motor Trucks when they learned, from his experience, what a useful economical farm machine he had.

There are four sizes of **International Motor Trucks**—1,500, 2,000, 3,000 and 4,000 pounds capacity, with bodies suitable for every kind of hauling. We have a dealer, a branch house, or a service station somewhere near you, where the line can be seen, or we will send full information promptly if you will write us.

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Planting & Seeding Machines
Corn Planters, Corn Drills, Grain Drills, Broadcast Seeders, Alfalfa & Grass Seed Drills, Fertilizer & Lime Sowers

Haying Machines
Mowers, Tedders, Side Delivery Rakes, Loaders (All Types), Rakes, Combination Side Rakes and Tedders, Sweep Rakes, Stackers, Combination Sweep Rakes and Stackers, Baling Presses, Bunchers

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Ensilage Cutters, Huskers and Shredders, Corn Shellers, Threshers, Hay Presses, Stone Burr Mills

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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Harvest

Sweet, sweet, sweet,
Is the wind's song,
Astir in the rippled wheat
All day long.
It hath the brook's wild gayety,
The sorrowful cry of the sea.
Oh hush and hear!
Sweet, and clear
Above the locust's whirr
And hum of bee
Rises that soft, pathetic harmony.

In the meadow grass
The innocent white daises blow,
The dandelion plume doth pass
Vaguely to and fro—
The unquiet spirit of a flower
That hath too brief an hour.

* * *

Sweet, sweet, sweet,
Is the wind's song,
Astir in the rippled wheat
All day long.
That exquisite music calls
The reaper everywhere—
Life and death must share,
The golden harvest falls.

* * *

—Ellen Mackay Cortissoz.

The shift from spring and early summer has left our window picture painted in all the wonder and color of summer harvest. My kitchen window looks out on a valley where the gold of many wheat shocks stands out in soft contrast to the green of waving grasses just beyond. The cottonwoods that weave their graceful processional chain along the river's brink, cast soft shadows over this fruition of toil. At the other side of the window I can see the soft blue hills with long hazy lines in the late afternoon sun, and think that this scene now is the most beautiful picture in the world.

But there is nothing without labor and it is only a gray sky that throws no shadows. The ripened grain, the waving grass even the tall cottonwoods have their own representation in our toil, and our fears. Both the toil and the fear have been worth while even if only from the standpoint that they have given us the opportunity to keep on working. For reward of labor well done is exactly as it should be—more labor to be well done!—E. D.

What Mary Wants

Dear Sarah:

As grandmother used to say, "one go just gets ready for another," and that picnic scheme of Marvin's started it; what the Chautauqua lecturer said about really seeing the great outdoors gave it another boost, and then a certain document which came into my hands the other day added the last lure, or rather prod.

You know Marvin's plans, and heard the Chautauqua lecturer along side o' me; but do you know that the United States department of agriculture has issued a questionnaire strictly for us women and it axes you, "Does you have a regular vacation, or is it only just 'days off'?" If you don't know about that questionnaire, I'm telling you, for I tried to answer one conscientiously and have felt as guilty as a draft-dodger ever since.

But that question about a "regular" vacation made me think a bit. Why doesn't a farmer, or a farmer's wife, or a farmer's child take a regular vacation? True he hasn't a position, nor a job, nor a salary, nor a date schedule, nor even the privilege of resigning when he gets good and ready. His is a vocation, an avocation, a religion and a roulette table pretty well mixed, with no real means of telling which form of labor is really coming uppermost.

I read that questionnaire aloud and looked up at John with never an accusing thought, but he said a little bit on the defensive, "Well, we've had some awfully good days in the hills and we're going to the county fair every day!"

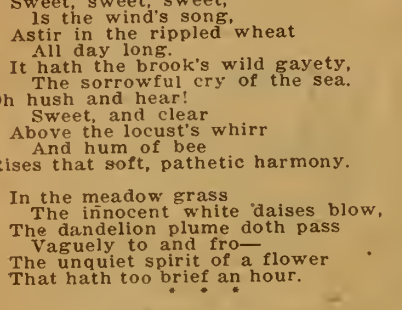
At the mention of the county fair, very certain knowledge came to me. "John," said I, "that isn't enough for you and it isn't enough for me. We ought to get away from this ranch, you and I and the children together for at least twenty-four hours at a time. There are daily tasks and daily interests, away from these Holsteins and the kitchen which really need an introduction to us. I like the county fair and this place as well as you; but we can get too bound up in the little things that keep it going."

The fact that I all unconsciously said "we" and that it was just another of my "internal revelations" as John calls them, instead of a board of censorship on past actions, saved the situation, and we began to talk up ways and means. It seems almost impossible yet. There are so many things to do; but between harvests, the Lord willing and the weather permissible, we are going to the mountains for five days!

The children are wild at the prospect. Of course they've been camping with their clubs and so forth before, but the fact that the whole family is to be transplanted at once and will have a chance to talk the same scenes over together afterwards has made them dance with anticipation. That's worth while anyway.

No doubt it won't be possible every year, but at any rate we're going to have a "regular" vacation this year and it's down on the calendar for next. What more could the United States department of agriculture do?

Lovingly,
MARY.



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Fruit Leathers Or Resurrecting the Preserve Jar

Instead of delicately halving a luscious chocolate from a two pound box of "Sampler's" or "Towney's" or "Laylord's," our heroines of old nibbled daintily at a bit of preserved ginger, or candied cocoanut, or orange peel, or else tried a piece of Turkish delight from Constantinople. The ginger and cocoanut came from India or China and grandmother's old majolica jar furnished the bit of delectable, crystal-clear orange peel, which modern confectioners are doing their best to rival. The old preserve jar is relegated from the usable shelf to the family relics, or serves as a bank for stork script for one of the grandchildren. And the grandchildren don't know what they're missing.

From over on the western slope of Colorado, where they raise those most delicious peaches, and sweet cherries, and big blue plums, there came to my ears one time a most palate tickling tale. It was at a canning demonstration, and somehow the after talk turned to sweets to put in children's lunches.

One woman informed us that she had turned for help to an old-fashioned recipe because she must use what was nearest, and the nearest thing usually seemed to be a great supply of meltingly ripe peaches. This she made into peach leather.

When pressed for directions she told us that she cooked the pulp of the very ripe peaches until it was reduced about one-third and then spread it out in a layer one-four to one-half inch thick on large platters to dry. When it was almost dry, it was sprinkled fairly liberally with sugar, which had a chance to crystalize on the top. Afterwards it was rolled up as one would a sheet of paper and strips or pieces cut from it with scissors. These pieces made the candy for the children's lunch.

Many of us remember hearing our mothers tell of these delicious old fruit leathers and a good many of us have eaten them. My grandmother's were always spread upon a clean shingle and put upon the shed roof.

Last year in this county under the dearth of sweets caused by the sugar regulations a few families prepared dried apple sauce in much the same way and to answer the same purpose. The writer has several times been given the very worth while privilege of "sampling." Those little boxes of apple leather have often made the finishing touch for a surprise company meal.

Wherever fruit is plentiful and you are hard put to it to provide some of the goodies for the children, fruit leathers furnish a delightful way out, because they are easy to prepare.—E. D.

Comforters from Raw Wool

Answer to Mrs. R. D., Idaho:

In answer to your question regarding the preparation of raw wool for making comforters, we have the following from J. A. Hill, wool specialist, of Wyoming University:

For washing raw wool at home:
Water, 10 gallons
Ivory soap, ½ pound,
Sal soda, ¼ pound

The soap and soda are dissolved in the water. The temperature of the washing water should be about 120 degrees Fahrenheit, or as warm as the hand can be kept in. The wool should not be scrubbed, but worked with the hand to squeeze out the grease and dirt. After washing, wool should be rinsed in water at a temperature of 100 degrees and softened a little with a little soap and soda. Wool that is free from chaff should be used, as the chaff will not wash out. After washing and rinsing the wool is dried and carded. The hand carding comb can be used for combing out the wool.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2359—Simple, Practical Model—The busy house worker will readily appreciate the good features of this design. The front closing makes adjustment easy. The sleeve may be in either of the two lengths protrayed. The dress is a one-piece model, with the fullness confined under the belt. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6 yards of 36-inch material. The skirt measures about 2⅜ yards at the foot.

2841—A Comfortable Work Apron—Here is a model easy to develop and one that shows an apron which will do service as a housedress. It is especially nice for warm days, has no cumbersome sleeves, and is easily and quickly adjusted. Seersucker, drill, khaki, gingham, percale, lawn, alpaca and sateen are good for this style. Cut in 4 sizes: small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. Size medium requires 4¼ yards of 36 inch material with 1¾ yards of banding, 2½ inches wide, for neck and front.

2836—An Up-to-Date Costume—The "growing" girl will always look trim when dressed like this jaunty model. Drill, linen, khaki, or plain gingham would do for the blouse with striped or plaid material for skirt and trimming. Cut in sizes 8, 10, 12 and 14 years. Size 12 requires 3¾ yards of 44 inch material.

2852—Pretty Frock for Little Miss—This design is pretty for dotted Swiss, for dimity, organdi, lawn, silk, voile and batiste. As here shown, figured and plain voile are combined with "Val." lace and insertion for trimming. The tunic may be omitted. Cut in sizes 6, 8, 10 and 12 years. Size 10 will require 3⅝ yards of 36 inch material.

2858—A Pretty Frock—Here is a very becoming model; just the dress for slender figures. It will be pretty in organdie, crepe, figured voile, foulard, duvetyn, and gingham. A sash of soft silk, or of self-material, forms a smart finish. The pattern provides for two styles of sleeve. Cut in sizes 16, 18 and 20 years. Size 18 requires 4½ yards of 44 inch material. Width of skirt at lower edge with plaits extended is about 1⅝ yards.

2843—Charming Summer Dress—Here is a model good for organdie, foulard, shanting, batiste, lawn, silk, handkerchief linen, crepe and voile. The band trimming may be of lace, net or embroidery. Cut in sizes 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 4⅞ yards of 44 inch material. Width of skirt at lower edge is about 2 yards.

2416—Set for Little One—The dress is ideal, in that it is comfortable, neat and easy to make. The sleeve, cut in one with the body portions, may be finished in wrist or elbow length. The slip petticoat could do duty as a dress for warm summer days. The drawers are cut on comfortable, loose lines. One could use

lawn or nainsook for all of these garments, or make the dress of dimity, batiste, crepe, linen, pique, voile or cashmere. The undergarments are also good for cambric, long cloth, lawn, outing and canton flannel. Cut in sizes 6 months, 1 year, 2, 3, and 4 years. The dress will require 3 yards of 36-inch material. The petticoat, 1⅝ yards of 27 or 36-inch material. The drawers, 1¼ yard of 27 or 36-inch material, for a 3-year size.

2330—Suit for Little Boy—For this model, the blouse could be of drill, madras, linen or flannel, and the trousers of serge, cheviot or of wash fabrics. The suspender portions are a new feature. They could be omitted. Cut in sizes 2, 3, 4 and 5 years. Size 4 requires 1¼ yards of 44-inch material for the waist and 2⅛ yards for the trousers.

CATALOGUE NOTICE

Send 10c in silver or stamps for our Up-to-Date FALL AND WINTER, 1919-1920 CATALOGUE, containing 550 designs of Ladies', Misses' and Children's Patterns, a CONCISE AND COMPREHENSIVE ARTICLE ON DRESSMAKING, ALSO SOME POINTS FOR THE NEEDLE (illustrating 30 of the various, simple stitches) all valuable hints to the home dressmaker. Address Western Farm Life, Denver, Colo.

Mancos Stockmen Active

The Mancos Cattlemens' association has been in existence several years. The plans of improvement in this association have been handled by the organization as they came up for solution. Some months ago this association passed a resolution favoring only purebred bulls for the range where their cattle pasture during the summer. This is what might be called a local association. The president, Mr. George Menefer, is vice-president of the Montezuma Cattlemens' association. The secretary is Mr. E. E. Humlston.

All matters of resolution require an enacting clause; that is they must have a plan for putting them into execution. On June 28, 1919, the Mancos Association met for the purpose of putting this matter into motion. A resolution was adopted by a rising vote, unanimously, that only purebred bulls be permitted on this range, of the Hereford and Shorthorn breeds, and the enforcement of the provision was requested of the Forest Service in granting range permits for next season. One purebred bull for each 20 head of cows will be required. Persons having less than 20 cows may buy co-operatively to secure the requisite number of bulls.

Mancos is fortunate in having a booster banker. This banker stands ready to finance any cattlemen in providing purebred bulls who may wish it. In fact no plans for public improvement of a worthy nature have to go further than Mr. Cline for financial aid.

Crop prospects are good for Montezuma county. The very heavy increase in the production of hogs has brought the price of hay up, because these hogs consume large quantities in the green stage. Hay is starting at $17.50 to $20.00 per ton. Silo construction and corn raising are receiving a considerable impetus on account of the hay prices. The June freeze also reduced the hay yield considerably. It seems likely, and the part of wisdom also, to ship out all sheep and cattle this fall that will not be necessary to maintain herd and flock foundation stock for next year.

To assist in the marketing of livestock to best advantage two co-operative livestock shipping associations have been formed among the farmers of the county. One will ship from Mancos and the other from Dolores. These associations will be ready for business in a few days. Farmers so often wish to do away with the middleman's profits and his services because they know he does not work for his health. These associations are the enacting clauses of the farmers resolution to get all his share of the profits of production. Rainfall is normal, summer range excellent, and spirit of farmers is good.——G. P. NEWSOM, County Agent.

Preparing Wool for Market

Wool is a good commercial product which sells to an advantage on its own merits. Dishonest practices are not necessary to improve the quality or to increase the weight. Wool however is a product which very readily loses many of its best qualities through careless handling. Wool sold through pool organizations should bring the highest possible price. Proper packing adds nothing to the wool but prevents it from losing the properties which it already has.

Shearing

The object of shearing should be to get the fleece off the sheep in as good a manner as possible. This cannot be done where the fleece is broken into pieces, or where the sheep is allowed to lie on shorn parts of the fleece or where the operator steps on the fleece during the process of shearing. Shearing can be done in such a manner that the fleece comes off as a unit and at no time during the process of shearing does the sheep lie on, or the operator step on any part of the fleece. Good work can be done with both blade and machine shearing.

Rolling and Tying

The best part of every fleece is the wool over the shoulder region of the sheep. Fleeces are placed in grades or classes according to the quality of this part of the fleece. A fleece should always be tied with the flesh side outside. This is a common practice in the wool trade. Damp fleeces should not be tied until dry. Dung locks and wet stained locks should be separated from the fleece and packed separately. A very good way of doing up a fleece is to roll and tie it. This is a very simple process, which takes no longer than mare careless methods. In preparing the fleece according to this method, spread the fleece on the floor flesh side down, lay the belly wool on the center of the fleece, fold one side over about one-third and then the other, fold the neck wool back three or four inches, then begin to roll the fleece from the rear end and tie with good paper twine. Examine such a fleece and you will find that the best part of the fleece is where it is clearly visible while the poorer sorts are out of sight. Such a fleece will stand more handling than one put up in most any other manner. The importance of tying was brought forcefully home to the writer while watching the grading of the Benton Wool Pool in 1918. A carelessly tied fleece was placed in a certain class. This fleece was then retied according to directions given above and placed back on the grading table unbeknown to the grader. On second grading the fleece was placed in a higher grade. The difference in price per pound of these grades was only a few cents but on this particular fleece it amounted to 25 cents. In one case this fleece was selling for what it was worth while in the other it was selling below value. Use no other string than paper twine in tying fleeces.

Packing

Standard wool sacks are the best containers to pack wool in. Quantities of wool less than 250 pounds should never be packed in more than one sack. If the quantity of wool is so small as not to warrant the use of a wool sack, sew gunny bags together so as to make a sack large enough to hold it all. It is a well established fact that many small bags of wool will lose weight faster, due to loss of moisture, than will one large bag. Do not sew up the end of the wool sack with binder twine. Particles of this twine get attached to the fleeces and damage them.

Storage

Wool as soon as packed should be placed where the sun and wind cannot reach it. Wool contains some honest water to which the wool grower is entitled and for which the buyer is willing to pay.—Oran M. Nelson, Oregon Agricultural College.

Winter Feeding Pays

The dry-farm station at Tucumcari, in co-operation with our college, has given an illustration of the value of feeding, in such times as last winter, that is about as clear-cut an illustration as one could wish for.

In January we bought five coming three-year-old heifers, bred, out of a ranch herd. They were selected as the average of the herd. They were fed 100 pounds of silage and 20 pounds of cowpea hay per day for ninety days. Then we went back to the same ranch and bought five three-year-old heifers by the same sire. In January, at the time the first five were picked, they were the equal of the ones we got; and since that time on the ranch they had been fed bran, ground maize, cake and straw as it could be procured from time to time.

On May 3 we got five of these heifers that had not been regularly fed, brought them in and put them in a corral alongside the fed heifers. Good, experienced cowmen said they would rather pay $20 a head for the same stuff which had been fed than for that which had not been fed. The difference in weight between the two herds of five each was 790 pounds in favor of the fed herd.

The experiment will now be run for several years with these two lots—on their calves and on the cows; five of them being given supplementary feeds and the other five on the open range. We are satisfied that the experiment will show that it pays to feed.

This would be a good time, in this splendid moist year, to grow some feeds and store them away for that dry, hot, and grassless spring that will cut down the profits for several years for the ranchman.—President A. D. Crile, New Mexico College of Agriculture.

Hannah Had No Carfare to Pay

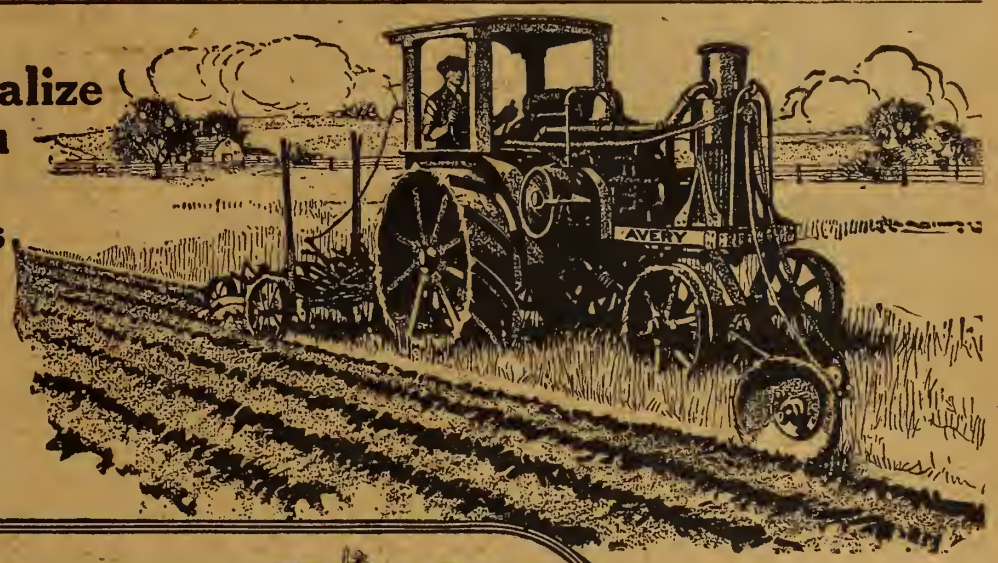
"Oh, Henry," exclaimed Mrs. Green, "Hannah tried to light the fire with gasoline!"

"Gasoline," said Henry calmly. "Did she get it started?"

"Get it started!" replied Mrs. Green. "Why, it blew her out the window!"

"Oh, well," remarked the philosophic Henry, "it was her afternoon out, anyway!"—Country Gentleman.

Do You Realize What You Could Do With This "Three-Plow" Avery?



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It is a real "three-plow" one-man outfit and is selling at a popular price—so low that *any* farmer can afford to own *one.*

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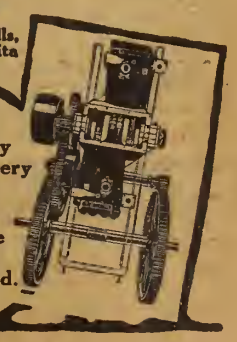

CORN HARVESTER Self Gathering for cutting Corn, Cane and Kaffir Corn. Cuts and throws in piles on harvester. Man and horse cuts and shocks equal to a Corn Binder. Sold in every state. Price only $25 with fodder binder. The only self gathering corn harvester on the market that is giving universal satisfaction.—Dexter L. Woodward, Sandy Creek, N. Y. writes: "3 years ago I purchased your Corn Harvester. Would not take 4 times the price of the machine if I could not get another one." Clarence F. Huggins, Speermore, Okla. "Works 5 times better than I expected. Saved $40 in labor this fall." Roy Apple, Farmersville, Ohio: "I have used a corn shocker, corn binder and 2 rowed machines, but your machine beats them all and takes less twine of any machine I have ever used." John F. Haag, Mayfield, Oklahoma. "Your harvester gave good satisfaction while filling our Silo." K. F. Ruegnitz, Otis, Colo. "Just received a letter from my father saying he received the corn binder and he is cutting corn and cane now. Says it works fine and that I can sell lots of them next year." Write for free catalog showing picture of harvester at work and testimonials.

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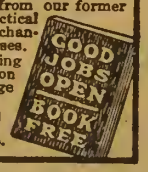

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Crop Rotation History

DR. L. S. DIJKSTRA

Rotation of crops is a very old branch of agricultural industry. Old Eyptian peoples practiced it, whereas Roman charters teach us many an interesting item about it. In later scripts of the 16th century I found the following definition by the priest Heralduc of Munster: "However rich and how well cultivated your soil may be, every soil needs changing of crop to improve its production capacity."

About the year 1650 some estate owners prescribed to the tenants on their land to follow a certain system of raising crops on their estates, though quite different from our present crop rotation systems. Following are some examples:

Three year rotation:

First year of tenantship commencing on the 12th of March: Rye, followed by a good manuring in the fall.

Second year: Barley; the manure of the farm may be sold.

Third year: Wheat, followed by a good manuring in the fall.

Example of four-year rotation:

First year: Oats followed by a good manuring in the fall.

Second year: Buckwheat, half of the manure may be sold from the farm. The other half be put on the permanent pastures of the farm.

Third year: Wheat, followed by a good manuring of all the manure on the farm.

Fourth year: Wheat, half of the manure must be put on the pastures, the other half must be left piled up for the next tenant.

Example of five-year rotation:

First year: Carrots and green pasture seeds. All the manure to be put on the fields in fall.

Second year: Oats on the carrot field. The green pasture may only be mowed twice a year and afterwards manured with the manure that comes from January first up to May first. The manure from October to the first of January may be sold.

Third year: Barley. The green pasture may be grazed from first of May to first of July; afterwards it must be mown. The manure be put on the barley stubble in the fall.

Fourth year: Wheat. All the manure may be sold.

Fifth year: Oats, half of the manure be put on the pasture, the other half on the cultivated field.

These old rotations reveal many an interesting item. They show, for instance, how high the value of manure was estimated in those days; further that the value of green crops as fertilizer was unknown, and so was the value of leguminous crops. They teach us, further, that crop rotation was often more highly valued by the farmers of those days than by our present farmers, and also the manure value, so that it is worth while to expatiate here on our present crop rotations and their economical benefits. The purpose of crop rotation is to increase production, to conserve soil fertility, to kill weeds, and to prevent diseases. Advantages of rotation may be summarized as follows:

1. Every crop desires its own preparation of soil; thus ground is prepared in different ways and kept in better condition.

2. Every kind of crop takes from the ground for its growth special elements which are the same every year, so that in the long run the ground is deprived of these elements. Here the leguminous plants show their excellent capacity for restoration of fertility. Having the power of obtaining the free atmospheric nitrogen, a plowing under of their crowns or roots provides the soil amply with the valuable element, nitrogen.

3. All ground needs a large quantity of organic matter or humus. Plowing under of green manure crops, roots and stubble aid in this purpose, giving the desired physical texture to the soil.

4. Crop rotation cleans many a soil from wild oats and other weeds.

5. Crop rotation encourages the keeping of livestock, the manure assisting in improving the whole farm.

6. Rotation provides a diversification of crops which enables the farmer to meet the needs of the markets and prevents, in many instances, failures due to the one-crop plan.

7. Different circumstances (for instance, war periods) require different management of the farm, so that help can be utilized to the best advantage.

8. Expensive fertilizers may be replaced by fertilizers produced on own farm.

9. Certain crops are able to draw food stored in the subsoil, which other crops cannot do.

10. Crop rotations destroy insect pests and plant diseases, etc.

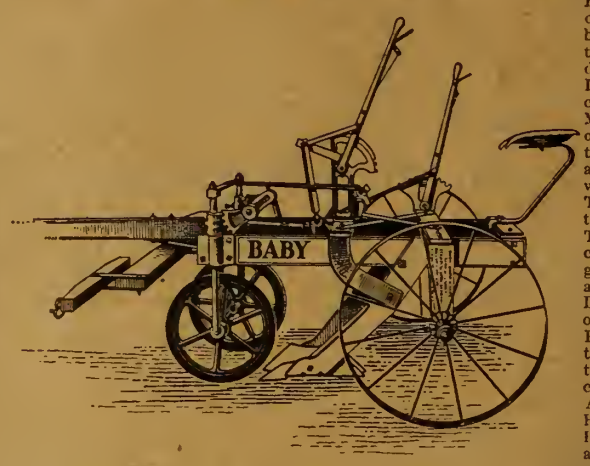
These are the most important advantages of crop rotation. But, as has everything in this world, crop rotation has also its disadvantages, which, however, do not counterbalance its advantages. Some of the disadvantages are:

1. Some crops take extra labor.
2. Some farmers have an objection to the cutting up of their farm.
3. It takes often some extra fencing or time and labor to replace fences.
4. Not every farm is fit for crop rotation on account of soil and moisture conditions, so that only a few special crops can be raised.
5. Many a farmer wants to raise only such crops for which he thinks the market will be good that season.
6. Some farmers want only to raise such crops as supply the needs of their farms—for instance, the dairy farmers.

These are the most important disadvantages, perhaps, of crop rotation, but taking it as a whole, I feel safe in saying that where crop rotation is possible (and this is the case under nearly all circumstances), it is a very important item.

The BABY Beet Puller

THE ORIGINAL AND ONLY GENUINE



Has adjustment for large or small beets. Leaves beets in perfect condition for the toppers and does not drag beets under. Leaves ground in such condition that a ton MORE can be hauled out of the field on a wagon that can be hauled after any other type of puller with the same draft. This is due to the fact that it DOES NOT DISTURB THE GROUND, cutting only a core of the ground, lifting the beet at the same time.
Does not clog easily like other pullers.
Provides a place for you to ride. Simple and easy to operate, and a boy can handle it.
A long-lived machine.
Has a foot guide.
Has a device for raising and lowering the pulling points in operation, making it possible to pull the beets where the ditches have washed full at the lower ends.

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Why don't you market your cattle and sheep at Denver, where they will bring you greatest net returns?

A Dry Lander's Discovery

Dry land farmers all remember the summer of 1911. Everything was burning up. I stood on the top of a knoll on my homestead looking around and couldn't see anything except sunburned crops and dry grass. Yes, I did see something else, for on looking up the U. P. tracks about a mile and a half west, a little spot of green showed up. I was new in eastern Colorado then and not prepared for the inevitable year of drouth. I shaded my eyes to take another look up the railroad track and then I said to myself: "I am going up there to get acquainted with that little spot; it seems to be the only other green thing in this country."

I walked up the track through the hot sun, and the nearer I got to the spot the greener and better it looked to me. When I arrived I saw it was white sweet clover. I said to myself then, if white sweet clover can stand a drouth like we are having this year, it will stand anything. About the same thing happened in other dry seasons since. A look up the track always gave me confidence, for the same spot of green showed up. It remained until I went up there the last dry year we had and cut that sweet clover patch for hay. I cut it too close to the ground and killed it out, but I learned my lesson and now sweet clover is grown on my farm. I have studied the crop and am working with it, for I am sure it is the coming hay and pasture crop for the dry land farmer. One thing I know, and that is, it will live through the worst drouth that ever comes to this plains country. Starting with such an advantage—being drouth resistant, being a leguminous crop, giving us pasture and hay, fertilizing our land, making the nitrogen available to succeeding crops and providing a good cash crop in the seed—white sweet clover seems to me to be worth tying to.—F. W. Haupert. Bennett, Colorado.

Western Farm Life Service Bureau will answer your questions and help you solve farming problems.

Profitable Farm Poultry

W. E. VARLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

Do You Know?

Do you know how many eggs your hens have laid for the period, January 1 to June 30?

Do you know which hens have laid the most eggs?

Do you know which hens have entered on a six months' vacation?

Do you know that in six months a hen can "eat her head off"?

Do you know that a star boarder hen, like some men carrying a little insurance, is worth more dead than alive?

Do you know market prices?

Do you know that egg yield drops almost as much by reason of mites and lice as because of hot weather?

Do you know that tainted meat—bodies of decaying carcasses may cause ptomaine poisoning in poultry?

Do you know that fowls enjoy cool water, shade, greens, about as well as do human beings?

Points on Culling

Careful culling to weed out the low producing hen is necessary for profit with poultry. Nature marks the poor layer so it is easy to pick her out. Culling should be done between August 15 and November 1, when the marks are most evident. Proper fall culling reduces the winter feed bill but not the egg production.

Egg production decreases with age. Plymouth Rocks, Rhode Islands, Wyandottes and Orpingtons should not be kept more than two years. Leghorns, Minorcas and Anconas may be kept three years. All hens over these ages should be sold.

Pullets lay the winter eggs. All mature, vigorous pullets should be kept. Any weak, under sized or deformed pullets should be culled out. Other methods of estimating future egg production of pullets are inaccurate and their use is not advised.

The real problems of culling are found with yearling hens. Every flock of hens of this age contains some unprofitable producers. Every hen must be studied to determine her value. Nature marks the poor producer and the poultry keeper should read Nature's record. The first prominent sign of a poor layer is furnished by the molt. When a hen molts she has finished her laying season. An early molter has a shortened season and is a shy egg producer. The hens which molt first should be sold.

Prominent yellow pigment in various parts of the body is the next evidence of a poor egg record. Hens not laying store up yellow fat. This is especially evident in the shanks, beak and earlobes. When a hen lays heavily this color very largely disappears. A hen with bright yellow shanks, beak or earlobes is a poor producer.

Quality of skin and bone is another mark of the production of a hen. A coarse bird is a poor layer. The quality of bone can be judged by examining the keel and pin bones. Birds having coarse, thick skin, heavy keel or pin bones should be sold.

The depth of a bird's body also indicates her capacity for producing eggs. Heavy egg laying hens must have deep bodies. Body depth is measured by the distance between the end of the keel and the pin bones. A bird showing lack of capacity in this region should be sold.

Egg laying causes the pin bones to spread apart. Hens showing these bones close together, or with ends hard and unyielding should be eliminated from the flock.—T. S. Townsley, Missouri.

Poulty House Plans

We intend to build a chicken house for about 100 hens and would like to have it just right, but don't know how that should be, so kindly tell us. Have been looking through the farm magazines for plans, but have not found any. Your articles on poultry are good, hence I am asking you for help.—Mrs. J. E. A., Routt county, Colo.

We are sending you the state agricultural bulletin and a government bulletin. I am sure you will find the information you are looking for in these bulletins. We especially commend the house shown in bulletin number 126, page six. However, a house of some other style of construction might fit the conditions better, especially if you have a hillside slope to the south, along which or in which to build.

After looking over these bulletins, we will be glad to hear from you again if we can be of further service.

Regarding Caponizing

In what month should Leghorn cockerels be hatched for the purpose of caponizing and carrying over till next season, to use for mothering incubator chicks?

At what age should the work be done?

What make of instrument would give the best results?

Does the government publish a bulletin on caponizing?—A. S., Pueblo county, Colo.

Any caponizing instrumnt advertised in the poultry journals, I think, would be satisfactory as they are practically the same in each case. The work should be done when birds are from about two to three months old. As to the time of hatching, I think, it would be immaterial so far as using capons for baby chicks is concerned, as they would be mature if hatched any time during the spring and early summer. We are enclosing a government bulletin which will give you the information you ask for.

Feathers Blow Out

I would like some information in regard to chickens whose feathers fall out and are so brittle and dry that they break as easily in a strong wind as scorched paper. Their backs are perfectly bare and scabby. They do not pick their feathers, and are free from lice or mites. The chickens are perfectly healthy, combs good and healthy; eyes, bright and feet free from scale. I feed them night and morning, wheat, and keep charcoal, oyster shells, meat scraps, and bran in the feed hopper all the time. The fowls have bowel trouble frequently, but this don't seem to affect their laying. They have free range on wheat and alfalfa fields, clean sleeping quarters, well ventilated with plenty of fresh water.—Mrs. H. O., Montana.

It is perfectly natural that hens should show signs of moulting but that their feathers should be as dry and brittle and that the moulting should be as complete as you state is certainly unusual and I am afraid not to be easily explained. Would suggest that you make a change in feed although I do not believe that feed is the cause of the trouble. Continuously feeding wheat and wheat products alone generally causes digestive disorders and you will notice that the only feed you mention in addition is beef scrap which is also very rich in protein, is the bran. I would cut out the bran and substitute corn chop and likely this will be of great benefit to the fowls. Our own hens are moulting quite freely this spring, some being quite bare but the feathers are not at all dry. As your hens seem hearty, vigorous and lay well, I do not believe you will have any need for worry. If further trouble develops, I should be interested in hearing from you again and if you do change the feed somewhat, would be glad to know the results.

Harrowing Field Peas

Harrowing after the peas are up has a distinct advantage. A large number of weeds have usually started by the time the peas are large enough to harrow, and most of these will be killed by the cultivation. This enables the peas to get ahead of any other weeds that may start and so smother out many of them. Then, too, the evaporation of moisture is checked by the loosening up of the surface soil. Many farmers in northern Idaho have secured good results from this practice. The data shown in the following table have been compiled from the reports received from 165 farmers. A number of these growers plan on harrowing twice after the peas are up.

The effect of harrowing after up on the acre yield and average acre value of field peas in northern Idaho. Data from the 1917 and 1918 questionnaires:

No. of Reports		Yield lbs. per Acre			Bu. per Acre	Ave. Acre
1917	1919	1917	1918	Ave.	Ave.	Value
		Harrowed				
49	13	480	496	487	8.1	$29.22
		Not Harrowed				
57	46	350	540	445	7.4	26.70
Difference in favor of harrowing,		42			0.7	$2.52

While only a small increase in yield is obtained by this practice, the benefit derived by the killing of the weeds and the conservation of soil moisture is more than enough to warrant the cultivation at this time. This would be especially true in case the peas were seeded on very weedy land. The conservation of moisture would be most important in a dry season such as we have had the last two years.

A few growers roll the peas after they are up. In most cases this practice is used where the seed bed is in poor condition, or where it is too loose to produce maximum yield of the crop. In either case it is better to roll the peas before they are up. Rolling a loose seed bed tends to firm the soil about the seed, causing quicker and more even germination. In no case should peas be rolled after they appear above the surface of the ground.—University of Idaho, News Letter.

There is so much to be learned about farming and the best of us know so little about it that it is not kind in any of us to ridicule the rest of us.

FARM MACHINERY

FOR SALE OR TRADE FOR LAND OR LIVE-stock. For quick sale a bargain. 110 H. P. Case steam engine, 40x62 Case separator, water tank, cook shack and two sets of plows, disc and moalboard. G. W. Hixson & Sons, Simla, Colo.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGG BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 8, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS from Tancreds extra heavy laying strain at advantageous prices. Eggs $1.50 per setting. Blakeland Farm, Littleton, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

SEVERAL VARIETIES—BUFF LEGHORNS, R. I. Reds; best layers on earth. Buy cockerels now and save money. Champney, 25 So. Logan, Denver.

BABY CHICKS

BABY CHICKS, $14 AND $15 per 100, WHILE they last. Order quick, last hatch July 21. Reds and Barred Rocks only. Denver Incubator Company & Hatchery, 176 S. Broadway, Denver.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—BIG BONED STRONG HEIFER calves, Holstein or Guernsey. $35.00 delivered. Liberty bonds accepted. Herbert Taft, Whitewater, Wis.

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—9 RED COWS, 9 HOLSTEIN cows and heifers, these are all sound cows from 2 to 6 years old. Walter Corlis, Box 38, Parker, Colo.

FOR SALE—TEN HEAD JUNIOR MILKING Shorthorn bulls. Pine Valley Dairy & Farms Company, Colorado Springs, Colo. S. G. Rose, Manager.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the laat Stock Show, Denver. Price $175 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis.

HOGS

FOR SALE—A FEW BIG TYPE POLAND-China boar pigs. Weaned. Write or come and see them. W. J. Peterson, Seibert, Colo.

BIG TYPE POLAND-CHINA PIGS, APRIL AND May farrow, for sale at weaning time. Correspondence solicited. Gad Barney, Haswell, Colo.

FOR SALE—PEDIGREED AND GRADE Duroc Jerseys weanling pigs of both sexes, also a few of February farrowing. Blakeland Farm, Littleton, Colo.

FOR SALE—POLAND CHINA PIGS AND high-grade Scotch Collie pups (registered). Write for particulars. F. L. Toliver, Ft. Collins, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo.

SUFFOLK STALLION FOR SALE OR EXchange for pure-bred cattle of any breed; male or female. Address Box 27, Western Farm Life.

FOR SALE—JACK; REGISTERED BLACK Missouri Mammoth, 15½ hands, 7 years old made three season's here. Colts to show; well broke; bargain. Registered Black Percheron stallion, 7 years old 16½ hands, well broke, nice to handle, has weighed over 2,000 pounds. Decided not to carry this stock over account high priced feed; will go at work horse price; could use late model roadster. F. Gilgen, Eaton, Colo.

SHEEP

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamb, $35.00 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 398J.

FOR SALE—400 HEAD PURE BLOOD COTSwold breeding sheep, one to four years. Reason for selling, lady owner and poor health. Price $25 per head. An income of $8,500 per year can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 398J.

RABBITS

FOR SALE—"STEEL KING," FLEMISH GIANT blue ribbon winner Denver Stock Show, 1918, also two fine does at bargain. Blakeland Farm, Littleton, Colo.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

640-ACRE HOMESTEADS—STOCK, GRAIN. Duff, Casper, Wyo.

FOR SALE—320-ACRE FARM. WRITE TO Mrs. K. E. Morse, Genoa, Colo.

WANTED—TO HEAR FROM OWNER GOOD farm for sale; state cash price, description. D. F. Bush, 26A, Minneapolis, Minn.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

WANT TO HEAR FROM OWNER OF FARM FOR sale. Mrs. W. Booth, H. P. Sta., Des Moines, Ia.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

79 ACRES INSIDE CITY LIMITS OF DENVER on car line, good water rights, all cultivated. 7-room brick house, several barns; on boulevard. Price $25,000, liberal terms. A. J. Simonson, 314 Cooper Bldg., Denver, Colo.

ATTENTION PATRONS OF HUSBANDRY: WE are members of the order and are doing a legitimate land business. We handle grain, stock and dairy ranches. Irrigated and dry. Also garden tracts, and Denver property. If you wish to buy or sell it will pay you to call or write. Johnke & Miller, 1410 Stout St., Denver, Colo.

FOR SALE—STOCK RANCH IN ELMORE county, Idaho, containing 1200 acres highly improved and under cultivation. Ample water, own water rights, large open range adjoining ranch. Have about 1800 acres additional under lease all fenced. At present running 1000 head of cattle, 150 head registered Herefords. Price for deeded land and leases, $85,000. Would consider fair cash payment down and carry balance for period of years, or might take some income property in exchange. Will sell stock and equipment at market value. Address, M. B. Hall, Glenn's Ferry, Idaho.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR. BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

HUNDREDS RAILWAY MAIL CLERKS WANTED immediately by U. S. Government. $1100-$1600 year. Vacation. Examinations everywhere Aug. 23rd. Common education sufficient. Sample questions free. Write immediately. Franklin Institute. Dept. H. 171 Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

KODAKS

KODAKS—FREE WITH FIRST ORDER AND names of five Kodak owners; a beautiful 5x7 enlargement from any film. Developing 10c, prints 3c up. Foto Art Co., Dept. D., Lincoln or Norfolk, Nebr.

GROCERIES & SUPPLIES

100 LS. BEST GRANULATED SUGAR $9.98. We are and always have been the leaders of high grade goods and low prices. Cut out the in-between man and send for our wholesale price list of groceries, meats, cattle wire and roofing. We can save you 20 to 40 per cent and we give you the service that makes friends and keeps them. Your money returned if not satisfied. The Stock Growers Wholesale Supply Co., 1528 Nineteenth St., Denver., Colo. P. O. Box 1442. Phone, Long Distance Main 7612.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

Big Hog Sale at Pueblo

Continued from Page 16

fornia and at least a dozen or more well known prize winners.

In this herd can also be seen the great show sow "Lulu E. Nuff," the only living sow that ever won grand champion of her state four years in succession. She has weighed over 800 pounds, has won seven grand championships, three sweepstakes over all breeds and has been in twenty-five first prize herds. It is the blood of these great boars and sows that will be offered on the state fair grounds, Pueblo, on the afternoon of August 21. Everyone interested should write for a free catalog of the sale to the Blue Ribbon Livestock Company, C. F. Burke, Mrg., Pueblo, Colo., and arrange before hand to attend the sale in person, or send mail bids on some of the offerings.

Live Stock Field Notes

A. W. Rucker of Rucker's Rest, Mt. Morrison, Colo., announces some fine registered Hampshires for sale. He is offering breeding ewes, and yearling ram lambs. See his advertisement in this issue.

Mr. Schilling of the J. O. D. Ranch at Aroya, Colo., announces some fine registered Hereford yearling heifers for sale. These heifers won third place at the Denver Stock Show last January. He is also offering some gilts bred to a Defender boar and a few 3-year-old boars by Orion Cherry King 15th. Also a fine 8-year-old jack and a yearling jack. These animals are registered and have good length, bone and color.

A. J. Ehrart and Sons of Ness City, Kansas, breeders of big type Poland China hogs, announce in this issue a public sale of 40 head of their best bred sows, to be held at Hutchinson, Kansas, on August 6. Many of our readers may have seen some of these on exhibition at the National Western Stock Show, Denver, where they took many premiums. Most of these young sows are bred to Big Sensation, the largest living boar, weighing 1,204 pounds. This is a good chance to invest, with an eye to the future.

Elsewhere in this issue appears the ad of the Deming Ranch of Oswego, Kans. Mr. Sheldon, the herd manager, can show you exceptional Poland China bred gilts and pigs. This herd contains state fair winning blood throughout, and for individuality is second to none. They are a thrifty, growthy bunch—carrying no surplus fat, but solid development. The Deming gilts are bred to farrow in early fall, to the herd boars, Big Bob's Jumbo, A-286303; Mctal Wonder, 91416, and Big Jones Again, 89465. Big Boh's Jumbo was the state fair grand champion, 1917.

European Corn Borer

The European corn borer threatens the future of America's greatest crop. This pest plies his trade with the industry of a beaver to the extent that he is the most dangerous plant pest that has yet immigrated from foreign fields to the corn lands of Uncle Sam The larvae, or borers, hungry as half-starved rats, tunnel through all parts of the corn plant excepting the roots, and destroy or severely injure the ears and stalks. That their diet may have variety they also attack celery, Swiss chard, beans, beets, spinach, oats, potatoes, tomatoes, turnips, as well as dahlias, chrysanthemums, gladiolas, geraniums, timothy, other grasses, and weeds. Two generations occur each year, so that multiplication and spread are rapid, especially as few are destroyed by natural enemies.

Specialists of the United States Department of Agriculture, in Farmers' Bulletin 1046, describe the danger to American corn by the presence of the European corn borer in eastern Massachusettes. They surmise that the pest was introduced in raw hemp imported from Europe for use in Massachusetts cordage factories, or possibly in bales of broom corn imported by factories in central New York. There are 35 towns in Massachusetts, including an area of about 320 square miles, infested with the insect, which has been confined to the limits of its original infection except for an outbreak discovered in January in the vicinity of Schenectady, N. Y., covering an area of approximately 400 square miles.

Silo Paid for Itself

In 1918, a dairyman in southwestern Missouri had 16 acres of corn which would have made $100 worth of fodder, if it had been cut for fodder. But, he put the crop in a silo. It made 60 tons of ensilage, which was fed to dairy cows. By using the ensilage with other feed this 60 tons of ensilage was worth $10 per ton, or $600 for the crop which was worth only $100 if it had been used as fodder. That silo paid for itself during one dry year.—J. E. Payne, Agriculturist, Frisco, R. R.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.

DENVER, COLO.

2055 Humboldt St. Phone Main 5713

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

FRANK P. HEALY

Breeder of Shorthorns

Forty years in Iowa, now has for sale a Yearling Scotch Bull and some heifers. Write, or come and see them.

Fort Collins, Colo.

YOUNG HOLSTEIN BULLS

Two extra good bulls coming two years old; and bull calves under one year old; all nicely marked; good type—King Segis, De Kol, Ormsby, and Pontiac breeding.

For further information and prices write,

W. A. PURVIS, Johnstown, Colo.

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.

Elbert, Colorado

Registered Hampshires

Breeding Ewes, Yearling and Ram Lambs, crated or in car lots.

A. W. RUCKER, Rucker's Rest

MT. MORRISON, COLO.

WYNNEWOOD RANCH

Big Type Poland China Hogs

For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of both sexes, including several of a litter from the Junior Champion Gilt, Denver Stock Show, 1919.

C. E. GORDON, Mgr., Overland, Colo.

STATE FAIR WINNING BLOOD

is mixed thru our entire herd. Blood lines, and individuality second to none.

POLAND CHINA GILTS bred to our prize winning Boars to farrow in early fall.

Fine lot of early spring pigs (immuned) ready for shipment. Inspect our herd, or write

THE DEMING RANCH, OSWEGO, KAN.

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted

Col. G. M. Banks

LIVE STOCK AUCTIONEER

Residence

709 East 11th Avenue

Phone York 7625 DENVER, COLO

Col. H. E. BUCHANAN

Live Stock Auctioneer

1904 Logan

DENVER, COLORADO

Pure bred Sales a Specialty

For Sale Dates at My Expense

PHONE CHAMPA 5655

Anywhere in the United States My Territory

Public Sale Bred Sows

BIG TYPE POLAND CHINAS

At Hutchinson, Kans. AUGUST 6, 1919

Santa Fe Railroad

Grand Champion, Big Sensation, Weight 1204 lbs. Largest living boar

Do not miss this Big Chance to get the best big-boned Poland China stock in the West—direct from the Kansas Hog Belt. In the right condition to make big money for the buyer. Some of this herd was exhibited at the

National Western Stock Show, Denver, 1919

40 HEAD TO BE SOLD, 30 of these are bred to the World's Largest Hog, BIG SENSATION (weight 1204 pounds), 315783, Grand Champion—best son of Grand Champion, SMOOTH BIG BONE.

10 HEAD of this offering is bred to BUSTER PRICE, great yearling son of the epoch maker, GIANT BUSTER, famous in Indiana and the East; out of a PRICE bred dam.

A FEW SPECIAL ATTRACTIONS

Sow sired by the GREAT MASTERPIECE and bred to the world's highest priced pig, LIBERATOR. Sow sired by the World's Grand Champion, CALDWELL'S BIG BOB, and bred to BIG SENSATION. Nine summer gilts, real top-notchers, sired by the $5300 WONDER BUSTER and all bred to BIG SENSATION.

Hop a train or auto and be with us this one day, and lay your foundation for making big money in the future.

Write for catalog. Mail bids will be given honest treatment. Address Hotel Midland, Hutchinson, Kansas.

A. J. EHRHART & SONS

NESS CITY - - - - - KANSAS

BEAU ASTER

Registered Hereford Cattle

Prince Domino—199611 Sire of the Champion Futurity Bull and Heifer

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER

Holyoke, Colo.

Glendale Stock Farm

Irvindale Rowdy Grand Champion Belgian Stallion Chicago, 1917, Denver, 1918 and 1919

Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

REGISTERED DUROCS

Lakeside Herd

We are offering tried sows and gilts of SENSATION, KINGS COL., DEFENDER, ORION CHERRY KING, and GOLDEN MODEL breeding, bred to farrow in August and September, to our Big Type Boars, DIAMOND ORION and DIAMOND MODEL SUPREME.

All Hogs Immuned. Write Us Your Wants

DR. F. T. DALY, Cambridge, Neb.

The Greatest Purebred Livestock Center in the West

Canary Repeater Herefords

Sired by

Repeater 63rd

FOR SALE—A carload of 1-year-old Bulls and a car of 1-year-old heifers.

Also a Few 2-Year-Old Bulls

J. D. Canary Denver, Colo.

720 Majestic Building

FOR SALE

I can show buyers 600 registered Herefords, also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding stock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

The Western Home of Pathfinders

60 June Pigs by the Great $3,000 GRAND PATHFINDER

If you want Herd Headsrs and Herd Builders I have them. $50 each until August 20th. A few March pigs left by GRAND PATHFINDER and my ORION CHERRY KING, JR. boar. They will look good any place. Come or write.

J. W. BRAUER, 22 Maple St.

COLORADO SPRINGS, COLORADO

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH

Montrose, Colo.

Shorthorn and Polled Durham Cattle

Valentine's Last X12316 452008 at head of beef herd. Claywood White 127350 at head of milk type.

STATE INDUSTRIAL SCHOOL

Golden, Colorado

Greatest Summer Sale in the West

The Blue Ribbon Herd Will Hold a Summer Sale of Registered Durocs
ON STATE FAIR GROUNDS—PUEBLO, COLO.
TUESDAY, AUGUST 21, 1919

This herd has won over 1500 ribbons, including over 75 Champions—which means that we have won more show honors than all other Duroc herds in Colorado combined.

"Burkes Good E. Nuff Again," a 1030 lb. sire

We have furnished GRAND CHAMPIONS of STATE FAIRS from ILLINOIS to CALIFORNIA

Blue Ribbon Farm Is the Home of the Big Smooth Giants of the Duroc Breed

SOME SHOW ANIMALS AND PRIZE WINNERS GO IN THE SALE

Some of them already fitted for the Fall Shows

Herd headed by three show and breeding boars, "BURKES GOOD E. NUFF AGAIN," largest Duroc by official weight at the biggest hog show in the world in 1917—The National Swine Show, Omaha. He was a winner there, also was first at last two National Western Stock Shows, Denver, and at State Fair, Pueblo, 1918; and at several other shows.

"BIG CHERRY KING," first at State Fair, Pueblo and sire of all first prize futurity winners.

"BLUE RIBBON SENSATION," our new herd boar that cost us $1,000 at nine months old. He is by "GREAT SENSATION."

We are selling 40 head of bred sows and gilts and several boars.

Get the Best Blood to Be Bought From the Home of the Big Prize Winners

Registered Pedigrees will be ready on Sale Day, for every animal sold. Everything has been given double treatment. Write for catalog

BLUE RIBBON LIVESTOCK CO.—C. F. BURKE, Mgr.—PUEBLO, COLO.

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES
First National Bank Building, Cheyenne, Wyo.
406 New Live Stock Exchange Building, Union Stock Yards, Denver, Colo.

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent **JAMES C. ADAMS, Salesman**

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 5½ miles southwest of Denver on the Morrison Road.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name "Majesty" in a jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty, and related to many in my herd, and to "Majesty's Feather Lad,' son of the show cow, Majesty's Feather Lass, 712.13 butter.

I have some extra fine young cows and heifers for sale. Have some extra fine bull calves, two out of half sisters to the great "Financial Sensation," the $60,000 bull. One out of Imported Cowslip's Sweet Bread, a R. of M. cow. Also others. These are extra fine calves, and my prices are right.

Two or three November gilts, by a son of Top Sensation. Write me.

A. M. McCLENAHAN, Greeley, Colorado

Wyoming 4th

L. G. DAVIS HEREFORDS

ANXIETY-BRED

Sires in service:

The great BEAU CARLOS 2D 352001, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

Registered Hereford Bulls

Very Attractive Prices
Some good Registered Hereford Bulls of our own raising, and ready for immediate service.

Any Number From One to a Carload

Write your wants, or come and see them. Everything we sell is fully guaranteed.

JOHN E. PAINTER & SONS
Roggen, Colo.

Milking Shorthorns

THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

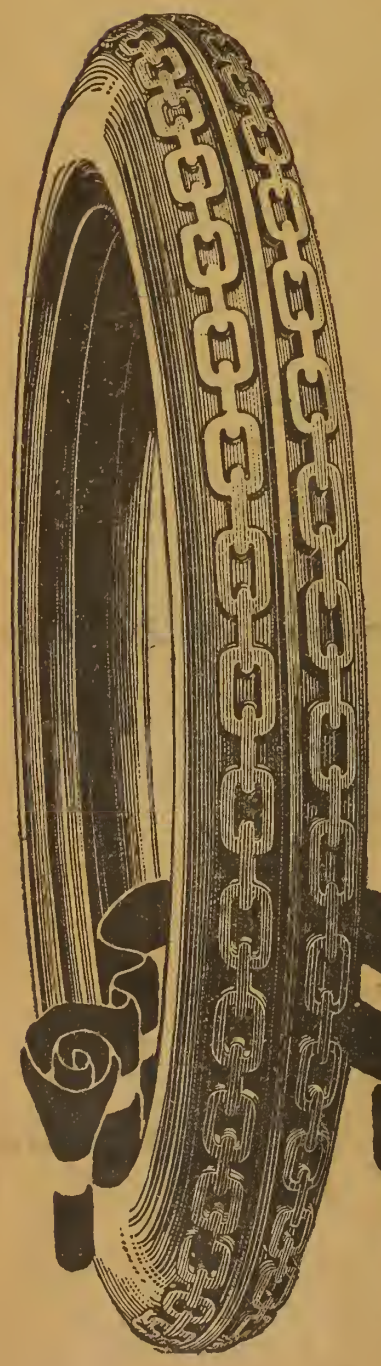
GEO. R. GILMORE, Ft. Morgan, Colo.

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

At the Fair

'Chain'



The thousands of cars parked at every big fair plainly indicate their important place in rural life.

They have become as necessary as telephones — *almost* as indispensable as binders, plows or harrows.

And because the dependable and economical operation of your car hinges so largely on tires, it pays to equip it with good tires —

— tires you *know* are good.

By the same token, it's good business to buy tires that are *exactly* suited to *your* car and *your* individual driving conditions.

There are five types of United States Tires — one for every need.

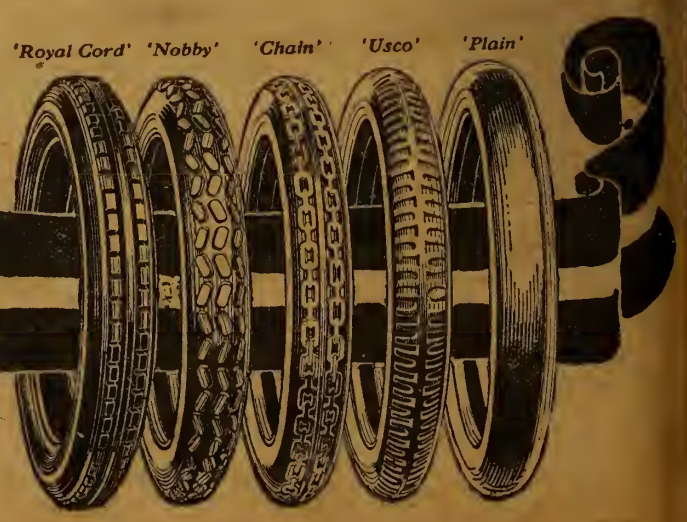
They're all good — all recognized leaders in their respective classes. All are built to give the utmost in service — to last and last and keep on lasting.

All contain the great strength developed by the long experience and extensive manufacturing facilities of the largest rubber company in the world.

It makes no difference what your driving conditions may be, the nearest United States Tire Sales and Service Depot Dealer can supply you with good tires that will *exactly* meet your needs.

United States Tires are Good Tires

'Royal Cord' 'Nobby' 'Chain' 'Usco' 'Plain'



AUG 26 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, August 15, 1919 Semi-Monthly

OATS IN THE SHOCK NEAR SEDALIA, DOUGLAS COUNTY, COLORADO

TC for the Tough Jobs

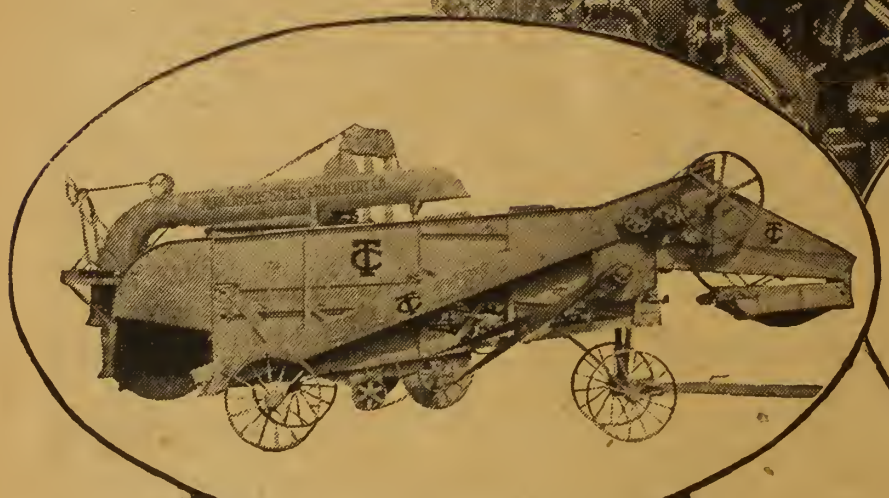
SEE THE TWIN CITY TRACTOR LINE

AT THE FAIR

The full Twin City Line, including the "12-20" tractor and the new All-Steel Thresher, will be demonstrated at the

KANSAS FREE FAIR SEPT. 8-13

Missouri State Fair at Sedalia



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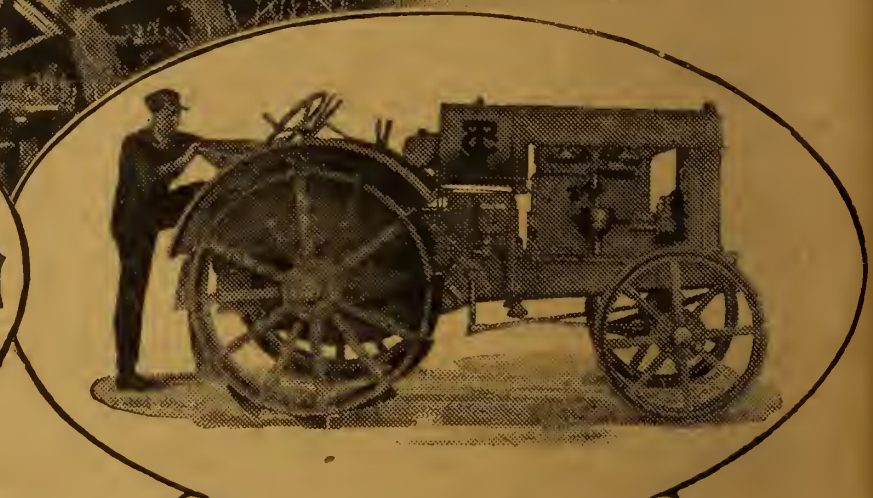

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Visiting With the Mescalero Apache Farmers

INDIANS HAVE LITTLE LIKING FOR OUR CIVILIZATION

ROY W. FOARD

EIGHTEEN miles east of Tularosa, New Mexico, in the valley of the Tularosa river in the Sacramento mountains, is located the headquarters of the Mescalero Apache Indian reservation. This reservation occupies about eight hundred square miles of mountainous country with narrow winding valleys weaving about the mountain bases. I had been informed that considerable farming was carried on by the Indians of this reservation and was anxious to learn something of their methods and the kinds of crops they raise. Consequently a trip into this section was arranged with the county agricultural

House Built by Government Which Indians Refuse to Occupy

agent. The start was made from Alamogordo, about thirty-three miles from the reservation headquarters at Mescalero. Since this journey was made with a county agent of course the method of locomotion was a well used, somewhat dilapidated Ford car.

If I should be called upon the select the class of men who are the greatest dare-devils on earth I would not pick the birdmen of the aero service neither would I choose the dare-devils of the movies, nor the lion tamers of the circus, nor the men of that dangerous occupation of mule skinning. All these are very good in their way, but there is one class of dare-devils that stand head and shoulders above all others, and this is no other than the county agricultural agent!

I feel sure that anyone that has had occasion to be hauled about by several of these apostles of agriculture has at least found a few speed fiends that would make Barney Oldfield look like a sucker. It happened that the county agent with whom I made this perilous journey was one of those who is equally as proficient at taking the corner on two wheels as he is at instructing the farmers in the most approved methods for getting rid of the red spider, or the potato blight. I have had occasion to ride with only two more reckless drivers than he, one of them is the county agricultural agent of Weld county, Colorado, and the other is the man who sells combined harvesters at Haxtun, Colo. But with the exception of these two, the gentleman who favored me with transportation to see the Indians farm is the most reckless driver I have ever seen in action.

Our route lay over a crooked, narrow mountain road. We looped the loop, took the nose dive and tail spin, demolished chickens, ran over dogs, and sent the populace fleeing for shelter all along the way. The horn was used freely around sharp curves but this was quite unnecessary, since it could scarcely be heard above the roar and rattle of loose fenders, lights, bolts, and nuts.

But let it be said to the credit of the pilot of that buss that we got there, and after all it is results that county agents are after. This result was obtained with the least possible time lost in transit.

The farming area of the reservation begins a little way below the village of Mescalero, where the agency headquarters are located. The agricultural section is confined to narrow winding valleys which vary from fifty to four hundred yards in width. Although this area is limited it is very fertile and I was informed that the yields obtained are very good. Although the annual rainfall is about 20 inches there is irrigation water available in most of the farming section. This insures a crop each year so far as water supply is concerned.

From Mescalero we went up the valley over the divide and into a second valley where we again found the redskin tilling the soil. This valley seemed to have been more recently developed. In fact there was considerable area which may yet be put under the plow. About eighteen miles from Mescalero we came upon a store and postoffice called Whitetail. This is the trading point of the Indians in this section. There is also a lot of farm machinery stored there which is furnished by the government for use by the Indians.

The principal crops of the reservation are oats, potatoes, and in the lower part of the valley, alfalfa. Since the altitude varied from 6,000 to 7,000 feet above sea level, these seem to be the most successful crops. By far the greatest acreage is in oats. There are a number of reasons for this. In the first place the climatic conditions are very favorable for this crop. Also the soil is fertile and large yields are obtained. Another reason is that most of the Indians have a team of broom tail horses and a few cattle, and the grain comes in handy to carry them over the long winter. Furthermore since it is 20 to 40 miles to a railroad, oats is a non-perishable crop and can be marketed with little loss, and for this reason makes a very satisfactory cash crop.

Hereford Cattle Belonging to the Apache Indians

All these logical reasons enter in, but there is one other very important reason that impressed itself upon me until I have decided that perhaps it is the major reason of them all. As far back as we have record of the American Indian he has never been on friendly terms with labor. He takes an adverse attitude toward strenuous, productive, physical exercise. To get out in the hot sun and industriously hoe a potato patch may appeal to some people, but not to Mr. Indian. He much prefers to sit in the shade and dream of the happy hunting grounds of his forefathers, which he is confident that he and his posterity have been buncoed out of. Ii the stories of the early history of the Indian it will be remembered that the squaw did all the manual labor of the household, while the brave devoted his time largely to hunting and warfare. Although warfare, that favorite pastime of the Indian, has become rather unpopular there is still fair hunting in the mountains of the reservation. The squaw is still the chief bread earner of the family. She works in the fields alongside the old buck in summer, and in winter she makes Indian relics of the kind which the tourists think they are buying in the popular western summer resorts.

But to get back to the subject of why oats are the principal crop on the reservation: it is simply the crop that can be produced with the least amount of labor. It takes less elbow grease than growing potatoes and consequent is more popular even as a cash crop.

The government has men employed to oversee the agricultural activities of the reservation. These men are to the reservation what county agents are to the counties. However, their duties are different in some respects. They not only perform the ordinary functions of a county agent but also must see that the crops are planted and the land cultivated, otherwise, due to the objection of the redskin to labor, he might neglect to provide for his family and stock and thus become an unnecessary expense upon the government.

A great many cattle are run upon the thousands of acres of open range on the reservation. The grass there was in fine shape and the cattle fat, sleek, and frisky. It seems that these cattle are, in a way, the common property of the Indians. I was informed that in the near future about $75,000 worth of cattle will be sold and the proceeds divided among the Indian population. This sum will be sufficient to give every buck, squaw, and papoose fifty dollars each. This sum might not mean very much to the average American farmer, but it will mean a great deal to these Indian families who live in a most simple manner.

There is a very noticeable and interesting thing in connection with the habits and life of the Indian. In traveling up the valley we noticed that most all of the Indians lived in tents or tepees, while there were many fairly comfortable cottages that remained unoccupied. Upon inquiry we learned that the government had constructed houses for each family in the beautiful pine groves along the valley and invited them to come in out of the cold and enjoy the hospitality of their

The Tepee in Which the Apache Prefers to Live

Uncle Sam. But not so, they prefer to live as their forefathers had lived, out in the open in the little pointed tepees with a hole in the top to let the smoke out. The houses which the government so graciously built are used for store rooms, or are left vacant. True, there are a few who live in the houses, but they are greatly in the minority.

Much money has been spent by our government to bring civilization to the Indian. Some of this has been well spent, but much of it has fallen on stony ground. We have tried to civilize him against his wishes. We have hog-tied and handcuffed him and tried to poke civilization down his neck. A little of it got down but he spewed most of it out of his mouth. So it is in their methods of agriculture. It takes industry, interest, and willingness to learn improved methods of agriculture. The Indian responds negatively to all these, consequently his methods are little different from the past generations of his tribe. So long as he can follow the trail of the deer or the turkey, or sit quietly and gaze over the mountain scenery he is little interested in better methods of agriculture, social uplift, or the many other things of modern civilization, which the white man is trying to serve up to him on a platter. The white man's ways may eventually be accepted by the Indian, but it will be a long, slow process and he will accept them, not willingly, but because they have been thrust upon him.

We need not expect any great revolutions in agricultural progress to come from the redskin tribes. His talents and desires do not lie in that direction. He is still superior to the white man in the things of the native forest, in weaving hand made blankets, or making headed handbags and curios, but when the white man's civilization steps in Mr. Indian ceases to feature in the limelight. It is not his native habitat; he dislikes it and accepts it very gradually and in small doses.

Save Winter Moisture By Plowing in the Fall

HELPFUL SUGGESTIONS FOR BOTH IRRIGATION AND DRY FARMERS

E. R. PARSONS

THE principal object of plowing in the fall is to prepare the land to accumulate moisture during the winter months, which when spring opens and evaporation commences, can be conserved by mulching for the use of the crops. Our snows always come with a wind and blow very readily off smooth land, piling up on the lee side of the hills in hollows and gulches. Smooth land, once it becomes moist and then frozen on the surface, does not accumulate any moisture, being practically watertight. The little snow that may be caught on it thaws a little in the middle of the day and gradually evaporates. Rough plowed land, on the contrary, catches the snow and holds it until the thaw comes, when it percolates downwards through the hundred and one crevices between the lumps and reaches the subsoil where it is conserved by a good spring harrowing or disking. The plowed land also acts as a blanket to the subsoil and to a large extent prevents it from freezing. Contractors and others have found this out, and can scrape railroad embankments and irrigation ditches all winter by simply plowing up the surface of the ground every evening before quitting time.

The lister is being used more and more every year as an emergency implement for catching snow where it usually blows off. For this work it is superior to the plow; but ranches differ as regards contour and wind exposure, and on level fields behind hills or in basins where the snow always lies thick after a storm, there may be no particular benefit in listing and good rough plowing would probably answer the purpose. Many a flat topped hill which refused to raise crops has been made a producer with the help of the lister.

By listing is meant plowing every other furrow. The intervening space is left solid and the dirt piles up on this from the furrows on either side until the field is all ridges and hollows, sometimes two feet deep. There is no better snow trap in the world. The bottom of the hollows usually get well covered with snow early in the season before they have a chance to freeze, and every drop of water from melting snow goes in because it cannot possibly get out. The best treatment for listed land in the spring is to plow the middles with the same implement, level off with the harrow or drag, and if small grain is to be planted, give the field a good packing with the corrugated roller or pulverizer, or in default of a roller, with the disk harrow well weighted and set nearly straight. Some farmers contend that it is not necessary to plow out the middles for small grain, and that a good leveling and disking will fill the bill; but for such crops as corn, sorghum, potatoes, etc., which thrive in looser ground than small grain, there is no question but that plowing out the middles increases the crop.

If land is plowed in the fall (not listed) and harrowed afterwards it may settle and become too solid by spring, (especially if there is much winter precipitation), for other than small grain crops, and in such a case it should be disked about 4 inches deep and thoroughly harrowed before planting. If the plowing is left rough all winter and thoroughly disked and harrowed in the spring as soon as the frost permits, it is usually in good shape for planting any early crop; but if held for late crops the surface should be worked every so often to prevent crusting and destroy the weed growth.

Dry plowing is often condemned as injuring the tilth of the soil. It does at the time, but it is not the condition at the time of plowing, but at the time of planting that counts; and a very rough plowing will often mellow down and make a fine seedbed at the touch of the harrow or disk when the moisture conditions are right, in the early spring. The winter snows and freezing and thawing can usually be counted on to do the job, but if the clods persist the pulverizer will fix them. After a dry winter the farmer may sometimes wish that he had not plowed in the fall, but the fact of the matter is his plowing will be just as hard in the spring after the dry weather, or even harder.

On the dry farm it saves much trouble in the plowing if the fields are disked every time as soon as the crops are off. Then if any moisture falls it stays in the ground and in case of a dry June, such as we have experienced this year, may prolong the period of good plowing by a month or more. It is always the top that is the driest, and if this has already been cut up with the disk down to three or four inches it is impossible for the clods to be very large when plowed another five or six inches deeper.

The tilth of land is mainly a matter of moisture, and humus. A moisture film on the granules prevents them from adhering and they fall apart very easily. The dust of humus also prevents cohesion in the same way that flour dusted on biscuits keeps them from sticking together. Therefore soil which is rich in humus crumbles readily irrespective of moisture conditions. Irrigated lands are always lumpy and difficult to plow because the humus is dissolved and used up in the first few years of cropping and the lime, which also has a disintegrating effect, is washed down into the subsoil. For these reasons where irrigation is practiced, new farms are much better than old ones on which the soil becomes tough and refractory and can be satisfactorily worked only after the softening and mellowing effects of the winter snows and frosts. Therefore on lands below the ditch where the conservation of moisture is not the prime object; it is often better to plow in the spring than in the fall.

Dried plowed land has some advantages: it is loose and full of crevices which admits the precipitation quickly and holds large quantities of water until it can be absorbed into the subsoil; but until it has settled and the clods have merged and formed a homogeneous seedbed it is not fit for planting. This has been the trouble with many who have become convinced that deep plowing is not profitable, but if the rule is followed to plow in the spring for fall crops and in the fall for spring crops the advantages immediately become apparent. To obtain the best results summer fallowed land is the only land that should be planted in the fall; but if the moisture conditions are just right a crop of winter wheat or rye may be obtained from August or September plowing if the soil is thoroughly packed. It is the same way with planting on corn stubble. The

(Turn to page 18)

Breed Up Your Flocks Or Quit Sheep Raising

PRACTICAL ADVICE FOR FLOCKMASTERS FROM MAN WHO KNOWS THE GAME

EDWARD R. KING

WE HAVE come to the turn of the road. A man must either begin to breed up and take an intelligent interest in the development of his flock and of the sheep business generally, or he must go out of the game. There is no alternative. The handwriting on the wall is so plain that all who will may see it, and the man who fails to take heed will find himself up against bankruptcy.

Just for example take my own locality, (the San Luis Valley), where we went through one of the severest winters on record. The man who is running four- or five-pound shearers is up against it, with hay costing $15 to $25, pea fields out of the question. hardly a band but what is costing close to $4 or $5 a head; lambing, shearing and grazing fees to be paid; perhaps a mortgage of $9 to $10 on them. How is a man in that shape to pull out? There is only one way for him to go and that is—in the hole.

I claim that a man with four-pound shearers and with no intention of breeding up, had better just take half that number of sheep and get good ones with returns on the wool side of at least $2 a head more, feed them right instead of half feeding, give them the right sort of care and with just half the worry, he will get greater net returns than with double the bunch of poor ones.

Only a few years back we could keep sheep out in the foothills till breeding time (some did all winter), and not pay a cent for pasture. We also used to come down to the valley and buy a good stubble field for $50, or get the brush land for nothing. How is it today? That same stubble field costs from $3 to $5 an acre; brush land costs around $30 a quarter; no foothill feed at all. In fact, from the time of coming out of the reserve it is putting your hand in your pocket for feed all the time.

Shearing costs double what it used to; wool sacks the same. It costs a hundred per cent more to board the herders. What are we to do? There seems only one thing to do, and that is to breed up.

The next question is, what breed or type shall we adopt. That is, in a sense, a man's own business. It seems to me that in these mountain states there are two kinds best adapted, for herding qualities, for wool and for our dry climate.

The Rambouillet, in my judgment, must predominate, both for their herding instinct and for their wool, especially their dense wool, and because they are the longest lived sheep known.

In a good many herds in the valley what do we find? We find them running from blackface to Merino, to Cotswolds, to Shropshires and to Persians. If the returns on the grading sheets at the Wasson sheds and also at the La Garita shed are correct, the wool is showing two-thirds clothing.

There is only one way to increase that length and that is by using a long wooled ram of some breed or other, the Cotswolds, the Lincolns, the Corriedales or the English Leicesters. Either is good, especially the three last mentioned.

My belief is that the Corriedale meets the requirements in a good many ways. First of all he is himself a crossbred, either from the cross of the Lincoln and the Merino, (not the American Merino, but the New Zealand), or the English Leicester ram and the Merino ewe.

Corriedale Ram Imported From New Zealand by King Brothers and now Owned by H. T. Blood, Center, Colorado. Note Length of Fleece and Stooky Mutton Type.

When the Autsralians first thought of producing a crossbred sheep it was for a particular purpose. They had led the world in length of staple, fine crimp and density and they wished to hold these points and yet get a larger carcass, as the then new method of carrying frozen mutton on ships to Europe had just come into practice. This invention opened for them a new outlet for their mutton.

The crossing of these two kinds of long wooled rams on the New Zealand Merino ewe is what produced the Corriedale, so do not think that this was a breeder's fad, or a passing craze, but it is an important and practical business development—the production of an early maturing lamb, a good fleece with the fineness of crimp that the New Zealanders had been renowned for.

It took many years to establish this breed, but it now stands as the only true crossbred. The type is fixed, and it will, as a crossbred, now breed true to itself.

I am not making these statements just to boost the Corriedale, but for the reason that so many of our western herds right through will show such a large percentage of clothing wool, and they are badly in need of improving blood. To increase the length of staple a longwool ram must be used, and for an all-round two-purpose sheep my belief is that the Corriedale, used with the Rambouillet ewe, is going to make an ideal cross for the range.

Also remember that the old idea of not how much wool but how much grease a sheep could produce is a thing of the past. The wool showing the combing length with good density and light shrinking is the wool that gets the highest price.

How Human Intelligence Has Developed the Bovine

STUDY OF THE ANCESTORS OF OUR HIGH MILK PRODUCERS

DR. LUKE S. DIJKSTRA

The Gayal Cow

THE reader, who might sometime pay a visit to the little kingdom of Holland should not fail to see the big zoological gardens in Amsterdam, the capital city. Holland, known as the country from where we have the earliest traces of the Holstein Friesian cow, the only dairy breed this little country has raised during centuries and still raises, has as curiosities in its zoological gardens a large number of representatives of the family of the cow, as still found in middle Asia and Africa in the wild state, so to say, the ancestors of our present cow race. Though the many details which I have obtained about these wild cows would be of interest for many a reader, I shall restrict consideration only to that which I think may be practical. I shall expatiate here only on two of these ancestors, viz., the Gayal cow and the Brahmin cow, two wild species of the cow race, which are found in the mountain regions of India, and which I observed many a time very closely in the zoological gardens.

Once there was a time when our present cow races were similar in type to those wild types, but man as a creature standing above any other living being in this world, knew by his shrewdness, intelligence and cunning how to make of these wild animals our domesticated cattle, our record cows, with yearly milk production of over 30,000 pounds, our present show cattle in which type, uniformity and production are all represented in such a degree that we might call the present representatives the aristocracy of the cow race. It would be superfluous here to discuss the items that have brought the present cow to that elevated standpoint; every reader, it may be presupposed, knows this.

However, I shall try to make clear how much trouble and time it will have taken to make of those wild animals a perfect animal, as for instance one of our purebred Holstein Friesian cows, or a Jersey.

(a) The taming or domesticating of the wild cow.

When the Gayal cow and bull arrived in big cages and were left loose in the enclosures they were as shy and wild as could be, and when the lions and tigers in the zoological gardens let out roars they would be startled, a result of the natural instinct of wild animals against their enemies. The feed was thrown them. Nobody ventured near them during the first three months. Gradually, however, the fear for human beings disappeared and within a year the animals were as tame as could be, and the second year when a calf was born they even allowed milking, which milk was destined for testing and comparison with the common cow's milk.

An experienced practicus, Mr. Peter Honing, says that the wild representatives of the cow race are not difficult to tame, but those of the horse race very hard, and after being tamed keep their meanness for many years. It is thus not improbable that the first animals that were tamed by our ancestors, were of the cow race.

(b) The composition of the milk.

It is remarkable that we find among the wild species of the cow, cows with fairly good milk yield but low butterfat content, and also cows with the opposite, and so it may be presumed that our Holstein Friesian cow may be derived from a species with the adaptability of giving much milk with low butterfat content, whereas the Jersey cow's ancestors have been high butterfat producers. Accompanying table will show the comparison:

Milk Composition

Breed	Protein	Fat	Milk Sugar	Ash	Water
Holstein-Friesian	3.25%	3.20%	4.40%	0.75%	88.40%
Jersey	3.47	4.60	4.35	0.79	86.79
Brahmin (wild)	3.13	2.89	4.85	0.72	88.41
Gayal (wild)	3.42	5.86	4.31	0.83	85.58

(c) Less susceptible to contagious diseases.

When in the years 1912-1913 foot and mouth disease was spread all over Holland, including the surroundings of the zoological gardens, the wild cow species showed no symptoms of this disease. Experiments with tuberculosis showed equally that these animals do not experience the least inconvenience from the disease. This shows sufficiently that our highly developed milk and fat producing cows of the present day have lost by that elevation a good deal of their blood defense material against disease.

(d) Contented with inferior quality feed.

It is remarkable that the imported animals show in the beginning often a dislike of all the dainties fed to tame cows, as for instance bran, oil meal, corn, etc. However, they are fond of green feed, common hay, tree leaves, in short succulent feed. This teaches us the lesson that every farmer should try to have in winter time some green fodder as for instance silage, ensiled grass, beets, turnips, green rye, etc.

(e) High standing maternity.

I believe there is no living being that has such a mother heart for her young ones as the wild animal. I remarked this when visiting one of the cages, where the mother had just given birth to a young. A loud roaring, trampling and snorting, tell the visitor in the most clear way to keep a good distance from the mother.

(f) Presentiment for bad weather and danger.

When last summer the menagerie of a circus passed at Broomfield, about a mile distant from the Wilcox farm, our cows were suddenly like wild for a moment. The cause of it was simply the smell of the lion cages. The same thing I remarked many a time in the zoological gardens when the manure cart of the lion department passed the cow department. It is simply the instinct of defense. I also remarked many a time, that storm and rain were predicted by these animals, by their restless walking round in the box. The same we may observe often with our present cows.

(g) Harmony in color and surrounding.

Nearly all of the animals that live in nature's wild state have a color in harmony with the surroundings, in order to protect them against the eyes of the enemy. The color of the wild cow is also yellow, brown, sometimes gray, never black and white. It is remarkable that the color of these animals changes with the season.

(h) High ages.

Comparing the ages of our cow with the wild species I might say that those animals live about twice as long as our highly developed milk and butter producing machines The reason is simply this, that aside from degeneration of the whole bodily system, mankind is pulling what it can from the present modern cow.

(i) The stature of the wild cows.

Every animal that lives in nature has its defense organs against the enemy, and so the cow has her horns and head strength, or muscle strength, of the front part of her body. Comparing now the bodily stature for instance of the Holstein Friesian cows, with the Gayal or Brahmin cow, the reader will readily see from the measurements that as to the enormous horn growth and the forcible front body, our present cow is rather a degenerated product. This forceful bodily stature is of importance for the wild animal in jumping or climbing mountains to reach the feed or water.

	Measurement of Holstein Cow	Gayal Cow
Chest circumference	70 in.	78 in.
Length of cow	78 in.	71 in.
Length of horns	7 in.	12 in.
Circumference of hornroot	5½ in.	10½ in.
Front height	51 in.	56 in.
Back height	51 in.	52 in.
Length between hipbones	17 in.	16 in.

Remark the difference in horn circumference.

(j) Better digestive organs.

If you feed our cows whole corn, barley, oats, etc., about 25 to 30 per cent will leave the digestive organs untouched, undigested. This is not the case, however, with the nature cow. The whole grain fed to them is pretty well all digested. Another very important thing is that most of our cereals do not contain sufficient minerals. The licking of stones, eating of shells, or such like things by the wild animal show this sufficiently. An extra allowance of salt and phosphate of lime is thankfully received by them. This teaches us an important lesson, that is that we have to pay full attention to the mineral contents of our feed, on which the present cow is living. It is quite possible that many of our cows would also do better if their rations were supplied with sufficient minerals. One ounce of salt fed to a cow daily would do quite a bit of good and where no alfalfa (with 22 parts of lime in 1000 parts) red clover, (17 parts) or any other clover is fed, an addition of some phosphate of lime, or better chloretum calcium, would be of favorable influence.

Brahmin Cow and Bull

The Dijkstra Farm in Holland Established in 1827, comprising 370 acres. Three generations of Dr. Dijkstra's Family Have Operated this Estate

From the Western Slope

Mr. Thomas Jefferson Putnam,
Denver, Colo.
Dear Tom:

I thought I would write you and Josephine to let you know how the fruit growers are getting along. You and Josephine ought to take a day off and come down here to see the world. It is immense. The sky so blue, the water so clear, the fruit so sweet and the sun hotter than hades. I took a ride yesterday to Clifton and Palisade. Why I was surprised to learn that millions of people were settled in among the trees. I was sure that some residences here would make Fifth Avenue, New York, ashamed and to see these residences you have to get right up close to them they are so hid by trees.

As I alighted from the train yesterday a fellow with more brass in his head than sense, came running up, threw out his hand and said: "Howdy, howdy, howdy, glad to see you, how is the family?" I was not over zealous to meet him and under muffled breath said: "Who the deuce are you?" He soon made his desire to meet me known for he said: "Interested in land?" "Sure," said I. "How much?" said he. "80 to 800 acres," said I. "Get right in," said he and away we went. Such lies! He would shame the devil.

Why he told me that the whiteness of the soil in places was due to nitrate of soda and that the farmers were becoming so prosperous that they were unable to spend all their money. Whenever a big automobile passed us he would say that is farmer so and so, he is worth about $300,000. And on the car there was a license tag issued by Massachusetts, Iowa, or some other state! Oh, Tom, you and Josephine ought to expose these notorious liars. Why this fellow said that any one who would throw a little seed at the soil would get a crop the first year that would pay for the land. $1,000 to $5,000 per acre. Think of it!

The people down here are good. A good crop of fruit is in sight, notwithstanding the liars. Of course every town has its share of them and in the light of democracy they must be fed.

I called upon George La Grange and Pettingill brothers. They grow alfalfa, Russian sunflowers, fruit and run Jerseys. That is the system. When some of these people learn that $10,000 per acre per year cannot be secured, and give more attention to producing, feeding and raising livestock this country will be Paradise. Think of it, as high as 8 tons of alfalfa and 40 to 50 tons of Russian sunflower silage per acre per year. Pettingill brothers will soon harvest their sunflowers and plant the land to another crop. In fact, I never saw such fine alfalfa as this soil can produce.

If these people could think in terms of thousands of dollars instead of millions they would be better off. This is going to be a place of places in the future. Everything is here to make. It will always be a great fruit section and its best is not far off.

The apricots are all marketed and peaches and plums are just beginning to come. Such fine flavors. I wish you and Josephine could sample them. Think of the Denver merchants importing fruit from foreign countries when a great deal better is being produced right at their doors. It is a shame. Say, Tom, what do you think, the people here ship hay to Texas and import a carload of condensed milk every week! Pettingill brothers bought some good alfalfa hay in the field the other day at $12.00 a ton. Isn't that cheap? Oh! but you just wait, this thing is going to change soon.

Tonight I am going to help form a co-operative livestock shipping association at Fruita. Those people out there have the idea already and are beginning to raise hogs. You just watch them and see how they will transform the farming of this whole country. This association will help them to put the new ideas into operation. I am going home Saturday night and if it were not for violating the Sabbath I would call and see you and Josephine Sunday. I think people ought to be good on that day!

Kind regards to yourself, the children and Josephine,

R. W. CLARK.

PERFECT GRAIN STAND GUARANTEED

CLEAN SEED INSURES SUCCESS

By W. W. BURGESS

You can guarantee a perfect stand of wheat, oats, alfalfa or any other grain or grass by planting perfect seed free from dirt, chaff and weed seed.

The triple service Simplex Mill, made by a large and well-known Kansas City manufacturer, cleans, grades and separates all in one operation. It is fully equipped with screens and riddles made especially for the seed problems of this section—wheat, oats, rye, corn, barley, peas, beans, flax, alfalfa, millet, timothy, clover, broomcorn, kaffir, grasses, etc.

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L. D. Rice, who has spent a lifetime in perfecting the Simplex is willing to ship you a mill without a dollar in advance for 30 days FREE TRIAL and easy payments if you want to keep it.

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Be sure to write immediately in order to take advantage of their special offer.

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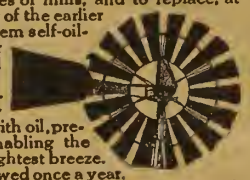
has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year.



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Ask today for a free souvenir and copy of our New Success Messenger—they will please you.

For Painting Interior of Silo

Farmers who keep ensilage in silos during the winter months for use in feeding their cattle are oftimes confronted by the problem of the ensilage becoming soured. This souring is usually due to contamination from particles of previous years ensilage which becoming absorbed by the wood in silo walls, decays and becomes foul. This can be avoided by coating the interior of the silo with a special silo compound now made by paint manufacturers. This silo compound assures freedom from contamination and being made from non-poisonous ingredients, it is superior to paints sometimes used for this purpose but not especially designed for silo painting and which contain elements of a poisonous nature.

This silo compound is impervious to moisture or alcohol and inert to acetic acid which is usualy developed in ensilage. It also helps to prevent the access of air to the interior of the silo by forming a film over the inside which allows the fermentation of the ensilage to go on unhindered by air. The compound is suitable for interiors of silos made of wood, metal, or concrete and should appeal to the progressive farmer.

Biffkins—I'm in an awful fix. I need money terribly and haven't the slightest idea where on earth I'm going to get it from.

Friend—Glad to hear that, old chap. I was afraid you might have an idea you would get it from me.

Cushman Electric Light

Keeps Young Folks at Home

Boys and girls don't leave home just to get away from the old folks. They leave home because they find conditions of work and recreation more pleasant elsewhere.

Keep the work within reasonable limits and make home conditions cheerful, and the children will prefer the certainty of home to the uncertainty of strange places.

Cushman "Does More" Light Plant

This is the plant that makes a hit with the farmer's family, because it does more than any other outfit on the market. It is a Unit Belt Type Electric Lighting Plant and a Standard 4 H. P. All-Purpose Power Plant—all in one outfit—and in this way it gives you

Both LIGHT and POWER in One Plant!

It does more because it gives you Light, Lamp-Socket Power and Portable Engine Power in one plant.

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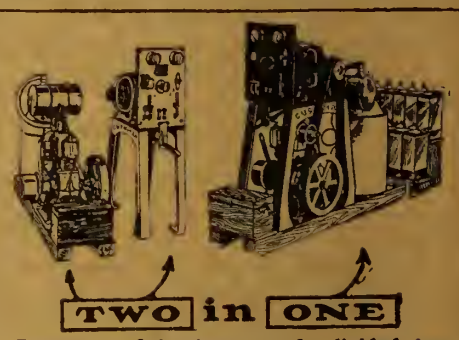
If you have a Cushman 4 H. P. engine, you already have the power for a Cushman Electric Plant.



Picture on left shows outfit divided into power plant and light plant.

Picture on right shows complete unit plant for electric light service.

Cushman Electric Plants are built in various sizes to meet various needs. They reach you fully charged and ready to run. Send for free Electric Lighting Book.

Cushman Double Cylinder Motors are the highest grade and most useful engines built for farm work. They do not wear unevenly and lose compression. Equipped with Throttling Governor, Carburetor, Friction Clutch Pulley and Water Circulating Pump. 8 H. P. weighs only 320 lbs.; 15 H. P. only 780 lbs.; 20 H. P. only 1200 lbs. Write for free Light Weight Engine Book. (299)

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The most satisfactory Power Plant for the farm because it is absolutely dependable and most economical to run. Easy to Start—every engine is always ready to give full service and will pay for itself many times over.

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Send a post card for our big picture **Catalog No. 22-A** which tells what users are doing with Model "K" Engines.

Team Portable Outfit

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EASY TO START

What can a man Learn from Looking at a Tractor in a Tent

IF you have ever been to a tractor demonstration, you probably know the earnest way some salesmen have of taking you into a tent and pointing out all the fine points of the tractor they are trying to sell.

They will show you its engine and its wheels and its gears and its clutches, and tell you why they are better than those of any other tractor on the market.

Now, the intelligent farmer, when he goes to look at a tractor, wants to be shown by the tractor itself.

For eight years the G O Tractor has been showing farmers all over the country just what they wanted to know. It has shown them that it can do anything they want it to, and do it economically, and keep on doing it.

There is nothing "eye-filling" about the G O Tractor. It is a four-wheel, four-cylinder tractor—the simplest and most practical construction known. There is no loss of traction due to the shifting of weight to the wheels of the implement. Its pull increases as the traction increases, because the drawbar is free-swaying — not rigid — eliminating all side draft and making it safe on hills.

The G O driving mechanism is the biggest advance in tractor engineering which the industry has seen. It gives six speeds forward and six reverse—a right speed for plowing in any sort of soil; a right speed at the belt pulley for any kind of machine. It is so easily controlled that even a child can operate it. All gears are enclosed in a dust-proof oil bath, adding years to their life.

The facts about the G O Tractor are open to anyone who is looking for sound, common horse-sense—not features or talking points. You may be interested, also, in knowing more about the company behind the G O Tractor—its guarantee and its idea of what constitutes real service. A post card today will put you under no obligation.

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Grain Grading Exhibit

Last month we called attention to an effort being made to get one of the government grain grading exhibits put on at our County Fair, Sept. 2-5. This has been secured, a letter received from the District Grain Supervisor at Kansas City. assuring us that we could count on it and go ahead with arrangements. This is quite a recognition of the educational value of our fair, as the government has only six of these exhibits, one for each Grain Division.

It will consist of a full set of equipment, which includes all apparatus necessary for properly grading exhibits of type, samples of wheat illustrating the various classes and subclasses of wheat. A government inspector will be on hand to demonstrate the system of grading and explain the various classes.

This should attract as much or more interest than any exhibit because all mills and elevators are going to be more careful this year to buy on government grade. Last year some wheat was not bought on government grade but when resold to the Food Administration, the grades were applied and there were some losses. Many farmers do not understand this system of grading, but since marketing is one of the big problems, every farmer should plan to see this demonstration and study it until he understands it. Mr. E. H. Huelskemper will have charge of this exhibit.—Boulder County Farmer's Exchange Bulletin.

Listing for Fall Wheat

I have had a good many people ask me how and why I list my ground in the fall for my wheat. This fall listing is only done on wheat ground that is to be put back into wheat that same season.

I have seen this tried in Kansas with good success and I think the same method can be used in this country to good advantage. My reasons are as follows: Listing the ground stops the evaporation of the moisture, stops the growth of weeds and puts the land in good shape to take all the moisture that will fall before the time comes to plant.

Listing is also quicker than plowing as one man and four horses with a one row lister can list from seven to ten acres a day, while the same outfit could only plow from three to four acres a day, and this is the time that you want to get the ground broken up fast, so the weeds will not get a start and so the moisture that is in the ground will be retained. The wheat stubble sticking up is like so many pipe-stems there to draw out the moisture and they sure draw it out.

The ground should be listed about six or eight inches deep and the ridges harrowed after the lister. This will stop weeds from growing, then let the ground lay until the volunteer wheat starts, then cut the ridges down and harrow the ground well. This will put the ground in good shape for seeding. It is a good plan to harrow after each rain until planting time. Heavy ground can be listed dry if the ridges are worked back when the ground is wet. Sandy land should be worked when the land is wet or it will blow. The wheat should be planted by the first of October. This will give the wheat a good chance to get started and will also furnish good pasture for the milch cow.

If you do not intend to plant wheat back on the wheat field the same season it is advisable to list the ground as soon as the wheat is cut anyway, the same as you would for wheat. Let this lay during the winter. This will not only stop the weeds and Russian thistles from growing, but it will stop evaporation and will leave the land in such a way that it will catch the snow that generally blows past in the winter. Let the land lay this way until spring and then cut the ridges down. You will have a very good seed bed for your spring crop. The working of the wheat stubble in the fall is very essential, as it will stop the weeds from growing and will conserve the moisture that falls during the fall and winter.—Ray L. Beitler, in Araphoe County Farm Bureau Bulletin.

Colorado Tractor Statistics

Assessor's reports on agricultural statistics, made to the Colorado State Immigration Department, indicates that there are in excess of 2,500 farm tractors now owned and being operated by farmers in the state. The report is not yet complete and shows at this time 2,330 farm tractors owned by farmers who are actually engaged in farming in the state this year. In addition to the tractors owned by farmers there is a considerable number owned by persons living in cities and towns who use them in farm work on a rental basis. Weld county leads in the number of farm tractors, with 365, and the eastern plains section has more than 75 per cent of the total number in the state.

Western Farm Life Service Bureau will answer your questions and help you solve farming problems.

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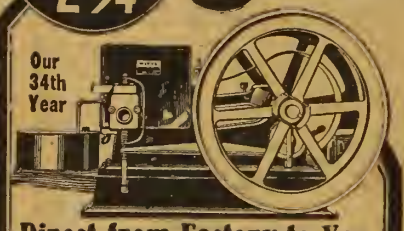

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These are Riveted Tread Tires.. Many have given 6,000 to 8,000 miles of good service. We stand behind each tire and tube with our Written Factory Guarantee of 5,000 miles without a Puncture or Stone Bruise.

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Made strongest where the wear is hardest

Every pair is strongly reinforced at points of hardest wear. The tops are wide and elastic; legs are full length; sizes are accurately marked; and the soles and toes are smooth, seamless and even. The Durham dyes will not fade.

You should be able to buy Durable-DURHAM Hosiery at any dealer's. Look for the trade mark ticket attached to each pair. If you cannot find this hosiery, we shall appreciate your writing direct to the Durham Hosiery Mills, Sales Department, 88 Leonard Street, New York, giving us the name of your dealer.

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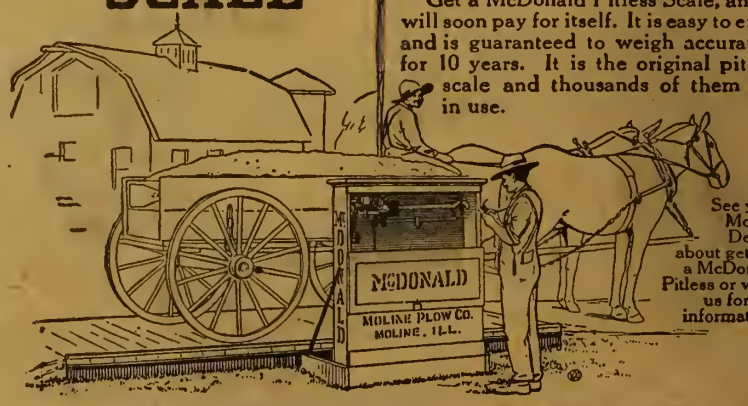

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(Formerly known as the "Cleveland" Tractor)

ROLLIN H. WHITE, the well-known automotive engineer, designed the Cletrac Tank-Type Tractor to do most of the work formerly done by horses and mules—to do it *better, quicker, cheaper*—and to do it *twelve months in the year.*

A million American farmers can profitably use such a tractor.

It does far *more* than merely plow. That is *only the beginning of its usefulness.* It goes right through with the *entire preparation of the seed bed*—from plowing to seeding. And in addition it reaps, binds, threshes, hauls, cuts ensilage, fills silos, saws wood, digs potatoes and does many of the numerous other chores always necessary about the farm.

The Cletrac stands on two long "feet" each 50 inches long by 6 inches wide. And because of this immense "foot" surface it is kept on top of the soil by the same principle that enables a man to walk on snow shoes. This distinctive construction enables the Cletrac to work *efficiently* on wet or sandy soil. It permits it to go over the seed bed without sinking in—and without leaving two tracks of packed down soil behind it. The same principle that made the "tanks" so successful in the mud of Flanders gives the Cletrac the ability to work practically *anywhere.*

The Cletrac is only 96 inches long, 52 inches high and 50 inches wide—enabling it to work up close to trees and fences and making it ideal for orchard use.

But in spite of its small size and compact construction the Cletrac is extremely powerful and will do the work of six horses or mules—and has a speed of from forty to fifty per cent *greater* than the average tractor. And it will work on side hills and grades where most tractors fail.

The Cletrac operates on gasoline, distillate or kerosene, but is specially designed to use kerosene or distillate.

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In spite of steadily increasing production facilities we are having difficulty in keeping pace with orders. Early ordering is therefore important. Such tremendous possibilities are open to Cletrac owners for making greater profits because of *larger* and *better* crops—because of the ability to *work the soil at any time desired,* in spite of horse-killing heat—because of the *year round utility* of the Cletrac, that you are losing money every day you are without a Cletrac.

We have an interesting and instructive thirty-two page book entitled "Selecting Your Tractor" that will be sent free upon request. It goes into *your* problems *—and solves them.* Send for it today.

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Class Consciousness

In another column on this page is published a portion of an article by W. I. Drummond, secretary of the International Farm Congress, suggesting the formation of a farmers' cabinet, to sit at the national capital, and there act as representatives of the combined agricultural interests of the nation. While it would be desirable to have such a cabinet or council at Washington we doubt whether one could be devised that would adequately represent agriculture as a whole. On some questions all farmers are a unit, but there are many points on which they canot agree, because of inevitably conflicting interests. We sometimes lose sight of the fact that the farmer is a consumer as well as a producer, and that he occasionally complains against his own class. The northern farmer buys cotton cloth, and he voiced objections when the southern farmer wanted to restrict acreage to keep the price of cotton up. The cotton farmer was out of sympathy with a guaranteed price on wheat except in the western half of the cotton belt, where wheat also is grown. The Michigan white bean grower, figuratively, "threw a fit" when the United States Food Administration bought up the bulk of the pinto bean crop from western growers and popularized that product in the consuming markets which, so the white bean grower thought, belonged to him.

Instances could be multiplied. It all resolves itself into the old story of human nature being everywhere the same, on the farm, in the shop, in the banking house, the factory and the mercantile establishment. Selfishness is at the bottom of it; or rather we should use a less harsh term and say the law of self preservation. The operation of that law is not annulled by agreements, although it may seem so when we consider the effective way in which labor unions are enforcing their demands at present. Closer analysis will show, however, that labor's attempts at holding wages to a high level are not due solely to the solidarity of organization, but also to the fact that labor has the moral support (or shall we say un-moral?) of the mercantile and manufacturing interests and the middle man. Every time the union laborer succeeds in having a few cents added per hour, the middle man screws up his prices another notch. It does not matter much who gets the increase first—whether the middleman or the laborer—they keep running about neck and neck.

A farmers' cabinet at Washington, if conducted along the right lines, could do much good, but wouldn't it degenerate into a lobby for higher prices on farm products? What the nation needs, and that includes the farmer, is a deeper consciousness of man's duty toward man; a less selfish conception of human relationships; a better reason than dollars for making a shoe, plowing a furrow, or running a railroad train. There are more men on farms that do their work for the love of seeing crops grow, or domestic animals develop, than there are in the shops, factories and stores who labor because they like their tasks. Maybe that is why the farmer does not exercise class strength. If that be true, it is to his credit.

We find the farmer most successful in having his problems adjusted when he acts through his special organizations, as for example the livestock associations, the cotton growers, the fruit growers and the like. Under present living conditions it would be unwise for the farmers as a whole to exert an influence for higher prices on all commodities they produce, because if successful, that would only be followed by efforts on the part of labor and trade to add another dollar to the staggering load. Just now it is to the interest of the great mass of the population to force a gradual decline in the cost of living and thereby avert industrial disaster which the signs of the times portend. It may be better for the farmer, in the end, that his wide spreading interests cannot be successfully combined and controlled through a cabinet or council of half a dozen spokesmen at Washington; first, because many of his problems cannot be settled by legislation and again because his industry is the very life blood of the nation and any attempt to use his great power collectively would arouse the suspicion of other classes and result in a combination against the farmer.

As things stand he does suffer injustice, but it is better for him to be hurt and retain his sense of righteousness than to emulate the industrial profiteer. The latter's day is short and his punishment will come swiftly and surely, because if history teaches one lesson above others, it is that right always triumphs. Out of every blood bath humanity has emerged with a quickened sense of right and a greater desire to let live. If the world war has brought deeper woes and miseries than any previous war, the dawning of peace foreshadows a higher civilization than any we have yet witnessed. In that new era the man who tills the soil will be accorded a more respectful hearing and there will be no resentment against him, because, in America, at least, he has steadfastly supported the nation in her need, even at the risk of his own prosperity.

Let us have a national cabinet or council of farmers to exert its moral force for justice to agriculture, but keep always in sight the fact that agriculture is the vital industry, the bread and meat of the people, and its problems are national and not class problems.—A. T. S.

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An Unusual Season

At the time this is being written the rainfall record at Denver for 1919 shows practically a normal figure. A month ago there was a deficiency of nearly 4 inches. A few heavy showers at the end of July and the beginning of August were sufficient to make the change in figures which will class this as a normal season for precipitation. And yet, there have been large crop losses in some localities of Northern Colorado, due to lack of rainfall earlier in the growing season. The weather records again emphasize a fact known to every experienced farmer but often forgotten, that we live in a country of uncertain rainfall and uneven distribution of moisture. Our averages are useful in making up our cropping program, but even where the farmer has learned to place his chief dependence on irrigation, it must be remembered that the natural moisture is the basis of farming and, consequently, our plans must be made to meet a variable as well as a light rainfall. We need crops that will wait for rain, and, above all, we need to conserve in advance every drop of natural precipitation, as well as to utilize irrigation waters prior to planting. Store the moisture in the soil and have it when the rain forgets to fall, is the lesson of this season of peculiar conditions—conditions that only serve to emphasize once again the fact that we have a semi-arid climate.

The late rains are insuring a good crop of corn, potatoes, beans, beets and alfalfa and giving us promise of fall pastures which will stop the shipping out of livestock.

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A Farmer's Cabinet

Whenever a crisis occurs affecting any branch of agriculture or live stock, the first move is to try to get some information concerning the cause. There is never any reliable advance information, nor is there any established agency through which such can be obtained. Agriculture has no pinch hitter. If it had, some measure of protection or relief might now be available for the beef producers; and it might have softened the blow to the cotton farmers five years ago.

The farmers have the power to protect their interests, but they do not know how to use it. They are usually without the facts necessary to form a real opinion of their own, much less to outline a course of action. Every other large industry or profession, including organized labor, has an agency which keeps abreast of the times, with a complete store of accurate information useful to its particular interests. Other interests are amply protected in Washington and elsewhere by the best men to be had.

The Department of Agriculture is usually appealed to by the farmers when trouble comes. But that department is not organized or conducted in a manner offering real protection or guidance, particularly in matters affecting prices or markets. Furthermore, since two-thirds of the people are consumers and not producers, and presumably pay two-thirds of the cost of maintaining the department, it is not fair to expect that institution to too actively champion the cause of the one-third as against the two-thirds; for that is frequently what it amounts to. * * *

It would seem that the greatest single need of the farmers is a cabinet or council composed of the very best and strongest men in the country—men like Waters, Governors McKelvie, Lowden or Stewart, or Jardine, Stubbs, Case, Funk—men who can sit around a table with Ogden Armour, or Julius Rosenwald, or Herbert Hoover, or Julius Barnes, or Samuel Gompers, or anybody else, and match every move that is made; men who can grasp the meaning of world movements and who can gather, understand and correlate the facts, and tell when the producer is getting the worst of it, and how and why, and from whom. The $2,000, $3,000 and $4,000 men in the departments at Washington can never do this, nor would the system under which they work permit it. Men who can do for the farmers what Gompers and Lee and others have done for organized labor would be well worth any price.

A farmers' cabinet, composed of five men, including all salaries, clerk hire, office rents, printing, and all expenses of every nature, could be maintained at an annual cost of not to exceed three cents to each farmer in the United States, or thirty cents each for ten per cent of them. This would give representation to the corn farmers, the wheat farmers, the cotton farmers, the live stock men and the fruit and truck farmers.—W. I. Drummond in The Agricultural Review.

Certified Wheat Seed

Inspection of fourteen fields of Dicklow wheat in Cassia county, Idaho, for certification, and of about thirty fields in Jerome county, according to B. F. Sheehan, field agronomist of the extension division, developed that some of the best seed to be had was being grown there. Final inspection is to be made after threshing. The certified seed is to be handled through the farm bureaus. Farmers in these counties are more than satisfied with the importance of the standardization and pure seed work.

The Branding Iron

Applied by Elias M. Ammons

It is claimed there are half a dozen farmers at Wray who have 3,000 acres of wheat grown without irrigation, which will produce 40 bushels per acre, this year.

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Owing to bad weather conditions in the early part of the season the hay crop will be short in lamb feeding districts of northern Colorado and predictions are made that the number of lambs to be fed in that section of the state will be less than normal.

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A license system which it is proposed to place over more than half of the food products of the country will have no more effect in reducing prices than the licensing of saloons had on the prices of whiskey. It will have the same result, however, that the consumer will pay the cost of the system.

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The conference between several livestock associations and the Secretary of Agriculture at Salt Lake City, agreed pretty unanimously to have Congress turn over the control of the grazing lands of the west to the Forest Service. Whatever is done with them no interference with the settler should be allowed. It is a safe prediction, however, that neither the Forest Service nor the associations will evince much interest in any scheme that does not in some way retard the settlement of the public domain. The Forest Service never was a very good colonization agent, anyhow.

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In a recent address Governor Shoup called attention to the passing of three cattle pastures, the Ranger field in Wyoming, Cripple Creek and Burk-Burnett. One of them, Cripple Creek, has become the greatest gold producer in the country and the other two are successful oil producing fields. The Colorado day celebration a few days ago called attention to a fourth, Denver's favorite, City Park. That was a cow pasture too, forty years ago. At the celebration of the state's birthday, former Alderman McLelland who introduced the resolution into the city council to authorize the park, was present and displayed a copy of the original resolution which he presented to the council October 27, 1880. The land originally belonged to the state. After it was purchased, payments became delinquent and but for the vigilance of City Auditor Beatty the city might have lost the property.

Routt County Farmers Picnic

The Farm Bureau in Routt county, Colorado, has been organized only since last February hence the crowd which gathered at Steamboat Springs on July 23rd was surprising. The picnic was held in the municipal camp grounds known as the "Island" near the city. A thousand people were in attendance and an enormous lunch was served by the women members of the community committees under the direction of Mrs. A. G. Maasdam, the women's representativo on the executive committee.

One very remarkable feature of the large crowd was that it represented every farming community in the county. When it is understood that these communities are scattered along the main river valley from Eagle county on the south to Moffat county on the west a distance of a hundred miles, and back for thirty or forty miles on both sides of the river, the real significance of this "gathering of the clans" will be appreciated.

The platform program was composed entirely of local talent and was presided over by Mr. A. H. Chivington of Yampa, the president of the organization. Even more enjoyable than the program and the lunch was the opportunity afforded for renewing old friendships and for visiting. It was a play day and no business was permitted. The picnic will undoubtedly become an annual event.

Comment by Farmer Putnam

OFFERS A LONG WINDED EXCUSE FOR FAILING TO ATTEND ROUTT COUNTY FARM BUREAU PICNIC

ALL you folks that ain't interested in Routt county don't need to read this article. I'm tryin' to square myself with them folks over on the other side of Rabbit Ear pass because I couldn't come to their picnick. It's the fust picnick I ever didn't go to and I was sure sorry I had to miss it, but Josephine is Josephine and you folks know how it is, when that woman sets her foot she cain't be moved. I wrote Mr. Hale, the county agent in Steamboat a letter explainin' my absence, which took me several hours to write, and I hain't been in no fit condition to write a better excuse since, so I'm goin' to print what I wrote him, as follers:

I reckon you folks up in Routt county thinks I'm a quitter because I couldn't come to your Farm Burro picnick. Josephine is to blame, as usual. When I got the invite I sez to her: "Josie, them Routt county folks wants me to come over and make a speech to their Farm Burro, what do you think about it?"

"Well," she sez, "I reckon you better not go, because if they ever hear you make a speech, they'll never ask you to come agin. Besides my brother's comin' out from Missouri and we got to take him around in our car next week."

"Yes," sez I, "but he don't care a durn whether I'm here or not. You kin show him around without me. Mr. Hale sez fur me to come; the editor thinks I better go and the folks'll be awful disappointed if I don't show up."

"Now Tom," she sez, puttin' down her foot, "don't argy with me; you shan't go; that's all thar is to it. I know Matt don't care much about seein' you; my folks never did git reconciled to me a marryin' inter that Putnam family and you know it, but we need you with us to crank up the car."

Now Mr. Hale, you know how Josephine is; when she makes up her mind not even a tractor kin move her, so I might as well have you tell the folks that I cain't come; but don't say nuthin' about her wantin' me to stay because I has to crank the car on our trip. It's humiliatin' fur a man in my position to be kept down by a woman, but it cain't be helped. Some of the folks has been wonderin' why it is that I don't strike out and use my own mind in them matters.

I reckon it won't do no harm to tell you, because this here's a private letter and hain't to be published. You see when I married her I didn't have no land of my own, my dad havin' a big family. Me bein' the only one of the boys that wasn't much good at farmin' he decided to let me git eddication and send me to the academy, to take up a profession.

I studied one whole winter, fust decidin' that I wanted to be a doctor, but I didn't like that because of the skeletons and things. I found out that the doctors that make the most money is the kind that has the most operations, and that if you want a big bank account in that profession you got to know how to separate a man from his appendix and his pocket book at one operation by givin' him cholo-form, so't it won't hurt him till he wakes up and finds out what he's lost.

I was too chicken hearted fur that kind of work, so then I tried studyin' preachin', but I wasn't fit fur that neither, fur pussonel reasons which I don't need to numerate. The president of the Academy wrote to my dad sayin' while he had nuthin' ag'in me, he felt a certain responsibility toward the publick and he was "moved to advise" that some other profession then preachin' would suit my peculiar talents a lot better!

Well by that time I had run through about all the cash the Old Man had and he wrote me to come back to the farm. I wrote and asked him if he'd kill the fatted caff when I come home and he wrote right back on a postal card: "You durn scamp, I'll kill you if you don't come home at onct."

Well, when I got home he read me a lecture and told me that he'd spent all he was a-goin' to, to git me eddicated, and that I lost my interest in the farm through havin' spent the money at the Academy. So I went to work fur Old Man Gaines—that's Josephine's dad, and got to courtin' her. She had some money in her own right loaned out on a farm in Clay county and they had to foreclose the mortgage and take the place and put a tenant on it. I knowd how things stood and I braced up and asked old man Gaines if I couldn't run that Clay county place fur him.

"Alone?" he sez.

"No," sez I, "I kin take Josephine with me, if you're willin'."

"Well." sez he, "is she willin', and her mother?"

"I reckon," sez I.

Well it was all settled and we got married and moved over to Clay county and the farm was in Josephine's name and is yet. We run it fur a while till land got scarce and high in that part of Missouri, and we could rent it out well, and then we come out West and I got to writin' fur them farm papers, and that's why I cain't do much without her consent. She owns the income property and if I ever git fresh she threatens to shut off the rent money and not let me use any of it, and then I'd have to go to work. At my age that would be a hardship, especially as I ain't used to it, so therefore Mr. Hale I has to let people think I'm henpecked. The woman keeps that blackmail over my head all the time; it's "obey or go to work" and of them two evils I choose the less one.

I hope this here excuse will square things up with them Routt county folks fur the present. If not, why I'll try and come over later. To tell you the truth, I hain't been feelin' extry well since July 1st and prescriptions is durn hard to git and they come high. I often wisht I had follered the doctor's profession which I started out to learn; I could make a mint of money now writin' prescriptions. I still remember two Latin words—Spiritus Frumenti—which I learned at the Academy, but they sure belongs to a dead language now!

* * *

Some feller out in Arapahoe county is tryin' to joke me. He seen my article in July 1st, where I said I bought a tractor and I reckon he don't think I kin afford a machine, so he's a-tryin' to find out where I got the money. Well, I'll let you-all read his letter which is as follers: "In readin' your article I seen that you bought a tractor one of them thar stationary engines that's supposed to run on wheels. I'm glad you done it; nobody ought to be without one of them machines; they kin do so much more then hosses kin. I been a-tryin' to buy one ever since the tractor show, but I hain't got the money. I didn't git in as much wheat last fall as I wanted to, because I was usin' hosses, and you can't git it all in at the right time that way, and then it most all dried up this summer. I know I could make my fortune in wheat next year, if I had a tractor to plow with, fur then I could git my whole 160 acres in wheat. I believe in concentratin' my farmin' in one crop; it's a heap less bother, and when you lose you kin see whar you lost it and they ain't no mystery about it. Ever sence I seen that you bought a tractor I been wonderin' where you got the money to buy it with. I been by your place out here in Arapahoe county and I know you didn't make it offen your crops. and I'm purty sure Josephine didn't let

(Turn to page 19)

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No inquiries will be answered unless the inquirer gives name and address, so that same can be handled by letter. In publishing the answers, only initials and name of state or county are used, and all means of identification can be omitted if desired by the Inquirer. We must insist, however, on the rule, which is based on a number of good reasons, that those making use of the Service Bureau sign names and give postoffice address.

Status of Commonlaw Wife

If a woman marries using another name than her own, is she the man's lawful wife or not? Say Jane Smith marries but gives her name as Mary Miller, is that a legal marriage? No fraud being intended or property involved. In other words, does the man marry the woman or her name? What is the status of a common law wife in Colorado, or what part of the man's property is she entitled to?

The woman is the man's lawful wife. The marriage is legal. The man marries the woman.

The commonlaw wife in Colorado has the same rights as any other kind of a wife. She is a wife.

There is no community property in Colorado as to man and wife. The wife cannot be deprived of more than one-half the property on the death of the husband. In Colorado what the man owns is his and the wife owns is hers. —Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver, Colo.

Dogs May Be Shot

Is it lawful to shoot dogs that are worrying my cattle?—Subscriber, Colorado.

The state law contains a provision reading as follows: "Any dog found running, worrying or injuring sheep or cattle may be killed and the owner or harborer of such dog shall be liable for all damages done by it." (Rev. Statutes

Regarding a Lawful Fence

Is there any way in which parties owning land on the Forest Reserve can be made to put up a lawful fence?—A. B., Jefferson county, Colo.

No one can be forced to put up a lawful fence. The law provides that damages inflicted by cattle breaking through fences can be collected only if said fence was built in accordance with legal requirements. In case of a barbed wire fence, that would mean three wires, with posts set not more than 33 feet apart, and substantial metal or wooden stay every 16 1-2 feet.

Wheat on Corn Stubble

I have 70 acres in Kiowa county north of Chivington. Fifty acres have been broken up for five years. I broke 20 acres this spring. Plowed it 8 inches and double disked it once also. Harrowed it 5 times and top planted it to corn and kaffir corn. The old ground (50 acres) I plowed 5 inches deep. Listed it in to corn. Will cultivate 3 times. Do you think this would be a good seed bed for wheat? I am thinking of drilling wheat between the rows, if there is plenty of moisture the first of September. The land is sandy. Please let me know if you think I could succed with wheat on this kind of a seed bed.—W. A. C., Kiowa county, Colo.

In your district the ground which has been cropped to corn and sorghum is liable to be pretty dry when those crops are taken off and if planted to wheat might make a crop of some kind only if the season happens to be very favorable. Further north where some planting on corn stubble is done the crops seldom average over 10 or 12 bushels. It is held by some optimists that well cultivated corn land is almost equal to summer fallow; but this is not borne out by facts. Under dry fall conditions corn and sorghum will use up all the moisture in the soil down to about 6 per cent which a farmer would call pretty dry. In the southern part of the state such crops as corn, milo, feterita, Sudan grass, etc., are much more reliable than small grain; but if you need feed for horses or dry stock, fall rye run in on stubble will make you plenty of hay if there is any winter moisture.—E. R. Parsons.

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VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Suppression of Milk Flow

My cow calved January 7, 1919 and will calve again about the middle of November. About two weeks ago she got her udder dirty and I took warm water and washed it off and she held her milk. She was giving one gallon of milk to a milking. She hasn't given her milk to me but once a day since then, usually in the evening. I have fed her bran and alfalfa, sweet clover and ground corn at different times and still she won't give her milk down and I always curry and brush her and numerous other things. I will be grateful if you can help me on the subject.—M. E. K., La Plata county,

A sudden suppression of the milk flow in the latter part of the lactation period is not at all uncommon and is usually hard to account for. A very slight inwe should also say, psychological, is liable to cause a sudden cessation of the milk flow. This is true of some cows more than others, presumably because they are more sensitive to the way they a tendency to be dry for a longer period are handled, and also because they have tendency to be dry for a longer period before the succeeding parturition. Instances like this support the claim that cows to do their best in milk production must be satisfied with their conditions and anything happening that is unusual will have its effect. Also a cow must feel well and any one of a thousand things, such as indigestion, chilling of the udder, etc., may interfere with the phenomena of lactation. It seems that all untoward influences will affect the milk flow more when they are just naturally "drying-up" than they will early in the lactation period. A cow that will give only two quarts of milk a day for three months of the year may be questioned as a profitable cow. It is doubtful if anything, beyond good care, will restore the full milk bucket until she again becomes fresh.—G. H. G.

Horse Can't Sweat

Last spring while plowing alfalfa one of my mares got overheated. She does not sweat any more hut puffs or blows quite badly. She also gets tired very easily. Is there anything that I can do for her?—I. T., Prowers county, Colo.

The diagnosis of this case will require the best skill of the veterinary profession. This is possibly only by making a most careful examination of the animal and then probably laboratory assistance will be necessary to make analysis of urine. There is apparently a serious disarrangements of the functions of the kidneys and the skin in elimination. A horse that can't sweat in the Arkansas Valley these days is certainly in a serious condition and liable to die any day from heat stroke. The Agricultural College with its laboratories will be glad to cooperate with your local veterinarians in trying to save this mare. It would be folly for me to suggest specific treatment without a chance for a diagnosis.—G. H. G.

Deaths From Calf Diptheria

I have lost two calves about five months old. They had fresh milk until they were three months old and then were put on grass and sweet clover pasture. They got thin and laid around most of the time. The tongue of one looked as if it were swollen. They act crazy, and when they get up stagger around as if they were going to fall. They had scours a few days before they died. They drank water and acted as if they were hungry but could not eat. Is there any cure for this?—E. M., Weld county, Colorado.

The calves probably died from Necrobacillosis (calf diptheria) which is quite common in Colorado this summer. It is a germ disease and therefore infectious. The same microorganism is responsible for contagious foot rot in cattle and sheep, for sore mouths, "bull nose" and necrotic inflammation of the intestines of pigs, for "lip and leg ulceration" of sheep, etc. Isolate healthy calves, clean and disinfect calf pens, etc. Since veterinary assistance is available, it will be well to call a veterinarian to take charge until the disease has disappeared. This disease cannot be controlled by vaccination . Many animals may be saved by appropriate treatment which will depend upon the particular manifestation of the disease.—G. H. G.

Healing a Wire Cut

Will you please give me some good healing preparation for a wire cut? Have had considerable trouble getting anything to properly heal. Have used everything in the way of patent preparations than can be procured.—E. F. K., Idaho.

A wound without interference would heal without treatment. The object of treatment is to make conditions such that it will be possible for nature to effect healing and from this viewpoint treatment does not merely consist in "putting something on it." The wound needs surgical attention. Freshen the wound, secure drainage, prevent the animal from irritating it with the teeth or otherwise, and do not bandage. Since you have no veterinarian, treat the wound as indicated and follow with application of white lotion two or three times a day. Do not make any other applications. White lotion: Zinc Sulphate, six drams and lead acetate one ounce, mixed with one quart of boiled water. —G. H. G.

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Fitting and Showing Hogs

There are far more purebred hogs in the hands of small breeders in Colorado than in any previous years. Many of these breeders would like to show a few head at their local fair. They have an idea that there is something secret about the preparation of animals for show and that the beginner at the game is unable to win because he does not possess these secrets. Incidentally a few local fairs are inclined to take the same attitude and limit exhibits to animals shown by men from within the county. This I believe to be one of the most serious mistakes a fair could possibly make.

A fair is not run for the purpose of making money for exhibitors by insuring their winning through shutting out better stock. If county fairs have any justification for existence, it is as an educational factor. Fairs are supposed to bring to the community the best livestock and other exhibits that can be persuaded to come through the funds available for the use of the fair association. The placing of these good animals on exhibit furnishes the local breeder and farmer a standard to which he can work. It serves to correct his mistaken ideas with regard to type, and his preconceived notion that he grows as good stuff as anybody. If the fair limits exhibits to its own locality, and there are few breeders of any repute in the locality, then the farmer and other local breeders have an inferior standard set before them, because the inferior individual shown wins the blue ribbon and the championship, and his owner advertises this fact in selling his stock.

If a local breeder is not sportsman enough to bring out his stock and exhibit it in competition with all comers, he will never make a high class breeder of livestock, for such a breeder must be a sportsman all the way through. There is so much opportunity for falsifying pedigrees; recording animals by one sire as being from another sire that is more valuable; changing date of birth in order to make animals appear larger for their age than they are; and all such tricks of a dishonest man, that one must have the spirit of squareness in him or he will make nothing but a shyster breeder, so he might as well learn the game young. If he wants his stock to be winners let him take it to the county fair, go up against the best that comes to the fair, and if he does not win this year keep trying until he does win.

In preparation of stock there are two or three main points to be kept in mind. First of all, the stock that is to be shown must be kept growing from the day of their birth until the day they are shown. Size counts for more than any other point in hogs in the show ring today. No matter how good a hog is, if it is small in size it cannot win under any good judge. It takes feed to produce this size, but the breeder must learn to select a small group of his best pigs early, separate them out, and give them all they will eat of a well balanced ration. He cannot, of course, afford to carry all of his pigs on full feed in this way.

Hoofs of pigs should be looked after, especially in the old stock, and they should be kept trimmed down, so that the weight of the animal is not thrown back on the pasterns. If these are allowed to grow too long the pasterns are likely to be weakened so that when a heavy load of fat is carried, the pasterns will break.

The pigs should be dipped periodically to get rid of lice, or may be swabbed along the back with some heavy oil mixed with kerosene. A mixture of cheap grade of paraffine oil with one-third to one-half kerosene makes a good combination. Or one may take the drainings from the crank case of an automobile. A liberal amount of such an oil spread along the back will run down the sides and get most of the hog lire.

The exhibitor should make a small light hurdle that can be carried in the hand to take with him, so that when he is exhibiting his pigs he will have something to herd them by.

If the skin of the pig is scurfy the pig should be washed before taking to the show at all, and in any case the pig should be washed just prior to showing, and shown wet. This, I believe, is a better practice than oiling them and showing them covered with oil. The oil is a nuisance to the judge who is going among the pigs, and the coat of the pig looks just as well wet with water as with oil.

In showing a hog the man handling it should be eternally on the job. It is one of the greatest faults of beginners in the show ring to think that the showing of a hog consists in turning it out in the presence of the judge. If this is done every weakness which the animal possesses will be overemphasized in his appearance in the short time that he is in the show ring. The hog has traveled some distance to come to the fair, he is in a new pen among strange hogs, is nervous and tired, and probably has not eaten well. If he has any tendency at all to weakness in the back, weak pasterns, or standing with his hind feet under him, he will surely exhibit that weakness in the show ring, unless he is properly handled.

I do not mean to imply that even an expert showman is likely to conceal much in the way of real weakness from the eyes of an expert judge, but there is a vast difference between a judge knowing that weakness exists

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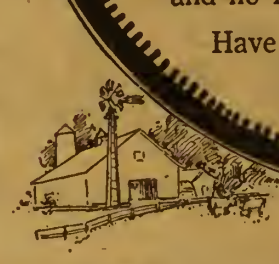

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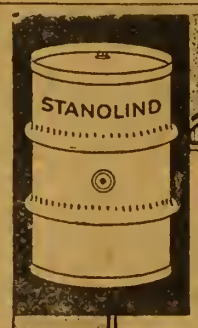

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in a slight degree, and in his having that weakness stuck prominently before his eyes every time he looks at the hog. There is no hog that is perfect. It is the owner's business to show him off to the best advantage possible. It is up to the judge to discover his weak points.

If the hog is weak in the back, and he is allowed to stand in the hot sun, tired, he will show the defects in a greater degree than usual. The exhibitor should keep him moving so that he does not settle into a bad posture. When the judge wants to look at him a moment, let him stand still, of course, but do not let him settle down in a posture of dejection before the judge's eyes. If the hog is light in the hams, but presents a good side view, it is the exhibitor's business to see that the hog is kept side on towards the judge while the judge is working over the other hogs in the ring; then if a casual glance of comparison is cast back to his hog it will be a good view that is presented.

No ribbon is ever won until the final decision is made, and while most good hog men will agree pretty closely upon the hogs that ought to win, the judge is the final arbitrator. He is picking hogs according to his own ideas, and not according to the ideas of any one exhibitor. So when a decision goes against you, smile and bring our your next hog. When you win a decision do not take time to smile—go back and work harder to win on the next one.—G. E. Morton.

Producing Clean Cream

The secrets of producing good cream are cleanliness and low temperature. Cream placed in clean vessels and quickly cooled and held in cold water will keep. Warm cream should never be mixed with cold cream. The animal heat should first be removed from freshly separated cream. Clean cream must be kept clean, and clean cream begins with clean milk. To produce clean milk requires clean milking, clean pails, clean cans and clean separators. Milk when drawn from the cow contains bacteria. Many of them fall from the body of the cow into the milk, others come from the air, and some come from the udder with the milk. Some of these are beneficial and others are injurious to the flavor. The kind of bacteria which predominate will depend to a very large extent on the cleanly habits of the milker, such as brushing the udder before the milk is drawn and milking with dry hands. Covered pails not only keep out bacteria, but prevent particles of dirt from falling into the milk. Pails and cans should be rinsed with water, preferably hot, just before milking, so as to free the utensil from dust.

I cannot emphasize too strongly the importance of cleaning all parts of the separator after each milking. If this is not done, the slime on the side of the bowl, which contains enormous quantities of undesirable bacteria, will contaminate the fresh cream at the next separation. Therefore all parts of the separator that come in contact with milk should first be washed with warm water and then scalded. Unclean separators, in addition to affecting the flavor of the butter, cause yeasty or foaming cream. Such cream creates a waste, particularly in hot weather, when it foams over the tops of the cans in transit. The loss thus sustained will eventually be charged to the producer. The shipment of such cream is annoying to the railroad employes and not a pleasant sight to place before the consuming public. An undesirable, greasy flavor is produced when unwashed separators are used and also a metallic flavor. The bowl should be thoroughly cleaned and placed outdoors where the sunlight will come in contact with it. Sunlight as well as scalding water is a good disinfectant.

It is well to keep the separator in a dry place, free from contaminating odors. Milk and cream are ready absorbers of odors. If kept in a cellar which contains vegetables they will partake of the vegetable odor and transmit the same to the butter.

I would advise separating the cream so that the fat content would be over 30 per cent, preferably 35 per cent. Cream of this kind will keep in much better condition than thin cream. In addition, manufacturers prefer cream of this character, as it can be handled to better advantage. The thick cream, containing about 35 per cent fat, gives the farmer more skimmilk to feed to the young stock than thin cream. It also saves labor in having a smaller bulk of cream to care for. If cream is to be shipped, it saves expense in transportation charges. Whether these charges are paid for by the creamery or by the farmer is immaterial, as the final charges must be paid by the farmer himself. Therefore, it is to his interest to keep the expense as low as possible.

As soon as it is separated the cream should be placed in a small can, which stands in cold water. Stirring the cream occasionally with a long iron spoon or paddle of some kind, thus permitting the animal heat to escape, is beneficial. A number of farmers are using small tanks for the purpose of quickly cooling cream without involving extra labor. These tanks vary in price from about $12 to $16. A cheaper device can be arranged by sawing an oil barrel in two, and partly covering it for the purpose of holding the cans in place. An arrangement could be made with very little expense whereby the water pumped by the windmill could pass through a small tank on its way to the large stock tank. The use of a tank of some kind will prevent the cream from taking up obnoxious flavors. The best method, where the herd is sufficiently large to warrant it, is to have a milk house with tanks inside. —G. L. McKay in The Breeder's Gazette.

Additional Fair Dates

Crowley County Fair, Sugar City, August 27-28.

Plateau Valley State Fair, Colbran, September 12-13.

Phillips County Fair, Holyoke, September 24-27.

Conejos County Fair, Manassa, September 17-19.

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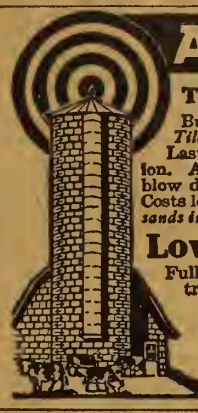

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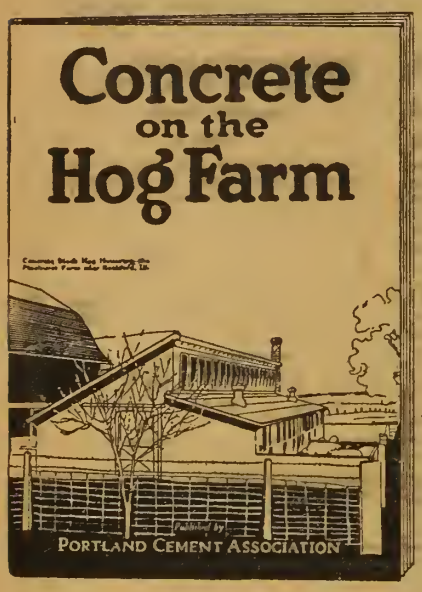

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Concrete for Permanence

Don't Burn The Straw

How much surplus straw have we got this year? There is oat straw in abundance for feed. Rye straw and flax straw have other uses as well. In some sections there is barley straw, but the wheat straw can be computed for each state in rather an accurate way. Most farmers say it runs about a ton per acre, but the scientific men do not figure it that way. They get at it from the weight of the wheat it raises, i. e., 60 lbs. of wheat is supposed to grow on a 100 lbs. of straw; so, then 20 bushels of wheat (1200 lbs.) grows on a ton of straw (2000 lbs.). Therefore, for a 20-bushel yield per acre there is expected to be a ton of straw per acre.

A 20-bushel yield is a good average and a ton of straw per acre is a good average. This year on account of the moisture it will run heavier than that in straw.

The winter wheat for 1919 is given at 48 million acres; so the straw product will be about 50 million tons. In Kansas alone they estimate they will have 12 million tons. You cannot put 12,000,000 tons of straw in stacks without wasting 25,000 acres of land. Farm animals cannot consume those stacks. Next season's crop will pile up another unsightly array and eventually 100,000 acres of rich Kansas land may be buried with stacks.

This is the way it looked to the Kansas farmer in years gone by, so he saved a few stacks for bedding and feed and burned up the rest, but to his sorrow he didn't save the land. The burned spots developed sores bigger than the straw stack bottoms. He now realizes that he cannot put blisters on land worth $200 an acre and suffer the loss of three years incapacity.

Some authority computes that the Kansas yield is cut down 2,000,000 bushels a year because of the disabled land of these burns and the remnants of old, rotting stacks. If you dabble in figures, you will find that the estimate is about correct.

Isn't it absurd! Treating straw so that it is a loss—a liability! Why man, straw is the greatest asset that the wheat grower has got.

According to Dr. C. G. Hopkins of the University of Illinois, a ton of straw contains 10 lbs. of nitrogen, 18 lbs. of potash and 2 lbs. of phosphorus. The experiment stations of both Missouri and Nebrasko confirm these figures and state that at present prices the nitrogen and potash in a ton of straw are worth $7.50.

Another authority states that if you bought the same elements that are contained in a ton of straw, you you would need to buy 500 lbs. of commercial fertilizer to obtain 10 lbs. of nitrogen. That you would need to buy 300 to 900 lbs. of various fertilizers to provide 18 lbs. of potash, and that you would need over half a sack of the same to get 2 lbs. of phosphorus. Why do some farmers believe that it pays to buy fertilizers while others think it is no waste to burn straw?

O few years ago the Bureau of Plant Industry of the United States Department of Agriculture passed out the figures that the farmers of America burned 17 million tons of straw the previous year. This would contain 85,000 tons of nitrogen, 17,000 tons of phosphorus, 153,000 tons of honest-to-goodness potash.

If you put a handful of straw in a basin of cold water, all the potash will dissolve out of the straw in a very short time. This points to an insidious waste in the rotting of stacks and all carelessly handled manure. With every down pouring of rain a real old stack will leach its goodness away and the ground at its base will become so saturated with potash that nothing but rank growths will spring up on such soil for years after the old "butts" has been carted away.

With a machine two men can cover 10 to 20 acres a day. A good machine should carry a ton at a load and spread the straw evenly in swaths 15 to 20 feet wide. The work can be done after seeding in any slack time. Fifty cents an acre for the work will cover the cost, and the machines are inexpensive. The difference between saving or losing 2 acres on a 20-bushel yield at $2.20 involves $88.00. The outlay for a machine is somewhere near that amount.—J. S. Black.

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13,600 Cars Potatoes Shipped

STUART L. SWEET

The shipment of potatoes from this state this season has been the greatest in the history of Colorado. According to records of the U. S. Bureau of Markets, 13,600 cars of potatoes have been shipped from the 1918 crop. This places Colorado fourth among the 21 late potato shipping states of this country. Minnesota ranks first, having shipped 23,000 cars, Wisconsin second, with over 20,000 cars and Maine third, with 18,900 cars.

The shipment from Colorado this season was some 1200 cars more than from the 1917 crop. This is of interest because a greater acreage and greater estimated production for 1917 was forecasted than for the 1918 crop. However, one important fact should be borne in mind, namely, that the 1917 crop suffered a severe freeze in the fall of that year, which greatly limited the total amount of marketable potatoes. This applied not only to Colorado, but to many other potato shipping states of this country.

An unusually open fall and winter characterized the shipping season for the 1918 crop, with the result that the shipments have been unusually heavy throughout the season This is indicated by the large number of cars. There has been a very heavy movement per day and per week at certain periods of the shipping season, frequently reaching over 1,000 cars per day. The records show that Minnesota and Wisconsin have both shipped over 7,000 cars more than were shipped from the 1917-1918 season.

The Colorado movement of some 13,600 cars includes approximately 6,000 cars shipped from the Greeley district and about 7,600 rolled out over the D. & R. G. lines from the producing districts in the western part of the state. The Greeley district is the greatest individual producing and shipping district of Colorado. The San Luis Valley district is second, with over 3,400 cars shipped. Thirty-two cars went out of southwestern Colorado known as the San Juan Basin, some 398 from the Eagle Valley and approximately 1,000 cars from the Roaring Fork and Grand Valley, including Carbondale, Glenwood Springs, Rifle and Newcastle. Approximately 2,500 cars were billed out of the Montrose and Delta section. These figures were furnished the Bureau of Markets by the officials of the Denver & Rio Grande Railroad. * * *

While the subject of the possible acreage to be planted for the 1919 season is not technically a part of the marketing of the 1918 Colorado crop, nevertheless it may be of interest to know that reports furnished by the Colorado Cooperative Crop Reporting Service indicate that there is a decrease in Colorado potato plantings for this season. They estimate that the 1919 acreage probably does not reach over 90 per cent of the 1918 plantings.

The Greeley district will show a slight increase over the original estimates for this year, but in all, will probably not reach over 75 per cent of the 1918 acreage. On the Carbondale and Eagle districts there will be quite a decrease over the 1918 acreage, but the San Luis Valley is the exception to the rule and will have an increased acreage. They will probably move 1,000 cars more than were shipped during the 1918-19 season. On this basis it is conservatively and unofficially estimated that the total movement from Colorado will be approximately the same as from the 1918 crop.

One of the most important features of the marketing of the 1918 Colorado potato crop has been the adoption of uniform potato grades and the inauguration of F. O. B. potato inspection service.

This inspection service was fostered by the Colorado Food Administration during the early part of September, 1918. Based upon authority of the Food Administration, it was established as a compulsory shipping point inspection service and continued until the enforcement division of the U. S. Food Administration went out of existence early in December. After that time, the service was carried on by the Colorado Potato Shippers' Association for the mutual benefit of all concerned.

It was to be expected that some mistakes and difficulties would be encountered in the organization of this new and compulsory service. It was difficult to secure men competent and trained to act as inspectors. Mistakes have been made but taking all in all, the inspection service has played a very important and valuable part in the marketing and distribution of the Colorado 1918 potato crop. The support and use of this inspection service is clearly indicated by the report of the secretary of the Colorado Potato Shippers' Association, whose records show that over 10,000 cars of the total 13,600 cars shipped from this state have been inspected by this inspection service. Such a service, properly applied, will prove of great value in the marketing of future potato crops from this state.

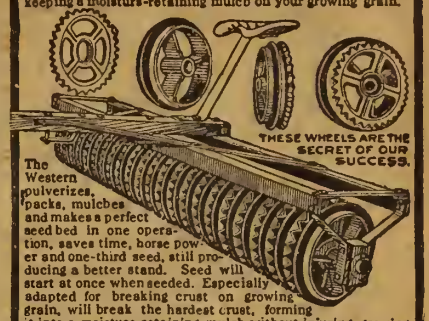
A study of successful marketing methods shows that a uniform quality of potatoes is a great asset in keeping the consumer satisfied. If Colorado potato growers and shippers are to compete successfully on the common terminal markets of the midle west and south they must be prepared to deliver to these consuming centers a high quality, standardized product which is the equal of or superior to the products marketed from the other potato shipping states of Idaho, Utah, Wyoming, Nebraska, Minnesota and Wisconsin.

Pool Sheep Shipment

On the day the Twin Falls county sheep pool shipment arrived in Omaha E. F. Rinehart, field animal husbandman of the extension division, was at the stock yards and personally saw the good shape in which the shipment came through. There were 537 animals shipped and none was lost, except two old ewes. Gummers, or canners, brought $5 per hundredweight; dry ewes, $9; best lambs $17.27; cutback or feeder lambs, $14. The shipment was made up at Filer.

GOOD FARMING PAYS

Protect your crops against drought by using the Western Pulverizer, Packer and Mulcher for preparing your seed bed and keeping a moisture-retaining mulch on your growing grain.



The Western pulverizes, packs, mulches and makes a perfect seed bed in one operation, saves time, horse power and one-third seed, still producing a better stand. Seed will start at once when seeded. Especially adapted for breaking crust on growing grain, will break the hardest crust, forming it into a moisture-retaining mulch without injuring growing grain and will raise a crop with half the moisture during growing season.

MADE IN 12 SIZES, 1 AND 3 SECTIONS FOR HORSES AND TRACTORS

This year's crop will bring high prices; make it a record breaker by using the Western. Free illustrated catalog describing machine and its principle, shows its work by pictures taken in the field, gives nearest shipping point to you, contains valuable information on up-to-date farming. Worth its weight in gold to farmers and land owners. Send for it today.

Western Land Roller Co., Box 504 Hastings, Neb.

A moving stream of live stock which the packers *must* buy

The packer feels an obligation to take the live stock that comes to market and find an outlet for it.

Why this obligation?

It is because the stockman has fed his live stock to the point where it must be sold or they will get thin again and labor and expensive feed be wasted.

If the stockman could not sell his shipment and had to take it home, he would lose on everything—freight, feed and time.

Several such losses would discourage him and he would raise less live stock. Hundreds of other stockmen also would plow up their pastures. The supply of meat animals would diminish.

The packers would not be able to get enough live stock and often their big, expensive plants would be idle. The public would go meat hungry.

In short, for the best interests of everybody, the packers believe it sound to do their full share to maintain an ever open, cash market, and this is accomplished at a profit of a fraction of a cent per pound. This system has encouraged live stock feeding.

Only a policy like this will provide a better meat supply for a growing nation.

Swift & Company, U. S. A.

Founded 1868

A nation-wide organization owned by more than 25,000 shareholders

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

A Strip of Blue

I do not own an inch of land,
But all I see is mine,
The orchard and the mowing fields,
The lawns and gardens fine.
The winds, my tax collectors are,
They bring me tithes divine—
Wild scents and subtle essences,
A tribute rare and free;
And more magnificent than all,
My window keeps for me
A glimpse of blue immensity
A little strip of sea.

Thy universe, O God, is home,
In height or depth, to me;
Yet here upon thy footstool green
Content I am to be;
Glad when is oped until my need,
Some sea-like glimpse of Thee.

—Lucy Larcom.

The Little Red Schoolhouse

No doubt the children will despise us for mentioning it before it is actually time to do so, but it is for their comfort we are really talking about it. Your country or your town school house may be in perfect repair and have all the aids to perfection. If so, you may not be interested in the start of this article, but that isn't quite the purpose of the outburst. Perfect repair and surroundings may not be all there is to a school. We talked about that a little last year and are going to do it again.

In regard to the teaching of young people: Stevenson says somewhere in rather a cynical fashion that "as a matter of expedience, and in nine hundred and ninety nine cases out of a thousand, he will instill into his wide-eyed child through bad things; the terror of public opinion, and flowing from that as a fountain, the desire of wealth and applause." All of which is terribly true at least at times. He goes on to say that the real things we all must learn, are a respect and loyalty to one's own true self. It follows naturally that there must be something there to respect and to which to be loyal.

Of course it helps if there are no broken window lights in the school building, if the walls are clean and the plastering not cracked into fragments, and if the floor and desks are in good shape. We may even point out that the children study better on a bowl of hot soup and good bread eaten decently than they do after bolting pickles and pie. And these things should all be attended to as very fundamental things to start the business of being loyal and having something to respect.

But these points, while they touch the child very vitally are really outside his own real self. You must attend to those. He will appreciate them and from them will come a certain respect for the place where he studies and the people who made such a place possible. From them, with the aid of your interest will come to these children of yours, the bigger ideas that it isn't just "respectability" that counts but the ability to respect at the close of the day the inner self that has directed that day's doings.—E. D.

Water is the cheapest beverage, tea next.

"Why, how can that be? A pound of tea costs—"

Excuse us for interrupting you, but the way to count the cost of tea is not by the pound, but by the cup. A cup of fine strengthening invigorating delicious tea costs only ⅓ cent per cup, because a pound makes so many cups.

'Schilling Tea is the fine practical economical tea of this country.

There are four flavors of Schilling Tea—Japan, Ceylon - India, Oolong, English Breakfast All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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Grape Marmalade

Some of us would say that any grape marmalade is good, but the one which follows, taken from the Boston Cooking School Cook Book is especially good:

Pick over, wash, drain, and remove stems from grapes. Separate pulp from skins. Put pulp in preserving kettle. Heat to boiling point and sook slowly until seeds separate cook slowly until seeds separate from pulp; then rub through a hair sieve. Return to kettle with skins, add an equal measure of sugar, and cook slowly thirty minutes, occasionally stirring to prevent burning. Put in a stone jar or tumblers.

Jelly Strainers

Some way to hold a jelly bag, so that just the good clean juice strains through without the maker having to manipulate the hot liquid with her own hands, is a great saving of time and usually material, and results in better jelly. There is one noticed lately which has some very good features. It is made on the order of a funnel stand in chemistry laboratory. A heavy iron stand at the bottom on which the pan into which the jelly drains is placed serves to keep the drainer upright. Fastened to this is an upright standard to which a cross bar is attached. This cross bar is bent into a large loop and the loop holds the jelly back securely, so that all the good juice may drain into the pan below. Perhaps some one else has taken this idea from a school into a home before, but it never has been noticed.—E. D.

A Home Made Baby Jumper

The accompanying illustration shows the completed product which has kept small Gene Wright happy for sometime. In fact this same product made by the same recipe kept his brother Jimmy and sister Florence happy sometime before that.

It is a strictly home-made baby jumper. Most of the recipe you can furnish yourself but the pattern for the little coat affair in which the baby's body rests might bother you a bit to draft. However Gene's mother, Mrs. H. G. Wright of Rattlesnake Buttes, Colorado, would be glad to furnish the pattern for that if you would send her the stamps to cover the cost of mailing. In the picture this "coat" is made of heavy linen—but other heavy materials would do very well.

The other required materials for this jumper are one large, heavy spring with a hook on each end, a hook for the ceiling, a bit of wire, four pieces of heavy canvas tape about one and one-quarter inches wide and a yard long, and a good strong barrel hoop.

Home Made Baby Jumper

You can see by the picture the way these parts are put together. Perhaps you can see where the strong tape is sewed to the linen coat about the height of the baby's ear. Each piece is backed firmly a quarter of the distance round to the hoop, brought together at the top and sewed strongly to a small iron ring. Wire fastened in this ring makes the loop to which to attach the spring. The little "coat" has holes for the baby's legs and is buttoned down the front with four large buttons.

With Master Gene fastened firmly in the coat and the whole attached to a hook in the ceiling, he starts his own circus and keeps it up for sometime. Go to it, laddie, you'll soon be too big for this safe and sane sort of amusement.

Some Seasonal Recipes

Tomato Ketchup. Select red ripe tomatoes. The extra juice, and small and broken fruit which will not do for canning, may be used, if they are sound and red. Any green or yellowish parts will make a ketchup inferior in flavor and color, and not good for market. Use whole spices tied loosely in a bag while cooking and remove before bottling to prevent darkening the product caused by ground spices. This does not apply to red pepper. The ground Hungarian paprica may also be used to give color and flavor.

Cook the tomatoes thoroughly, put through a colander or sieve and measure. For every gallon of pulp, use the following: 4 tbsp. salt, 4 tbsp. black pepper, 4 tbsp. sugar, 1 tbsp. mustard, 1 pt. good vinegar, 1-2 tbsp. each of allspice, cloves, cinnamon; 2 small red peppers, sliced and seed removed; 1 cup sweet red pepper, measured after putting through sieve.

After putting tomatoes through colander add pepper and cook for 2 hours. Then add spice and vinegar and cook until thick. Rapid cooking (being careful not to scorch the ketchup) will give a better color than slow cooking. Pour the ketchup at once into hot sterilized bottles. If any quantity is made for sale, set the hot bottles at once into a vessel of hot water, having a false bottom in it to prevent breakage, put the stoppers in loosely and process at boiling point for 30 minutes. Drive the corks in tightly and when cool dip mouth of bottle into melted paraffin, or cover stopper with sealing wax. For market pack in 10 oz. slender bottle.

Green Tomato Pickles

One gallon green tomatoes, 1-2 dozen large onions, 3 cups brown sugar, 1-2 lemon, 3 pods of red pepper, 3 cups vinegar, 1 tbsp. whole black pepper, 1 tbsp. whole cloves, 1 tbsp. whole allspice, 1 tbsp. celery seed crushed, 1 tbsp. mustard seed, 1 tbsp. ground mustard.

Slice the tomatoes and onions thin. Sprinkle over them 1-2 cup salt and let stand over night in a crock or enamel vessel. Tie the pepper, cloves, allspice and celery seed in a cheese-cloth bag. Slice the lemon and chop 2 pepper pods very fine. Drain the tomato and onion well. Add all seasoning except one pepper pod to the vinegar, then add the tomato and onion. Cook for 1-2 hour, stirring gently at intervals to prevent burning. Remove spice bag to prevent darkening product. Pack in 10 oz. jar and garnish with slender strips of the red pepper, placing them vertically on the opposite sides of each jar. Process for 15 minutes.

Mustard Pickles

Vegetables One pint whole small cucumbers; 1 pint sliced cucumbers; 1 pint small whole onions; 1 cup beans; 3 green sweet peppers; 3 red sweet peppers; 1 pint green tomatoes, or 1 pint cauliflower.

Dressing One quart vinegar; 4 tablespoons flour; 1 cup sugar; 3 tablespoons powdered mustard; 1-2 tablespoon turmeric; 1 tablespoon celery seed.

Cut all vegetables before measuring—tomatoes into halves, cucumbers into slices, string beans into 1 1-2-inch lengths, diagonally or on the bias, and chop peppers. All vegetables should be tender, and the whole cucumbers not longer than 2 1-2 inches.

Put all vegetables into brine over night, then freshen in clear water for 2 hours. Let these vegetables stand in liquor of one-half vinegar and one-half water for 15 minutes, then scald in same liquor.

To make mustard dressing, rub all the dry ingredients together until smooth, then add the hot vinegar slowly, stirring to make smoth paste. Cook over pan of water, stirring carefully, until the sauce thickens. Then drain the vegetables thoroughly and pour the mustard dressing over them while hot. Mix well and pack in sterilized jars. Process 10-ounce jars for 20 minutes at 180 degrees F. (simmering.)

Cucumber Pickles

Gather cucumbers of the desired size, using a sharp knife and leaving a short stem attached to each fruit. Pack firmly in containers in alternate layers of salt, using by weight 1-10 as much salt as cucumbers. Weight and store. Add enough 5 per cent brine to cover contents of the container two days following packing. Remove covering and add fresh fruits as harvested, if desired.

For use as pickles, remove cucumbers from brine, soak in cold water for three days, changing water each day, place in a porcelain kettle with sufficient vinegar to cover. Heat to boiling point, stirring occasionally with a wooden spoon. Drain off hot vinegar and cover with cold vinegar containing spices as desired. Allow pickles to stand for several days before using.

Dill Pickles

Select firm fresh cucumbers about five inches long, pack in containers between alternate layers of dill, (stalks, leaves and seed balls,) and cover with a 10 per cent brine, carrying one pint of vinegar to each gallon of water. Weight, store and allow to cure for several weeks. Pickles should require no soaking when removed for use.

Making the Brine

From 1 2-3 to 2 cups (one-half pint) of salt is needed per gallon of water in making a ten per cent brine. The salt may be dissolved in a small amount of hot water after which the required amount of cold water may be added to this solution.

Jellies and jams save butter and taste mighty good any day in the year. A wise housekeeper has plenty of them in her preserve closet.

Save Winter Moisture by Plowing in the Fall

(Continued from page 4)

farmer may get a crop or he may not; it all depends on the reserve of moisture and the amount of precipitation that falls.

On land where the soil is shallow and the gopher clay or some other worthless stuff close to the surface, there is no object in deep plowing, for it is better to leave such ground for grazing purposes.

Rye is a much hardier grain than winter wheat and will do better under drouth conditions. It may be planted almost any time up to the holidays; but wheat planted in August and not later than September does better than later plantings. On fallowed land which contains some moisture almost any good shower will secure the satisfactory germination of wheat or rye; but in newly plowed ground and even in corn stubble, there is always the risk of a light shower sprouting the grain, which may dry out before another rain comes. To obviate this the best method is to plant about 3 inches deep, so that nothing but a good soaker will start it, in which case there will probably be enough moisture to establish it.

PATTERN DEPARTMENT

..All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Araphoe, Denver, Colo.

2930—Plaasing Frock for Growing Girl.—Plaid suiting and plain serge in a matched color would be nice for this style. It is also nice for velvet, corduroy with satin, serge with taffeta and for all wash fabrics. Cut in sizes 8, 10, 12 and 14 years. Size 12 will require 3 3-8 yards of 44-inch material for the dress, and one yard for the plastron.

2752—Dainty Modsl for Party Wear.—Girls' dress with sleeve in either of two lengths. Lawn, batiste, crepe, challie, taffeta, messaline, gabardine, nun's veiling, linen and other wash fabrics are nice for this style. Braid bands of embroidery and lace are suitable for trimming. Cut in 4 sizes: 6, 8, 10 and 12 years. It requires 1 yard of lining 27 inches wide for the underwaist and 3 yards of material for the dress, for an 8-year size.

2915—A Bscoming Summer Dress.—Here is a very pleasing combination of organdie and gingham. It is just tbe dress for "shore" or "country wear" and lovely for other cotton materials. Voile, crepe, linen, taffeta and wasbable satin could be used. Width of skirt at lower edge is about 1 5-8 yards. Cut in sizes

34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 2 yards of 36-inch material for ths guimpe and 4 1-4 yards for the dress.

Waist 2925, Skirt 2909—A Simple Dress for Home or Calling.—This model comprises ladies' waist pattern 2925, and ladies' skirt pattern 2909. As bere shown, white linen was used finished with wash braid. This style is excellent for pongee, taffeta and gingham, also for sergs, gabardine and satin. The waist pattern is cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. The skirt in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Its width at lower edge is 1 5-8 yards. A medium size will require 5 yards of 36 inch material. This illustration calls for two separate patterns.

2927—Work Apron and Cap.—This neat set is good for drill, Indian bead, linen, cambric, lawn, percale, alpaca, gingham or seersucker. It is easy to develop, cool and easy to adjust. Cut in 4 sizes: small, medium, large and extra large. Size medium will require 3 1-4 yards of 36 inch material for the apron, and 3-4 yard for the cap.

2754—A Simple, Stylish Frook.—Soft Crepe, crepe de chine, satin, serge and gabardine, are good for tbis style. The dress may be made with plain skirt and sleeves. Cut in sizes 14, 16, 18 and 20 years. Size 18 requires 4 5-8 yards of 36 inch material. Width of skirt at lower edge is about 1 5-8 yards.

2905—A Popular Style.—This could be made from "all over" embroidery, oi dimity, lawn, batiste, nainsook, Swiss, silk, crepe and washable satin. Straps of ribbon or material hold the cover over shoulders and arm. Cut in 4 sizes: small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. Size medium requires 1 1-8 yards of 36-inch material.

2490—A Comfortable Garment for Play. This model is good for gingham, galatea, chambray, linen, Indian Head, percale and khaki. The short sleeve and low neck make it ideal for warm weather. Waist and body portion of the fronts are cut in one, the body portion of back being buttoned to back of the waist. Cut in sizes 1, 2, 3, 4 and 5 years. Size 4 requires 2 1-2 yards of 36-inch material.

Wheat Acreage Statistics

Approximately 21 per cent of the wheat in the state at the present time is grown on irrigated land, according to reports made by county assessors to the Colorado State Board of Immigration. The census report for 1909 indicated at that time 51 per cent of the wheat grown in the state was irrigated. The very rapid increase in acreage of wheat cultivated since 1909 has been accounted for chiefly by the breaking of new non-irrigated land. One of the results of this large excess of non-irrigated over irrigated wheat has been a very marked decrease in the average yield per acre for this crop.

Western Farm Life Service Bureau will answer your questions and help you solve farming problems.

Comment by Farmer Putnam

(Continued from page 11)

you have it; she seems to have some sense. Did you git the money offen a county agent? They pays them fellers such big wagis that I reckon they could help us poor homesteaders with a lone if they was a mind to. We got a county agent, but he hain't never come near my place. I reckon it's because thar's ten gates to open between the main road and me. If you'll be kind enough to let me know where you got the money I'll appreciate it, because I want one before the first of September, so's I kin strike it rich with wheat next season."—Isaia Holdemback.

Kind of a pert letter ain't it? Well, Isaia, I don't mind a-tellin' you where I got the money and you're welcome to try it yourself. The feller is Grover Totten of Strasburg. He let me have the money to buy a tractor. Just go to Grover with this article in the paper and tell him you're Old Man Holdemback, that you believe in raisin' nuthin' but wheat, that you think it's a mistake to buy cows and go to dairyin' because it's too much work; that you don't believe in keepin' no animals around the place least of all hosses, because it costs too much to feed 'em, and when a feller raises feed he cain't raise wheat; and that you want to raise just one good wheat crop and then sell out, and Grover'll talk to you; I'll guarantee he will!

THOMAS JEFFERSON PUTNAM.

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32x4	8.75	2.45
33x4	9.00	2.50
34x4	9.25	2.60
34x4½	10.75	2.80
35x4½	11.00	2.90
36x4½	11.50	3.00
35x5	12.25	3.20
37x5	12.75	3.30

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Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

I am a firm believer in the educational value of pictures; also a booster for movie pictures for their entertaining value. Long ago extension workers realized that while spoken words were of a certain value, printed words on charts were of indefinitely greater value because the brain retains impressions gained through the eye longer than those obtained through the ear. Spoken words are easily forgotten; a picture sticks long, sometimes forever.

So we are going to let the pictures on this page tell our story of poultry houses. It is time to think of a new house if you are increasing your flock, or if the old one is impossible; or remodeling may be in order. We can safely recommend the types illustrated on this page, as they furnish the proper conditions for comfort. One cannot go far amiss in building a poultry house if he will consider the purpose of the house, viz: to furnish shelter, fresh air,, sunshine, playroom or workroom for the fowls and convenience for the caretaker.

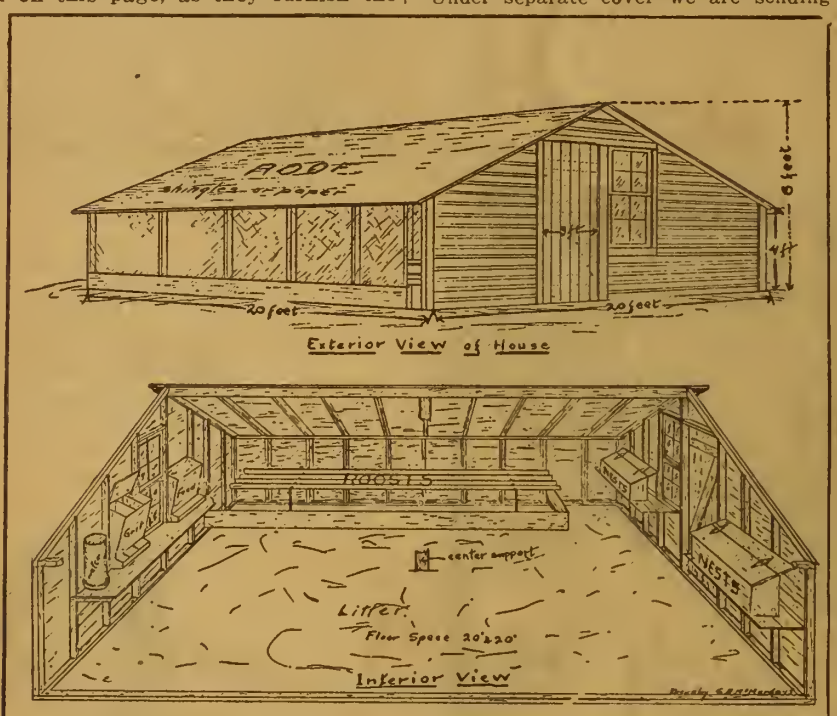
After looking over these drawings, if readers of Western Farm Life desire further information write us for details or bulletins.—W. E. V.

Poultry House Question

Can you give me some advice as to the best kind of poultry houses to erect in this section of Colorado and should the incubator house be below or above ground? Many around here advise the below ground plan as tending to keep an even temperature. Would you advise raising Barred Rocks for the market, broilers, etc., or is there another bird better adapted to the country when the range is open and fairly good all summer?—J. J. S., Fremont county, Colo.

Under separate cover we are sending you some poultry house bulletins, which I think will answer your purpose very largely. As to the incubator house, the main point to be considered is evenness of temperature; if the temperature of an above ground house is comparatively even, I think it preferable to the underground house, but if the house is put partly underground enough should appear above ground to provide free circulation of air. Counting cost of construction, probably the house partly underground is preferable and, in most cases, provides the most even temperature. Under the proper conditions it is possible to make an ideal incubator house partly underground, the story above to be made into a feed or brooder house; it seems to me that this is a money-saver when properly constructed and I think the plan is worth considering.

The Plymouth Rock, Wyandotte, and Rhode Island Reds are considered the best dual- or all-purpose fowls. Some breeders prefer the white or red fowls as broilers because of the neater appearance when dressed, barred Plymouth Rocks being more or less black pin-feathered, but I do not think the market in general discriminates against them on this account. There may be an advantage in the Wyandotte or Rhode Island Reds, preferably the latter, in quick maturing because of their smaller size. Especially when late hatching is practiced would this become an advantage. The Reds generally come into lay a little earlier than the Plymouth Rocks. However, if you have the barred Rocks and like them, I see no reason why you should change and am certain they would make you as much money as any other breed.



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7 - 2"x4"x 14'	1 pr Hinges
8 - 2"x4"x 16'	2 pr Butts
6 - 2"x4"x 20'	80 sq. ft. Netting
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400 ft Drop Siding	5# 20d. Nails
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25 Yards—10 Shots, ½-inch bull, by Marine Gunner J. L. Renew, U. S. M. C.

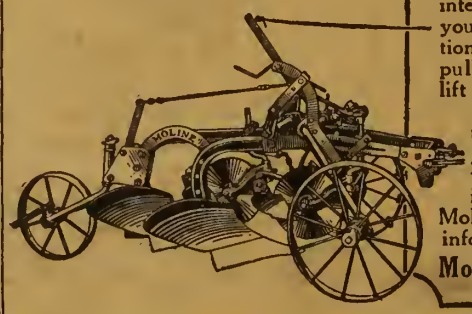
50 Yards — Shots, 1-inch bull, by Marine Gunner J. L. Renew, U. S. M. C.

25 Yards—10 Shots, ½-inch bull, by Gunnery Sergeant Peter Lund, U. S. M. C.

50 Yards, 10 Shots, 1-inch bull, by Marine Gunner John J. Andrews, U. S. M. C.

The New .22 Savage N. R. A. Rifle, Model 1919.

MOLINE Power Lift GANG NO.11



YOU get real satisfaction from your tractor and a real job of plowing when you use this Moline Plow. It has improved positive power lift device which saves power, time, and enables better work to be done. To raise the plows pull the cord until the power lift lever locks, and the plows are raised without further attention. If you want to raise your plows, just an inch or two or any intermediate distance, to relieve your tractor or clear an obstruction, you can do so by a slight pull on the cord. This is the only lift on which you can change the plowing depth without raising the plow out of the ground. Just one of many features which will make your plowing easier and better. See your Moline Dealer or write for full information.

Moline Plow Co., Moline, Ill.

Power For Pull

Horse power should go all for pull—not for overcoming the friction of poorly lubricated axles.

Mica Axle Grease helps pulling by keeping friction down. It fills the little uneven pores and seams in the axle that would otherwise increase the load—gives that hard, bright surface that helps easy going. Made of the finest grease stock and powdered mica.

THE CONTINENTAL OIL COMPANY
(A Colorado Corporation)

MICA AXLE GREASE

Young Hens Best Layers

There are people who have the right variety of fowls, who house and feed them properly and yet who can not obtain eggs early in the winter because their fowls are too old. It is seldom that it pays to keep hens for laying after they are two and a half years old; not that they will not give a profit, but that younger fowls give a greater profit.

Probably Have Roup

My chickens are sick. They stand or sit around with eyes closed; are listless, cough, act as though they were trying to swallow. They shake their heads, scratch at head with feet, walk wobbly, look pale. They do not rustle much and when fed move slow and their appetite is poor. I have noticed particles of hay or straw stick to beak as though there were some moisture there. What would you advise me to do for them? What are some of the good commercial remedies?—F. W. M., Larimer county, Colo.

Poultry bulletins on diseases were sent to you, and perhaps by this time you have discovered what is the trouble with your fowls. From the description that you give I judge that your fowls have a light touch of roup; treatment will be found in the bulletins. Generally this disease is prevalent in the fall when cold nights appear, but in many cases the disease becomes quite virulent even in the summer time. I should first examine the fowls to see that they are free of lice; then clean up the roosting quarters to see that mites are all exterminated; then be very careful about cleanliness of the premises about the buildings, see that nests are freed of mites, bed bugs, and other vermin. Crowding is to be avoided and to prevent this it might be a good plan to cull out the hens that have ceased laying, cockerels big enough for market, all pullets that are not growing favorably, and everything about the place that is not doing something for the egg basket or putting on growth for future business. Provide also some disinfectant in the drinking water, preferably permanganate of potassium, directions for the use of which you will find in the bulletins. I feel quite sure that if these suggestions are carefully carried out, the disease will gradually disappear and you will not be troubled further.—W. E. V.

To Get Rid of Vermin

Vermin, particularly bed bugs, seem to be especially prevalent and active this year, either in chicken houses or in some of the houses in the newer sections where much new pine lumber has been used in construction.

In this territory a good deal of fumigating is being done, both with cyanide and formaldehyde. From point of deadliness, nothing could be harder on the bed bug than the fumes from the cyanide and sulphuric acid. But it is so dangerous to use that only one who understands both its use and dangers very thoroughly should ever attempt it. Its deadliness to human life lies in the fact that the gas itself is almost odorless and it takes only two good breaths to be fatal. If it has been recommended to you, try something else first!

A formula calling for formaldehyde is being used quite as effectively and with less danger to the one placing it.

For every thousand cubic feet of space take one pint of formaldehyde (40 per cent), three pounds of unslacked lime and one-half pound of commercial sulphuric acid. Place the lime in a large stone jar in the center of the room to be fumigated. Put the jar on a thick pile of papers or else put a layer of earth on some papers and then place the jar on the earth. Mix the formaldehyde and sulphuric acid in a porcelain dish if possible and remember this one thing: Always pour the acid slowly into the formaldehyde, and never pour the formaldehyde into the acid. If you do, you will have a miniature eruption, a broken dish perhaps, and probably some badly burned hands. BE CAREFUL.

Now, when everything is ready, the room as tight as you can make it, pour the acid mixture over the lime, being careful not to inhale the fumes, and go out, closing the door. Leave for eight hours and then air out carefully. Remove foods, but there is no danger of injuring fabrics or metals.

Just as an interesting aside along this same line, our Mexican friends tell us that we wouldn't have bed bugs at all if a little quaking aspen wood were used in the construction of our houses. They usually put in a rafter or two or make one of the supports along the wall of this mountain wood. The writer cannot vouch for the accuracy of the statement nor the success of the proceeding, but in one known instance a cabin which has "quaker" rafters is not at all troubled with bugs, although it is very close to a house which was badly infested with them. Clothing had been often moved back and forth also.—E. D.

Excited Sportsman (to farmer) — I say, did you see a bird fall anywhere about here? I shot at one just now and saw the feathers fly.

Farmer—No, I ain't see nothin' of it. I expect when the feathers flew the bird flew with 'em.

Kanred Wheat Resists Rust

Kanred wheat was found to resist rust to a greater extent than any other variey examined by Dr. J. F. Groves and other cereal investigators of the bureau of plant industry, Department of Agriculture, who have just completed a survey of the chief wheat producing areas of Kansas. The damage done by rust is estimated by Doctor Groves to have reached as high as 50 per cent in some fields, varying in others to as little as a fraction of 1 per cent. Doctor Groves suggests that the infection may have overwintered in grassy roadways, spreading to the wheat in the spring. He observed that the edge of fields were noticeably more infected than the interior parts.

GALV. STEEL ROOFING

That will not leak. Will last 40 years and then 20 more under favorable conditions. Nine different kinds, for every shape and kind of building. Also wire fence, barbed wire, iron posts, farm gates, stock water tanks, etc., etc.

Write for catalog, prices and samples

Steel Roofing & Stamping Works
519 S. W. 2d St., Des Moines, Ia.

THE TRACTOR SERVICE CO.
Automotive Engineers
18TH AND WAZEE
DENVER, COLO.

Complete shop and field repairing. Service on all makes of motors and engines. Our expert mechanics go anywhere. Reasonable charges.

CALL US WHEN IN TROUBLE

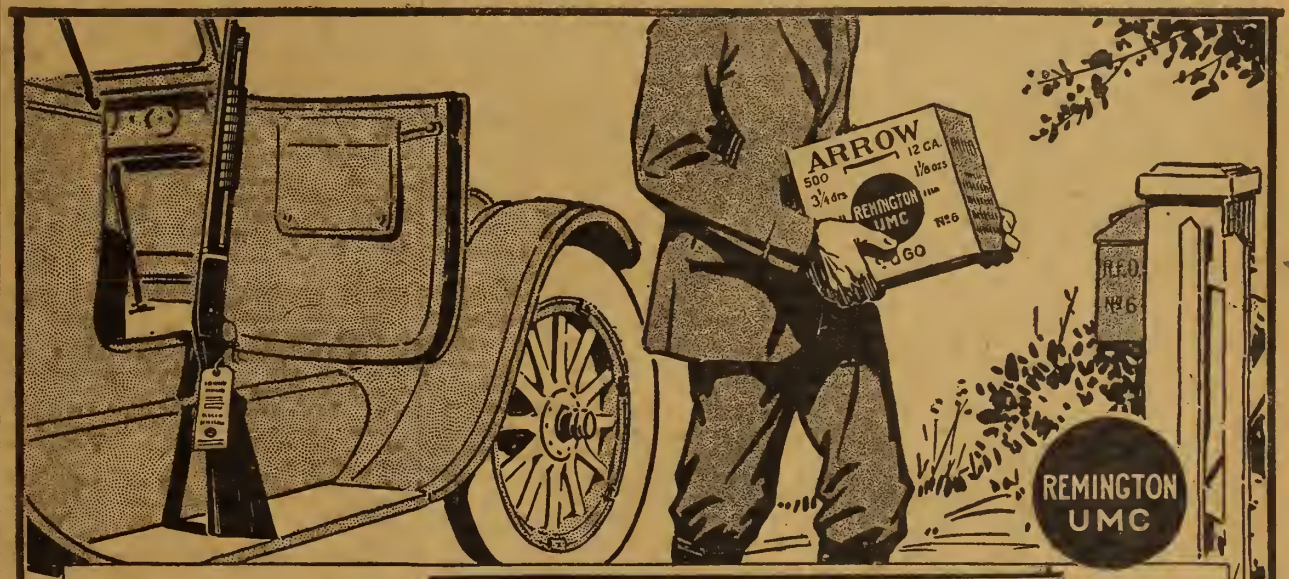
Distributors of the Beeman Garden Tractors.

WHEN A MAN BUYS FROM YOU "THERE'S A REASON"

Thousands of tons of Navajo Sheep and Cattle Medicine are used every fall by sheep and cattle men in the West. Place your order early for Navajo goods, which is insurance of larger gains with your loses cut to a minimum.

NAVAJO MANUFACTURING CO.
Denver, Colo.

Write for Prices and Booklet



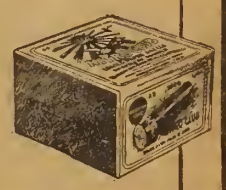
Buy For Service

BRING home Remington UMC for your shooting if you are modern minded. Your first leisurely and critical examination of your purchases will reconvince you that you have bought wisely. And use will prove it.

No other equipment the up-to-date farmer or ranchman buys is more typical of modern efficiency than the Remington UMC products he uses to get some game for his table. And in the long list of important Remington UMC inventions underlying this, none has been of greater value to him than the wonderful Wetproof improvement in shot shells.

Wet shot shells will never again bother you if you buy Remington UMC Wetproof "Arrow" or "Nitro Club" smokeless or "New Club" black powder shells. The hardest rain or longest soaking in a leaky boat will not affect them.

In body, crimp (or turn-over) and top wad they will remain hard and smooth as if fresh from the loading machine, and they will work freely through your modern Remington UMC autoloading or pump gun, without a hitch, firing as surely and with the same top speed, best pattern and penetration.



Remington UMC can now be obtained in more than 82,700 leading sporting goods and hardware stores in the United States—another detail of best service.

For Sale in Your Nearest Town

Clean and oil your gun with Rem Oil—the combination Lubricant, Powder Solvent and Rust Preventive.

THE REMINGTON ARMS UNION METALLIC CARTRIDGE COMPANY, Inc.
Largest Manufacturers of Firearms and Ammunition in the World
Woolworth Building New York

The Packers Make Reply

In the issue of August 1st there was published an article from the pen of Clarence Ousley, Assistant Secretary of Agriculture, reviewing the beef situation and advocating government regulation of the packing industry, as a means of relief for producer and consumer. Louis F. Swift, president of Swift and company, has replied to Mr. Ousley's article, defending the packers against the charge that they are obtaining undue profits from by-products and asserting that government regulation will not solve the problem for either producer or consumer. Mr. Swift's letter follows:

Hon. Clarence Ousley,
Acting Secretary,
U. S. Department of Agriculture,
Washington, D. C.

Dear Sir:

Allow me to call your attention to the fact that your statement of July 4th explaining high prices of meats is in some respects manifestly misleading, and that it does the packing industry a gross injustice.

Although the packers are not mentioned specifically, the whole statement, issued while an agitation for drastic legislation against the packers is in progress, gives the definite impression that federal regulation of the packers is the only solution for high prices. That this interpretation is not fanciful is evidenced by the write-ups that the statement received in newspapers all over the country. Not content with one issuance of this statement, I find that it has been sent out again, in abbreviated form, for release to newspapers on July 18th.

No criticism can be raised against the following points, quoted directly from the review, for they are facts known to all those in touch with the meat trade. Certain words have been underlined by the writer to give added emphasis:

1. "Prices of good and choice beef cattle on foot at Chicago have declined about $4.00 per hundredweight or nearly 25 per cent since March 1, while lower grade beef cattle have declined as much as 15 per cent."

2. "During the same period wholesale dressed beef prices show on the average approximately a corresponding percentage of decrease, which varies, however, in different cities from about 15 per cent to 30 per cent."

Since these facts by themselves apparently clear the packers from any responsibility of high prices, the Department of Agriculture has gone out of its way to find some other method to show that the packers have profiteered. It therefore says that the increased values of hides and by-products have been an unseen source of profits to the packers.

In making this charge,, the Department evidently jumped to certain conclusions without ascertaining the facts. The actual records of Swift & Company, for example, show that the charge is utterly without foundation. With the exception of three weeks in May, Swift & Company has lost money each week since January on its dressed beef business, after giving full credit for hides, fats, and by-products,—due to the relatively high prices being paid for live cattle as compared with the prices we have been able to get for meats and by-products. For ten weeks this loss averaged from $5.00 to $7.00 per head, while for the last four or five weeks the loss has been reduced to about $1.50 per head. We shall be glad to give you every possible opportunity to check our figures, if you so desire.

Higher prices for by-products have merely made the packers' losses smaller than they would have been. They have also resulted in a smaller difference between live cattle prices and wholesale beef prices than would have otherwise been the case. The values of by-products are taken into account in the competitive buying of cattle and sale of meats.

From these facts it is perfectly obvious that it was entirely unjust to the packing industry to insinuate that it is obtaining undue profits because of the increase in the value of by-products, and we are indeed surprised that the Department of Agriculture should have so carelessly misrepresented us in such a serious matter.

In the face of these facts, there appears to be no justification for your sweeping conclusion—"The facts demonstrate clearly the commanding need for Governmental supervision over the manufacture, sale, and distribution of meat products,"—especially as such a conclusion is bound to be interpreted as an official endorsement of proposed legislation restricting the packing industry, and is destined to give the impression that such legislation can bring about lower meat prices, or higher cattle prices, or both.

It is generaly conceded that expenses have been reduced to a minimum by the packers, and that since their profits on meats, including the returns from cured hides, refined oils, rendered fats, and other by-products, amount to only a faction of a cent per pound, no possible kind of legislation can have the effect of lowering meat prices as compared with the price of live stock. It is our view that Government interference can only decrease efficiency, increase expenses, and thereby cause higher prices of meat as compared with the prices paid for live stock.

In view of the seriousness of your statement, I wish to ask whether there is not some way in which this matter can be set right before the public. I am sending copies of this letter to the President, and also to all Congressmen.

Respectfully yours,
LOUIS F. SWIFT

Live Stock Field Notes

Mr. James S. Taylor of Fowler, Colo., advertises elsewhere in this issue a registered Jersey Bull for sale. This is a fully matured bull sired by Noble's Trinity. His dam was Osie's Elsy, a five gallon cow.

Mr. H. G. Squibb of the LaBelle Ranch at Aurora, Colo., announces the sale of some fine, smooth, registered Duroc spring pigs. This ranch is the home of the famous boar, Cherry Chief, who won the Grand Championship in 1918 at the Stock Show in Denver, and also at the State Fair at Pueblo. Read his ad in this issue.

"There is no factor for good in the campaign for better Durocs and better hogs that is more potent than Western Farm Life." So writes C. F. Burke, manager of the Blue Ribbon Duroc Farm, Pueblo, in mapping out plans for big Duroc development in the mountain states. Mr. Burke Knows whereof he speaks. He has been using the advertising columns of Western Farm Life for years and he attributes his success in selling breeding stock to the use of judicious advertising in a medium that reaches farmers and stockmen. We appreciate his words of commendation.

Prairie Dogs Cause Big Loss

New Mexico now has 60,000,000 prairie dogs destroying hay and forage crops on more than 12,000,000 acres, according to estimates by specialists of the Biological Survey, United States Department of Agriculture. If the forage which they consume could be turned into cow feed it would amount to enough annually to sustain 400,000 head of cattle, the specialists add. It has been found by actual test in inclosed areas of better than average forage conditions in the southwest, that ten prairie dogs to the acre require for their sustenance practically all of the season's growth of grass. The forage on areas they occupy is reduced from 15 to 60 per cent.

In a 12-acre field of barley examined in Colfax county, New Mexico, last summer these rodents had taken the crop completely from 6 acres, representing a damage of over $160. These are ample reasons why, when an appeal went out for maximum production of crops and livestock to meet the conditions imposed by the war, the New Mexico Council of Defense appropriated $15,000, in conjunction with an equal amount from the federal war emergency fund, to be used against prairie dogs; why the extension forces of the federal department, together with the county agents, gave their best efforts to the work; and why farmers and stockmen responded readily. Nearly 5,000 land owners joined in the work of destroying prairie dogs, and 1,230,078 acres of dog-infested land in the state were covered in systematic poisoning operations, resulting in the destruction of 90 per cent of the rodents. First efforts were directed to the saving of crops, and 212,992 acres of cultivated land in the state were effectively protected. The year's work resulted in an estimated saving of not less than $750,000, while the total cost was less than $60,000. A force of 22 experienced field men, working in conjunction with county agents, is ready for this season's campaign. Under cooperative arrangement between the Biological Survey and the Forest Service attention to completing eradication of prairie dogs on areas already treated by the Biological Survey becomes a regular duty of forest officers during a definite period each year, and similar arrangements are in force on Indian reservations.—U. S. D. A. Weekly News Letter.

REGISTERED DUROC SPRING PIGS

Fine quality, smooth and well grown
LA BELLE RANCH
Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver

H. G. SQUIBB AURORA, COLO.

Col. H. E. BUCHANAN
Live Stock Auctioneer
1904 Logan
DENVER, COLORADO
Pure bred Sales a Specialty
For Sale Dates at My Expense
PHONE CHAMPA 5655
Anywhere in the United States My Territory

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS from Tancreds extra heavy laying strain at advantageous prices. Eggs $1.50 per setting. Blakeland Farm, Littleton, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

SEVERAL VARIETIES—BUFF LEGHORNS, R. I. Reds; beat layers on earth. Buy cockerels now and save money. Champney, 25 So. Logan, Denver.

LIVE STOCK

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CATTLE

MONEY TO LOAN ON CATTLE—IF INTERested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

FOR SALE—TEN HEAD JUNIOR MILKING Shorthorn bulls. Pine Valley Dairy & Farms Company, Colorado Springs, Colo. S. G. Roae, Manager.

J. O. D. RANCH OFFERS 25 REGISTERED Hereford yearling heifers, which won third prize at the last Stock Show, Denver. Price $175 per head. All best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis.

HOGS

FOR SALE—PUREBRED BERKSHIRE BOARS and sows—April farrow—prices right. D. S. Davis, Littleton, Colo., Rt. 2.

FOR SALE—REGISTERED BIG TYPE JERsey hogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

FOR SALE—PEDIGREED AND GRADE Duroc Jerseys weanling pigs of both sexes, also a few of February farrowing. Blakeland Farm, Littleton, Colo.

FOR SALE—POLAND CHINA PIGS AND high-grade Scotch Collie pups (registered). Write for particulars. F. L. Toliver, Ft. Collina, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND Another registered one; a yearling, good bone, length and color. J. O. D. Ranch. Aroya, Colo.

SUFFOLK STALLION FOR SALE OR EXchange for pure-bred cattle of any breed; male or female. Address Box 27, Weatern Farm Life.

SHEEP

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamb, $35.00 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 398J.

FOR SALE—400 HEAD PURE BLOOD COTSwold breeding aheep, one to four years. Reason for selling, lady owner and poor health. Price $25 per head. An income of $8,500 per year can be made from theae sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 398J.

FARMS AND RANCHES

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FOR SALE, RANCH AND CATTLE. FOR particulars write Sim Moore, Gunnison, Colo.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

HAVE 120 ACRES WELL IMPROVED FARM, a bargain if taken at ouce. For particulars write Peter Hansen, Grand Valley, Colo.

WANTED—TO HEAR FROM OWNER GOOD farm for sale; state cash price, description. D. F. Bush, 26A, Minneapolis, Minn.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

HAVE FOR RENT SUMMER AND FALL PASture, for 500 or 1000 head cattle, also winter pacture and feed if needed. Address owner, Box 35, Hillside, Fremont Co., Colo.

159 ACRE CENTRAL WEST FARM, $7900. One of the best producers in the county, near depot, short drive city of 25,000. 100 acrea record crop tillage, 50-head woven-wire fenced pasture, wood and timber to nearly pay for farm, variety fruit. Good 8-room house, 3 barns, granary, 2 corn houses. Aged owner made money here, retiring, names low quick aale price $7900, easy terms. Details page 89 Catalog Bargains 19 states, copy free. Strout Farm Agency, 831 BA, N. Y. Life Bldg., Kansas City, Mo.

HELP WANTED

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NEGRO SOLDIERS IN WAR. BOOK CONtaining many pictures colored troopa; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Okla.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expensea. Best terma, credit given. Order outfit without delay. Addresa the S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

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SWEET TONED VIOLIN AND OUTFIT FOR sale. Free trial; easy payments. Write, Bertha Payne, Shawnee, Kan.

LARGE ASSORTMENT OF ALL KINDS OF burlap sacks. Western Sack & Burlap Co., 2727 W Colfax, Denver, Colo.

GROCERIES & SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price liat, it will aave you from 20 to 40 per cent on your supplies. Best beet sugar, hundred, $10.20; 5 lb. can Calumet baking powder, 90c; 3 lb. Baker's bulk Cocoa, $1.00. With every auto casing you buy, we give you a tube free. Best aized binder twine, $23.35 per hundred. Whether you buy from us or not get our list, it will keep you poated and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illuatrated catalog. We also aell Comb and Extracted Honey. The Colorado Honey Producers' Asaociation, Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR Direct to conaumer pricea before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

FARM MACHINERY

FOR SALE OR TRADE FOR LAND OR LIVEstock. For quick aale a bargain. 110 H. P. Case ateam engine, 40x62 Case separator, water tank, cook ahack and two aets of plowa, disc and moalboard. G. W. Hixson & Sons, Simla, Colo.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skina for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

CORN HARVESTERS

CORN HARVESTER, ONE-MAN, ONE-HORSE, one-row, self-gathering. Equal to a corn binder. Sold to farmers for twenty-three years. Only $25 with fodder binder. Free catalogue showing pictures of harvester. Process Corn Harvester Co., Salina, Kan.

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted

Col. G. M. Banks
LIVE STOCK AUCTIONEER
Residence
709 East 11th Avenue
Phone York 7625 DENVER, COLO

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for aale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE BRED AND REGISTERED

Hereford

BULLS and HEIFERS

1 car 2-year-old bulls.

130 head yearling registered and pure bred bulls.

Several cars yearling heifers, 2-year-old heifers and cows.

Good Bone, Colors and Markings

Write or phone us for prices

715 E. and C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

Wyoming 4th

L. G. DAVIS HEREFORDS

ANXIETY-BRED

Sires in service:

The great **BEAU CARLOS 2D 352001**, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS SARATOGA, WYOMING

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name "Majesty" in a jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty, and related to many in my herd, and to "Majesty's Feather Lad,' son of the show cow, Majesty's Feather Lass, 712.13 butter.

I have some extra fine young cows and heifers for sale. Have some extra fine bull calves, two out of half sisters to the great "Financial Sensation," the $60,000 bull. One out of Imported Cowslip's Sweet Bread, a R. of M. cow. Also others. These are extra fine calves, and my prices are right.

Two or three November gilts, by a son of Top Sensation. Write me.

A. M. McCLENAHAN, Greeley, Colorado

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 5½ miles southwest of Denver on the Morrison Road.

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

Milking Shorthorns

THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.

Pine Valley Farms

COLORADO SPRINGS, COLO.

Registered Hereford Bulls

Very Attractive Prices

Some good Registered Hereford Bulls of our own raising, and ready for immediate service.

Any Number From One to a Carload

Write your wants, or come and see them. Everything we sell is fully guaranteed.

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Roggen, Colo.

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Registered Hereford Cattle

Prince Domino--499611 Sire of the Champion Futurity Bull and Heifer

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

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Canary Repeater Herefords

Sired by

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FOR SALE—A carload of 1-year-old Bulls and a car of 1-year-old heifers.

Also a Few 2-Year-Old Bulls

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Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

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is mixed thru our entire herd. Blood lines, and individuality second to none.

POLAND CHINA GILTS bred to our prize winning Boars to farrow in early fall.

Fine lot of early spring pigs (immuned) ready for shipment. Inspect our herd, or write

THE DEMING RANCH, OSWEGO, KAN.

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Irvindale Rowdy Grand Champion Belgian Stallion Chicago, 1917, Denver, 1918 and 1919

Breeders of

BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

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FOR SALE

I can show buyers 600 registered Herefords, also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding stock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

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Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

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I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

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"The Tractor That Finishes the Job"

HERE is the tractor that not only outpulls and outworks the horse and does it at lower cost, but it actually goes places and does things which horses can't possibly do. For example—

—**It turns completely around in its tracks** and carries its plows right underneath the tractor itself.

—**It steers and turns by its own power.** All the driver has to do is to move two handy levers forward or backward and the motor does the rest. There is no clutch to throw in and out, no foot work to do in driving.

—**It raises and lowers its plows by power, too.** Touch your foot on one pedal and up comes the plows. Touch another pedal and they are dropped.

—**It can be operated in either direction** at the same speed and power. Just swing the driver's seat around. No other change necessary.

—**It gets closer into fence corners,** plows closer to fences, trees, buildings, etc., than you can get with horses and cleans up at the finish better than can be done with a team.

The famous Climax "No Trouble" Kerosene Burning Motor furnishes an abundance of power. Dixie Magneto, Modine Radiator and Stromberg Carburetor and Air Cleaner are used. Every moving part rolls on Hyatt Roller, Timken Roller or Bantam Ball Bearings.

Write for Free Catalog Free catalog tells all about this remarkable tractor and the patented "Giant Grip" Drive which enables it to do things and go places no other tractor can. Write for catalog today.

Square Turn Tractor Co.
Dept. 13 NORFOLK, NEBRASKA

Norfolk, Nebr.

Square Turn Tractor Co.

Gentlemen—I bought one of your tractors after looking the tractor over for the past two years and want to say that it is giving perfect satisfaction. I like it because it is a square-turn tractor. I like it because it is a two-way tractor. I like it because the Giant Grip Drive is as flexible in starting as a steam engine. In running against a rock or other obstruction, all strain on the crank shaft and bearings is eliminated by the friction transmission and with the plows hitched beneath the frame of the engine in plain sight of the driver it is a perfect plow machine.

Very Truly Yours,
A. J. KEIFFER, Oral, S. D.

SEP 13 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, September 1, 1919

HARVESTING THE GRASS IN SEPTEMBER PASTURES

PROTECT

That

...ingle Roof

...uildings

...SS

By W. W. BURGESS

You can guarantee a perfect stand of wheat, oats, alfalfa or any other grain or grass by planting perfect seed free from dirt, chaff and weed seed.

The triple service Simplex Mill, made by a large and well-known Kansas City manufacturer, cleans, grades and separates all in one operation. It is fully equipped with screens and riddles made especially for the seed problems of this section—wheat, oats, rye, corn, barley, peas, beans, flax, alfalfa, millet, timothy, clover, broomcorn, kaffir, grasses, etc.

The wonderful Simplex Mill which will be shipped to you for thirty days' Free Trial

The SIMPLEX is manufactured by experts who have spent a lifetime in the seed and seed cleaning business. The most modern labor-saving machinery and big output make prices lowest.

L. D. Rice, who has spent a lifetime in perfecting the Simplex is willing to ship you a mill without a dollar in advance for 30 days FREE TRIAL and easy payments if you want to keep it.

A postal card will bring full description and the Company is willing to ship a SIMPLEX to you for 30 days free trial. If mill is not all claimed for it, it can be returned and freight will be paid both ways. Address Simplex Spreader Mfg. Co., 222 Traders Building, Kansas City, Mo.

Be sure to write immediately in order to take advantage of their special offer.

Within the next six weeks you should plant your fall grain

We have demonstrated that

BUFFUM'S IMPROVED WINTER EMMER

is the most profitable crop

Come in and let us explain our liberal contract.

THE EMMER PRODUCTS CO.
1750 Champa Street, Denver, Colo.

Dry Farming Congress

Preparations for the staging of the Fourteenth International Soil-Products Exposition at Kansas City, Missouri, September 24 to October 4, are well under way. This unusual exposition, which originated as the Dry-Farming Congress, has made a truly remarkable record, and is now generally recognized as the greatest annual showing of agricultural products in the world.

The organization built up as the Dry-Farming Congress has been incorporated under the title of the International Farm Congress, and has been joined by the International Irrigation Congress. Its membership now reaches every state west of the Mississippi river and several of the states east. There is also strong Canadian representation.

The premium list for the 1919 Soil-Products Exposition is now ready for distribution. Copies will be mailed free to all who ask for them. The cash and trophy offerings carried are the largest of any fair or exposition in the United States.

The exhibitor of the best half-bushel of wheat may win $1,000 in cash and trophy prizes. The lowest it can win will be $385. The best ten ears of corn may win $320 in cash and ...rophies. Proportionate prizes are ...ffered in all agricultural and horti...ltural classes.

...ndividual farmers everywhere can ... their blue ribbon products. Val...e prizes are offered for collective ...oits by boys' and girls' corn, grain...hum, garden, canning and sewing ... representing each state. In or...o compete in this contest, the ...embers must have won in com... at their respective state and ...s, or have their exhibits ap... the state club leader.

...ollective agricultural ex... been entered by the gov... Canada and Mexico, by a ...nd many counties.

...ssions of the Interna... ...ngress will be held ... and 27 in connection ...ducts Exposition. The ... United States is auth... ...essional action to in... participation of other coun...ies in this meeting. The Farm Congress sessions, including all lectures, addresses, demonstrations, etc., are open to all who attend the exposition.

Studying Range Sheep

Several results of importance to western sheep men have been ascertained by experiments at the Government sheep ranch near Dubois, Idaho, which has been in operation two years. Formerly it was customary for range sheep men to discard ewes which did not bear lambs when 2 years old. Extensive investigations by the Department of Agriculture have developed that such ewes are just as valuable for future breding as those which bear lambs as 2-year-olds.

Individual records are kept on the Government sheep ranch relative to the weight of fleece, length of fleece, character of fleece, fineness of fiber, and mutton quality of each animal, while detailed account is maintained of the offspring of each ewe. The particular utility of the results obtained arises from the fact that the flock is handled just as are all similar bands of sheep in the hands of Wyoming stockmen.

Experiments are being conducted to devolop a type of sheep more suitable to the western range conditions than the types now prevalent. It is hoped to extend this work in both mutton conformation and length and weight of fleece.

Thmere are at present about 1,500 head of pure-bred Rambouillets, Lincoln Rambouillets, Cotswold Rambouillets, Leicester Rambouillets, and Romney Rambouillets on the Government ranch. Crossbreeding experiments are being conducted with all these breeds and crosses, as well as the use of pure-bred Corriedales, which have been mated with cross-bred ewes.

The eelworm disease of wheat may be controlled by the use of clean seed, by crop rotation, and by sanltation.

PATRIOT

Farm Motor Trucks

War demanded simplicity and standardization in truck manufacture, in order to secure certainty of operation.

That is just what the farmer needs; he must have certainty of operation without depending upon service stations.

All of war's lessons were utilized by the Hebb Motors Company in perfecting the Patriot Truck.

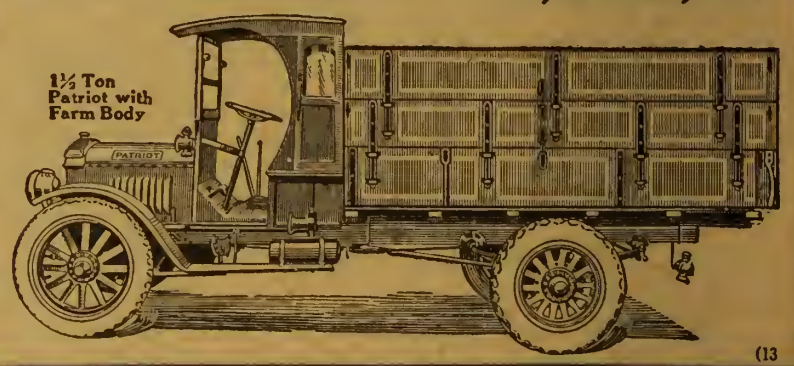
The Patriot Truck has made the driver his own "service station," for there is nothing about it likely to need adjustment but what the average farmer's boy or hired man can readily master.

Built for Country Roads — **Built for Farm Loads**

Investigations by the United States Department of Agriculture prove that Motor Trucks cut the cost of hauling grain from 33 cents per ton per mile to 15c per ton per mile. This is the reason wide-awake farmers everywhere are adopting trucks.

Write for information as to what a Patriot will save you.

Hebb Motors Co. 1381 P Street, Lincoln, Neb.



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Correct Lubrication Governs Tractor Performance

The power and service you get out of your tractor depend on correct lubrication — a gas-tight piston-to-cylinder seal — every bearing and moving part running quietly—oil-cushioned against wear.

Ordinary oils are not suitable because tractors practically always operate at full load—the throttle wide open—with much higher cylinder heat—especially when kerosene is the fuel.

STANOLIND
Tractor Oil

is the oil that leading tractor manufacturers recommend. It maintains correct body and lubricating qualities at the high operating heats usual in tractor engines. It keeps engine wear-and-tear at the lowest figures—the tractor in A-1 condition the year round at the smallest cost for over-hauling and repairs. Join the thousands of satisfied users of this oil.

Buy it from our nearest distributing station or from your dealer.

THE CONTINENTAL OIL COMPANY
(A Colorado Corporation)
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Salt Lake City
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WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

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Cut Corn In the Glazing Stage For Best Silage

HINTS THAT WILL INSURE KEEPING QUALITIES OF CANNED FEED

CHARLES I. BRAY

TO GET the most good silage from a given field of corn it should first be cut at the right stage. In the early days of silos the milk stage was said to be the right time for corn. Now we say the glazing or soft dough stage. The diagram on this page will show why these stages of growth are the best.

To cut before the right time means losing food value that the corn crop might make. About the time the farmer finishes his work in growing a field of corn the field is just getting ready to work for him. For the last four weeks before the silage stage is reached every acre in the accompanying table was adding half a ton a week to its store of dry matter, and most of that came out of the air. Previous to that time the plants were nearly all water. An old fellow up north who ran a small dairy used to say that feeding a cow green corn fodder in these early stages was "fooling her into thinking she was fed when all she had was a big drink of water." He was right. The plant does not manufacture food well till it is about full grown. It will add some food material after the silage stage is reached, but by that time it is losing moisture and adding a lot of fiber.

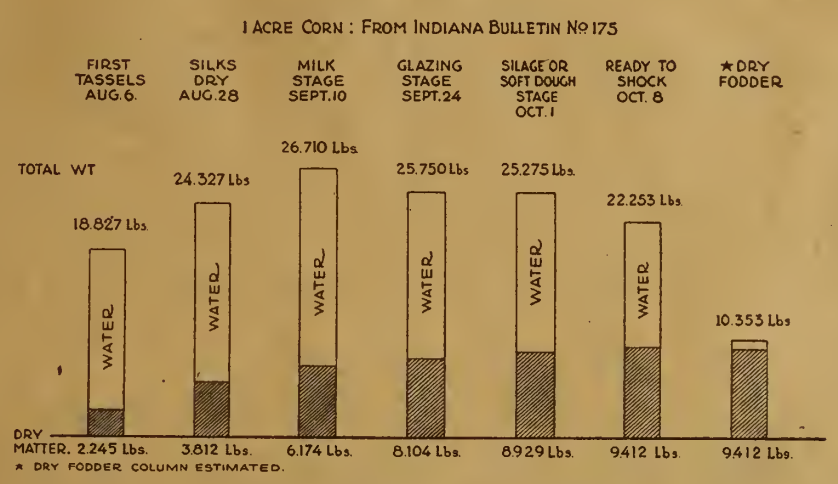
How Silage Is Preserved

Foodstuffs are kept from spoiling by keeping away bacteria and molds, or at least by maintaining such conditions that these cannot develop and multiply. Dryness, cold, exclusion of air, storage in salt or vinegar, are all familiar processes of food preservation around the home, and are all based on the principle of preventing or checking bacterial growth. Air and moisture are not injurious in themselves, but the bacteria that cause things to spoil are carried by the air and work best in the presence of moisture and warmth. Hays and grains keep well if the moisture content has been reduced below 10 or 12 per cent. If hay, for instance, is put in the barn or stack with 15 per cent or more of moisture, it heats and spoils because of bacterial action. Yet if alfalfa is stacked while thoroughly green it settles down into a compact mass, turns brown, and we say it is "stackburnt." It does not spoil and cattle relish it, for we really have made alfalfa silage. The brown stack of peavines seen by the side of canning factories in northern Colorado is silage just the same, only made without the silo.

Now the farmer has plenty of feedstuffs that are preserved by drying but what was needed was a way of keeping green forage to supply succulence. The silo was developed to fill this need, with smooth, strong, perpendicular, air-tight walls to keep out the air. Even with a good silo, however, it is necessary to observe three conditions. The cut green fodder must have the right amount of moisture to pack well, so that practically no air will remain. It must be tramped well for the same reason, and must be uniformly and evenly distributed in the silo at the time it is put in, so that it will settle uniformly.

Adding Water to Silage Corn

It is only in our southwestern country that it may become necessary to add water to the silage corn when filling the silo. We had occasion the other day to go through northwest Missouri, and saw the old-time kind of corn growing—stalks twelve and fifteen feet high — with big, pendulous ears like circus tent pegs. A hog man would have thought of the bushels of corn per acre; but a dairyman's thought was, "Say, wouldn't that be great to put in a silo?"



They did not have to put water with that kind of corn in the old days. It was chock full of juice on the inside, and for the first few hours of the day was generally soaking with dew. It did not get dry till after nine, and the loaders did not get dry till near noon. On the outside, I mean; you never saw a good hired man or boy that didn't get dry every time he got near the water jug, or whatever kind of jug it was! But out here it is different—in more ways than one! The western corn probably does not have as big a moisture content to start with, the lower leaves ripen before the corn seems to be ready, and then the bundles dry out so fast after cutting that they soon become too dry to make good silage.

While we believe that additional water put in the silo cannot entirely take the place of the original plant juices, we do know that it will help to make good silage out of fodder that is too dry to pack, and that would otherwise mold. It is better, if possible, to avoid having to add water, especially if the farmer has no handy way of getting the water into the silo. With a waterworks system and sufficient pressure a ¾-inch hose can be run directly into the silo or into the blower of the silage cutter. The latter will give a more even distribution of the water. If run directly into the silo it is often allowed to run too long in one place, leaving moldy areas all through the silage. If run into the silo the nozzle should be kept moving in the hands of one of the fillers. Where there is no water system a barrel may be rigged up near the cutter and filled from the tank wagon, a short length of hose being used to run a small stream from the bottom of the barrel to the blower.

Especially where the addition of water will make considerable extra labor, it is better to save the original juices of the plant as much as possible. Cut the corn a little on the green side, if need be, and keep the wagons right up to the binder or the cutters. We have had silage corn lie in the field a whole day or more ahead of the wagons. Then, of course, water had to be added, as the fodder dries out fast in this atmosphere. A glance at the diagram will show how much water can easily be lost.

It will happen, however, that pressure of other work will occasionally throw the filling of the silo late, or the silo may not get finished in time, or the cutter may break down. In Oklahoma we helped fill one of the first silos in the state. The contractor was to have it finished by August 8, but he got through by September 15. Hot weather had burned the corn crop as brown as paper. We put it in the silo and added plenty of water, hauling a lot of it up in a bucket on a rope when the water pressure failed. It made a very fair kind of silage, but, of course, not as good as if it had been put in at the right time. Silage in Colorado will generaliy be better for a little water.

People often ask, "How much water should be added?" It is hard to give any definite amount. It is much easier to put on too little than too much. The diagram will show that it might easily be possible to need two tons of water to one of fodder, if the fodder is very dry. This should not be the case except in emergency. "Billy" O'Brien, for many years farm foreman on the Colorado Agricultural college farm, was an expert silage maker, and used to put on water till it ran out around the doors at the bottom. This would not be necessary, especially if the water has to be hauled, or put in some other way than by city pressure.

Especially, if water is scarce, the next thing is to get it on evenly. A patchy application of water will mean moldy spots all through the silage. We once lost two valuable Jersey cows from feeding such silage, the symptoms being similar to so-called forage poisoning. Keep the silage tramped well. At least three men should be kept going in a 16-foot silo and four in a larger silo. This gets the air out and insures even settling. Since the flexible distributor was brought into use there is not the same trouble now from uneven distribution.

In New Mexico they often use half a dozen goats to tramp silage, with only one man needed to handle the distributor and keep the goats moving.

A good deal of feed can be saved by making the doors fit tight. Strips of tar paper or some wet clay can be used. Feed is going to be worth something this winter. If hay goes to $30, silage will be at least $15 a ton, and a load of straw or spoiled hay run through the cutter at the last, well watered and tramped down, may save three or four tons of silage.

Alfalfa and Other Silage Crops

Where corn cannot be grown successfully, other crops may be used. Sunflowers are coming into use a good deal. They mature quickly, which makes them desirable in high altitudes with a short growing season, and they also stand drouth. The corn crop is almost a total failure around Fort Collins this year, but 10 acres of sunflowers put in for experiment are the healthiest crop you ever saw. Alfalfa will make good silage, but it pays just as well or better to cure it as hay if the weather will permit. Prof. R. W. Clark, formerly of Montana and now of the state extension service, used to make both clover and alfalfa silage with good success. Alfalfa should be cut when it starts to bloom and should wiit several hours before being put in the silo. It will make better silage if mixed with something else like cane or Sudan grass, which will help form lactic acid. It has been the experience of many that alfalfa silage does not keep well after hot weather begins, about May 1.

Kafir corn, milo, sorghum cane and Sudan grass will always be standard silage crops in the dry-land districts where corn does not grow well. The silage from these crops is nearly equal to corn silage, probably nine-tenths as valuable.

National Swine Show

The National Swine Show for 1919 will be held at Des Moines, Iowa, September 29, to October 4. This annual event is without doubt the most important one connected with the swine industry. At the 1918 show held at Cedar Rapids, Iowa, the United States Department of Agriculture made an exhibit of smoked meats. It is the intention of the department this year to make a much larger exhibit than it did in 1918. In addition to the showing of smoked meats, the methods of curing meats in different ways will be explained. The home curing of pork is now being studied by many farmers who have heretofore been in the habit of purchasing their meats from the local dealer.

More than 300 dead grasshoppers on a space the size of a hat were counted on the field of a Lewis county, Idaho, farmer who supposed the use of poisoned bait had been a failure on his farm. He had not looked for the dead hoppers. Thirty thousand pounds of poison have been used, with more than 80,000 pounds of bran, in poisoning hoppers in Lewis county.

"Did Fussey take his troubles like a man?"

"Sure, he blamed it all on his wife."

Small Purebred Beef Herds Thrive In Wyoming

REDUCTION OF RANGE FORCES STOCKMEN TO BETTER QUALITY

T. S. PARSONS, Extension Agronomist
University of Wyoming

IN THESE days when the open range is becoming more and more restricted and high fees for grazing in the forest reserves are in order, the stockmen are beginning to look to the smaller herd that can be kept on the small ranch or farm. As the herds are cut down in number the cattle will naturally be of better quality and will receive better care.

One who reads the farm papers of the country is impressed with the amount of advertising done by the purebred stock dealers and growers of the central states. These cattle are the acme of good breeding and represent intensive feeding and care of the highest order. To find fine cattle under such conditions is not surprising, but to find cattle equally good on the semi-arid lands of Wyoming where they receive little shelter and no feed but the dry land pastures in the summer, and alfalfa or native hay in the winter is surprising, to say the least, and as one sees them feeding in the dry fields he almost doubts his own sight.

The writer on a recent trip through Crook county, Wyoming, visited several herds of Herefords and other breeds. The class of cattle seen in most of the herds would compare favorably with the best herds in Minnesota or Iowa. Crook county is in the dry farm section of the state but being near the Black Hills has a little greater annual rainfall than the other dry farm sections of the state. There is much good grazing land among the hills and the pine timber affords excellent shelter both summer and winter. On the more level lands crops of corn, small grains and alfalfa are raised. The native grasses cure on the ground and make excellent winter feed. The writer saw cattle that had never had a bite of grain that were nearly fat enough for the show ring.

John Mahoney of Alva has a fine herd of Herefords. A carload of his stock was sold to South Dakota parties while the writer was there. One cow in the bunch sold for $1000. Mr. Mahoney's bulls would compare favorably with any in the country. His bulls bring $500 to $1000. The cattle have good barns and sheds for shelter but remain outside practically the year round.

A. J. Murphy is another man who has shown what can be done with the small purebred herd on the farm. He runs about 40 head of cows and calves on 400 acres of land and a school section of pasture. Mr. Murphy came to Crook county about ten years ago with less than $200 in cash and started in the purebred business three or four years ago. Considering the size of his herd Mr. Murphy has sold a large number of calves. He has no trouble in getting $300 to $400 for his bull calves at one year of age. He now has his place clear with the exception of $1800 and has about $40,000 worth of cattle on the farm. Mrs. Murphy knows the cattle as well as her husband does and is a great help to him.

Adrian Hewes of Sundance has the finest herd to be seen outside a show ring. He runs about 40 head of cows and young stock on his 1000 acre ranch and one can easily see that he has shown exceptionally good judgment in the selection of his foundation herd. Some of his neighbors thought him foolish when he paid $1500 for a bull to head his herd, but his wisdom is shown in the excellent herd he has built up. The good breeding shows up and gives his cattle the size. He gives his cattle no better shelter or feed than the others. In fact he showed us cows and heifers that had never had a mouthful of grain, yet they were fat enough for the block.

Mr. Hewes holds strongly to the idea of selecting good sires and culling his cows. He believes in paying good prices for his bulls, as he gets his money back in the calves that he sells. He sells his yearling bull calves for $400 and up and for one two-year old heifer in his herd he had refused $2000. People come to his place looking for stock. At the time of our visit he was completely sold out.

B. F. Lincoln is another Crook county farmer who has reached a high mark in the breeding and growing of Hereford cattle. He has been in the business of raising and breeding Hereford cattle for about 12 years. From an initial investment of $1200 Mr. Lincoln claims he has sold $28,000 of stock.

Herefords are not the only purebred cattle in Crook county—there are others and they are showing up as well. Dr. R. E. Bowman has a fine start in a purebred Shorthorn herd and there are a few Angus and Red Polls in the county. These herds, however, are not numerous enough to have gained prominence.

Some of the Hewes Herefords, Crook County, Wyoming

George Cornell of Moorcroft has a herd of Holsteins that are making a record in milk production. This is being done on dryland pasture and forage crops, and his herd might well be the envy of many an eastern dairyman. Mr. Cornell believes in good breeding and good feeding. He has entered into co-operative breeding work with the government experiment station at Ardmore, S. Dakota, and has received from them a registered Hereford bull which he will keep and use on his herd, reporting to the station the results obtained. He also looks after the feeding end of the business, having two pit silos to furnish succulent winter feed and is planning on building two more, so that he may have no shortage of feed, even in a dry season.

But few silos are as yet in use in Crook county and their lack is very evident this year, when there is so little moisture. Summer fallow and cultivated crops put land in the best condition for crops on the dry farm and corn is generally a sure crop even on breaking. No matter how dry the year there are generally crops that can be put in the silo and these with the corn make the winter feed. More silos are being urged for Crook county and a number will be built this year. Although the small purebred herds are doing well under present conditions the silo would be a very material help in bringing them through the winter. Silage has been found just as valuable for beef cattle and sheep as for dairy cows.

The man with the small herd on the farm has many advantages over the man who runs his cattle on the range. In the pasture the calf crop, predatory animal losses and losses from poisonous plants are absolutely under the control of the owner, so that his losses are negligible and his profits are increased accordingly. The cutting down of the large herds will not make the number of cattle in the state any less but rather more in the aggregate, as there will be a greater number of small herds; and the best thing about the small herd is the cattle will be of better quality and will receive better care.

Another Outbreak of the Kansas Horse Plague

QUACKS ARE ALREADY IN THE FIELD WITH FAKE REMEDIES

DR. GEORGE H. GLOVER

THE Kansas horse plague has again appeared and is spreading rapidly; first at Holly and then at Rocky Ford. No other outbreaks have been reported at this writing. It is without question the same disease that in 1912 started in Kansas and spread over the middle western states and as far west as Granada, Colorado. The disease has appeared sporadically since that time and how far it will go in the present outbreak is problematical. It has been ascribed to forage poisoning, although this term conveys no definite conception to anyone as to its real cause. It closely resembles the Borna disease of Europe which is an infection. Its close resemblance to botulism (meat poisoning in the human,) must not be overlooked. There is now an opportunity to continue the investigations which were so abruptly ended with the disappearance of the disease in September 1912.

An affected animal first becomes dull and listless, refuses to eat, has moderately high fever, staggers, and in a few hours becomes gaunt and emaciated. All cases manifest cerebral symptoms with more or less excitement, blindness, incoordination, trembling, irregular respirations and pulse and a tendency to press the head against fence posts or lean against something for support. Indications of paralysis of the throat or muscles of the face may appear before the animal goes down. After becoming prostrated the animal is restless, the temperature becomes subnormal and in fatal cases death may be expected in from two to five days. In the present outbreak nearly half of the cases have been saved by appropriate treatment.

The venders of "cure-all's" are already in the field and expecting to reap the usual harvest. When the disease was rampant in 1912 hundreds of horses were killed by nostrums. Charlatans drove from place to place "vaccinating" horses against the plague, using various biologics that had no relation to the disease whatsoever, collected their fees, and drove on. The following is of the utmost importance in this connection and should be given wide publicity:

1st. There is no specific cure for this disease. The disease must be treated symtomatically, meeting conditions as they arise. In other words, no hard and fast rule for treating the disease can be adopted, for no two cases are alike.

2nd. Beware of the man who promises to protect your horses by vaccination. Nothing of this kind has been discovered that will with certainty have the least influence in preventing the disease.

3rd. Do not try to give medicine by "drench" for there is invariably some paralysis of the throat and the fluid will surely pass into the lungs, inducing mechanical pneumonia or strangling the horse outright. Hundreds of horses were killed in this way in 1912 by drenching with whiskey and milk.

4th. If unable to secure the services of a competent veterinarian, the next best thing is to take the very best possible care of the animal. Good nursing constitutes the major part of the treatment and alone will save many of them.

Unusual Cattle Disease

Three head of young stuff on the Theobald ranch near Aroya, Colo., have died in the last week. The cattle when first noticed have a high fever and they waste away in 24 hours. They are blind when discovered and usually stagger as though they were unable to keep on their feet. They refuse to eat or drink and, according to Mr. Theobald's description, the tongue seems to be paralyzed. To give them food it must be forced down the throat. The same is true of drink. The cattle are unable to come in from the pasture when affected but must be literally dragged in. They graze on the open buffalo grass prairie. No poison weeds are known in that section except loco and Mr. Theobald says he knows loco symptoms and does not think that weed could be responsible. Others in the neighborhood report similar losses.

The disease of cattle reported by Mr. Theobald is quite common east of the mountains and cases have been reported from adjoining states. Two years ago our attention was first called to it in Larimer county and last summer many more cases were reported and a cursory investigation was made in the vicinity of Rocky Ford. The disease is more extensive this summer and there has already been a considerable loss. In many respects it resembles the Kansas disease of horses which extended over a wide area of the middle western states in 1912 and reached as far west as Grenada Colorado. Incidentally this disease of horses has appeared again during the last fortnight in the Arkansas Valley below Rocky Ford.

The disease in question, which affects cattle of all ages and conditions, coincides in many respects with the text book description of "Progressive Bulbar Paralysis" of cattle in Belgium, France and Germany, but with the difference that in this case nerves other than those that arise from the bulb are affected. Again there is a European disease of cattle called "Enzootic Paralysis of the Gullet" which

(Turn to page 22)

Review of Range Cattle Experiments at Hays

QUESTIONS OF STOCK RAISERS ANSWERED BY THESE TESTS

CHARLES R. WEEKS

THE Fort Hays Experiment Station, Hays, Kansas, with its 3,600 acres of land and 3,200 acres of range pasture furnishes live-stock experimental data under the range conditions that exist in western range country. 355 head of live-stock were used in the lots comparing a wintering ration and below is a summary of the results.

The experiment in the development of breeding cows has attracted wide interest since it has been running for four years and it answers the questions that many stockmen have been asking; that is, what isa the effect of extra feeding during the winter when the cattle are not on range, (1) on the final size and development of the cows, (2) on the size and quality of calves produced and (3) the final profit or loss in each case.

DEVELOPMENT OF BREEDING COWS

Dec. 20, 1918, to March 29, 1919—100 days. Twenty 4-year old cows in each lot. During the three preceding winters, Lots 1 and 16 received concentrates and roughage; Lots 2 and 15 were fed roughage only.

	Lot 1 First Calf 1918	Lot 16 First Calf 1917	Lot 2 First Calf 1918	Lot 15 First Calf 1917
Results Including Both Cows and 1918 Calves.				
Number of cows in lot	20	19	19	20
Total weight cows Dec. 20	22883	20430	20823	19973
Total weight March 29	22183	20740	20250	20040
Calves lost to March 29	1	0	0	0
Number calves March 29	8	8	9	8
Total weight calves March 29	733	830	810	740
Weight of cows and calves March 29	22916	21570	21060	20780
Total gain in lot	33	1140	237	807
Results Considering Cows Only.				
Weight per head December 20, 1918	1144	1075	1096	999
Weight per head March 29, 1919	1109	1092	1066	1002
Gain or loss per head 100 days	-35	17	-30	3

A careful study of the accompanying figures would indicate that, as far as the experiment has gone, cattle fed in the normal way and bred to calve at three years old have formed the most profitable group. The cattle in the lot that has been fed extra well and calved at two years old will show more uneven and smaller in size, while the lot that was fed normally and calved at two years old are very uneven and undersized. This experiment will be continued for a year or two more and all calves sold and records kept of them and all cows sold and records kept or them and net returns from each of the four groups compaed with the total cost of each group. This will give the final profit on each of the four methods of handling range herds.

During the occasional drouths in western Kansas we have found farmers feeding Russian thistles. Since the experiments on the station are planned to answer the questions most often asked by the farmers of the section it serves, Russian thistle hay was compared with alfalfa hay during the last winter's experiments. Each of two lots containing twenty uniform Hereford cows were set aside for this experiment. One lot received 9.6 opunds of Russian thistle hay per day while another received 9.6 pounds of alfalfa hay per day. Both lots received about eleven pounds of straw and fifteen pounds of silage per day.

The Russian thistle lot of twenty cows lost a total of eighty-two pounds where the alfalfa lot lost a total of eighty-eight pounds, the loss here being about the same. The cattle fed on Russian thistles cost 8.5 cents per cow per day while the cattle fed on alfalfa cost 15.2 cents per cow per day. This would indicate to the casual observer that we should raise Russian thistles. This is not the case, since Russian thistles do not yield well enough to make it a farm crop. The experiment is only carried on to find out what the real value of Russian thistles is as fed, providing the larger feed crops like cane fail in western Kansas and the Russian thistles take the land by their own seeding. Another difficulty with Russian thistles is that they must be cut at exactly the right time; that is just before the spines begin to harden, to make good hay. The Fort Hays Experiment Station will also try grinding thistles that harden too much before cutting and both these methods will be tested out in the feed lots next winter.

Another experiment that was extremely interesting to the writer is the comparison of kafir fodder and kafir silage on an acre basis. One lot of twenty cows was fed kaffir silage and cotton cake, while another lot was fed kafir fodder and cotton cake. Each lot received two pounds of cotton cake and the silage and fodder were increased or decreased in such a way as to keep the cattle in about the same condition during the feeding period.

It was found that it took 31½ pounds of kafir silage to about 24.6 pounds of kafir fodder each day to keep the cattle in the same condition. The daily cost per cow for kafirsilage was 16.2, while for kafir fodder it was 16 cents. The difference in cost of the two at the prices assigned does not show up greatly. A comparison of the acres required to handle the cows during the one hundred days is quite striking. It took one acre per cow for the hundred days in the form of kafir fodder while .56 acres of kafir silage kept the cows in the same condition for the hundred days. This saving in acreage required to winter cattle ought to encourage the building of silos.

The comparison of linseed cake and cottonseed cake with succulent and dry feeds as supplements shows the greatest loss in the case of cottonseed cake, straw and stover. During the latter part of the period these cows began to go back and we actually lost two cows by death. In the lot fed linseed cake, straw and stover we had no loss of cattle and the stock came through the winter in good condition. Where silage was fed the cottonseed cake showed a slight advantage over linseed cake.

The Fort Hays Experiment Station has never failed to produce enough roughage to carry its 1300 head of stock over even the worst of winters. One of the biggest lessons brought out by the work on this station is the provision of farm-grown feed sufficient to winter the stock after the most severe drouth season. Silos are used to store feed during years of excessively high yield in fodder to make up the deficit during the extremely dry years. Nothing is bought on the station in the line of feed except concentrates that cannot be grown on the station farm. The station farm is on a profit basis. Besides the live-stock experiments there are 1689 experimental plots divided up into projects, each project in charge of a specialist. They consist of tillage and rotation or dry land agriculture work, cereal crops, forage crops, forest nursery, etc., Farmers all over the semi-arid west are watching the work with interest, as its application is much wider than the local territory of western Kansas.

Support the State Fair

Mr. Alvin T. Steinel, Editor,
Western Farm Life,
Denver, Colo.

My Dear Mr. Steinel:

I have just read the nice article in the Farm Life of the 1st, urging the citizens of Denver to recognize and visit the State Fair.

I want to thank you on behalf of the citizens of Pueblo, and the State Fair Commission for the excellent suggestion and trust that it will result in much good for the State Fair and the people of the state as well.

Again thanking you, I am

Yours truly,
J. L. BEAMAN.

A Brief Visit On the Pahgre Valley Ranch

HOW A BREEDING HERD FITS INTO FARMING UNDER IRRIGATION

ALVIN T. STEINEL

LOESCH BROTHERS, proprietors of the Pahgre Valley ranch at Montrose, were pioneers in the business of producing purebred dairy cattle in the Uncompahgre valley. Their foundation stock of Holsteins was brought in from Wisconsin six years ago. The two young men operating the ranch are graduates of the Agricultural department of Wisconsin university, one of the foremost farm schools of the world. They came to western Colorado with new ideas about farming, into what was then regarded as a fruit-raising district. They saw that exclusive fruit farming was a precarious business and they entered upon extensive rather than intensive farming, with a dairy herd and hogs as sources of cash income, fertility and means of utilizing the surplus feed grown on a ranch comprising 560 acres, of which all but 100 acres is in crop.

Land at $200 to $250 an acre, exclusive of water rental, calls for high class management. To make money on a large investment of this kind demands attention to details, the elimination of waste, the economic use of every by-product and the upkeep of fertility. If the source of fertility, then, can be made to pay independently of its value in utilizing by-product and putting back the manure, the gain is all the greater. For that purpose they have the herd of purebred Holsteins, about 50 in all, every animal registered.

The principal herd sire is Sir Johanna Bess Segis (187607), now three years old and bought as a calf from the world-famous Arden Farms, St. Paul, Minn. He is a grandson of the grand champion show bull Oak de Kol Ollie Homestead and of King Segis Pontiac Count, the noted sire of five daughters that averaged 22,000 pounds of milk and 1,013 pounds of butter a year. While he has not been in use long enough to give us any record daughters, his progeny in the female line are showing up in type and conformation wonderfully true to the ideal. In looking over the heifers one is tempted to prophesy great things for them. The Loesch brothers will bring out the quality. They are careful breeders, having the future in mind, and they are selling no females from the herd. The bull calves are in demand all over Colorado and Utah, some having gone to the eastern slope as far as the Arkansas valley. Not till the herd has been increased to the capacity of the ranch will any effort be made to dispose of heifers.

The equipment of the ranch is of the best — steel stanchions, cement floors, milking machines, two silos, a stone calf barn, where the young stuff can be separated as to ages, and open corrals arranged with a view to ease and comfort in feeding. Alfalfa, silage and grain are produced on the ranch and there are fine irrigated pastures for summer grazing. The pastures, built up on grass mixtures, are the cheapest source of milk, nature's food, during the growing season. An ample water supply for irrigation keeps the grass growing luxuriantly. No finer pastures are found in the Holstein districts of Wisconsin or Minnesota. Loesch brothers say it pays to use high-priced land for pasture.

The product of the herd is marketed as cream in Montrose, nine miles away—a 30-minute run by auto. The skim milk goes a long way toward the development of growthy, big-bodied young Holsteins that are coming on rapidly to take their places in the mature herd, or if males, to go out into other dairy districts for the dissemination of good blood.

Everything is electrically done, from a Delco power plant, which drives the pump of a deep well, lifting the drinking water 150 feet, lighting barns, milk house and dwellings, running cream separator, washing machine and the milking machine—in fact, cutting the chores down to almost nil. Naturally such a ranch demands specialized knowledge in management, and it is provided, because one of the Loesch brothers is a graduate in dairying and the other in farm engineering—two college-trained, technical men, applying their training in practical, money-making fashion at the Big Farming business.

Pahgre Valley Holsteins on Irrigated Pasture

Sheridan County Pig Club

The interest that Wyoming business men manifest in the coming generation of ranchers, was well illustrated in the organization of a Pig Club in Sheridan county recently.

A careful census of the county convinced the county club leader that the number of hogs, and especially purebred hogs, was decidedly less than the situation warranted. Sheridan county is a natural alfalfa country and with an altitude of only 4,000 feet, the lowest of any county in the state, corn can be grown with reasonable success and the small grains do exceptionally well.

The executive board of the County Farm Bureau, at a montbly directors' meeting, approved the plan advanced by the county club leader. It was then submitted to the executive committee of the Sheridan Commercial Club, an extremely active organization, who heartily approved and took immediate steps to carry it through.

The merchants of the town were to contribute the price of as many purebred pigs as they cared to. The pigs were to be awarded free of all cost to club members on the basis of an essay contest on hog raising. Letters were sent out to each teacher in the county, explaining in detail the plan and asking for entrants to enroll. The requirements were simple. Any boy or girl in the county between the ages of ten and eighteen was eligible. The successful contestants agreed to become members of the pork club, which requires that they keep records of the cost of producing their pork and exhibit the pig at the county fair held each September. The last requirement was that each member should breed his pig to a purebred boar of the same breed in December, and the following June return one of the litter to the club leader, which then could be awarded in a similar contest to other boys and girls.

The interest was widespread. Over 300 youngsters worked hard and faithfully on their essays and the task of the judges in deciding the forty-six winners was by no means an easy one. The pigs were Poland Chinas, Durocs and Chester Whites, the object in having three breeds being to give each winner his choice.

As the day of the distribution approached interest waxed high throughout the county. Among the country boys and girls it was the chief topic of conversation and preparations were made for the event. This preparation included the seeding of an eighth-acre plot to corn, oats and peas, or rape. All club members have found by experience that hog-down crops pay.

Several of the winners traveled a distance of thirty-five miles to participate in the distribution. Promptly at 2 o'clock on distribution day the pigs in their individual crates were loaded on large drays and preceded by the drum corps of the Sheridan Boy Scouts, the parade started. It was indeed a novel sight to the people of Sheridan to witness the amateur hog raisers marching up the principal thoroughfare of Wyoming's largest city, whooping like a band of redskins. The parade ended at the city hall, where everyone except the pigs, proceeded to the council chambers. Here lemonade was dispensed to the thirsty marchers.

A short, snappy program had been arranged. Mr. Watt Brandon, editor and publisher of the Sheridan Daily Post, emphasized the importance of club work to our future generations in the profitable field of agriculture. Secretary W. D. Fisher of the Commercial club then introduced C. R. Massey, the head of the largest financial institution in Wyoming. Mr. Massey wanted the club members to understand that bankers everywhere were interested in their endeavors and would back them financially in anything tending to build up better farms and homes in the country. One of the county commissioners, Mr. Chas. E. Waegele, himself a most successful rancher, followed Mr. Massey and humorously told of his early boyhood and training and pointed out the advantages enjoyed by the present generation. Other ranchers and business men who have the interest of the boys and girls at heart also addressed them. The distribution of the pigs followed this program and forty-six pigs found new homes that evening with forty-six happy youngsters.

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Loading New Potatoes

Potato growers can prevent much of the losses of the new crop in transit and in the markets by avoiding cutting and bruising the tubers in the field and by not allowing the potatoes to remain exposed to the sun after digging. These suggestions are given in full in Farmers' Bulletin 1050, published by the United States Department of Agriculture, on handling and loading new potatoes.

Careful grading will increase the growers' profits and will make a sure and more constant market. It is important to keep the skin—the protecting cover of the potato—intact. In handling new potatoes this requires great care. Cars should be loaded according to a definite plan, which provides for ventilation and prevents shifting about and breakage of the containers.

The majority of fungus diseases that cause decay of potatoes and other vegetables cannot develop when the skin is free from cuts and bruises. Careful handling is fundamental, therefore, for the prevention of deterioration and waste. In this respect probably no single factor is equal in importance to proper handling in the field and none is more generally ignored by the average grower or laborer.

Ungraded and poorly graded stock also causes heavy losses. The dealer who buys ungraded potatoes either has to sell them at a lower price than well graded stock will bring, or he must grade them himself. In either case he pays the grower less. The grower would further his own interest by grading his potatoes, securing a higher price for the good grades and feeding the culls to livestock. Grading should not only consider size, but should eliminate all potatoes which are cut, bruised or diseased.

One hundred and fifty pound sacks are not desirable but as they are used frequently the following method of loading them is recommended. Place the first sack on end in one corner of the car with the flat side of the sack leaning against the side of the car. Make sure that the bottom of the sack is at least 6 inches from the side of the car. Lean two more sacks against the first. (The bottom of the last sack should come nearly to the center line of the car). On top of these three sacks place one sack first, taking care to keep one at least 10 inches from the side of the car, and the other end well on top of the upright sack nearest the center line. Another sack should be placed flat on top of this, but with one end tight against the side of the car. The manner in which these two flat sacks are loaded is very important, for if they are not correctly and securely placed, the load is practically certain to shift in transit.

Exactly the same method is followed on the opposite side of the car. This will give a load of 10 sacks to the stack across the car with an open V-space in the center for ventilation. By following this plan, nine stacks can be placed in each end of a 36-foot car from the end wall to the doorframe. When the doorway is reached, three strips 6 inches wide should be nailed across the opening, the sacks being loaded against these strips in the same manner as in the ends of the car. The important points are to prevent the sacks from jamming the doors and to avoid their blocking the aisle, thereby cutting off ventilation. It is impossible to obtain this result by any of the other methods in common use.

Sacks ranging from 90 to 120 pounds are loaded in the same manner as the 150-pound size, except that both the layers of sacks which are laid flat extend entirely across the three upright sacks beneath and touch the side wall of the car. When small sacks are used, it may be necessary to modify slightly the above load to get a minimum carload. The most satisfactory method to accomplish this is to use one more upright sack in each stack. It should be noted again that placing sacks in the V-shaped opening left for ventilation from end to end of the car retards air passage to such an extent that overheating results.

Good types of ventilated box cars and stock cars are suitable for shipping new potatoes. When the tubers are sound and of good quality 30,000 pounds is a safe load. If stock cars are used, it is advisable to line the sides with heavy building paper to protect from sun and weather.

Sweet Clover a Success

Sweet clover now bids fair to be the king crop of Union county, New Mexico. In many different localities small acreages of forage in sweet clover is making good this year and in a few places large acreages are doing as well. In fact every scrap of sweet clover that has had a chance this year has done well.

In the Thomas community Mr. C. E. Shultz has an eighty acre field of sweet clover sowed last year that is now four to five feet high and a good stand throughout. He has also made a good success in getting a perfect stand of sweet clover sowed in February and March with spring wheat. All live stock like sweet clover and do well on it. It is more adapted to our conditions than alfalfa and is far more productive. Sweet clover is especially successful for pasture for cattle and hogs and even a few acres of sweet clover an a farm or ranch will greatly increase the number of live-stock that can be kept successfully.

The best time to sow sweet clover is when there is good moisture in the soil for starting it. For this reason the months of July and August are recommended. For getting a stand of clover promptly the seedbed should be well prepared and compact. Early plowed land that has a good supply of moisture is best.

Among the qualities of sweet clover that are commendable are the following.

1. Sweet clover supplies a large amount of feed in form of pasture or may be cut for hay. As a cash crop the sweet clover seed is worthy of considering.

2. Sweet clover provides a legume crop that is of great value in enriching the soil.

3. Sweet clover prevents winter blowing and incorporates humus in the soil that will help later in preventing drifting.

4. The growing of sweet clover facilitates a perfect plan of rotation and diversifying crops and farm livestock.

5. Sweet clover does not prove a pest as proper cultivation of the crops readily destroys it.

If you have not seen or been convinced of its value it would be well to prepare a few acres and give the sweet clover a fair trial and we believe that it will prove profitable—Farmer Stockman Exchange Bulletin.

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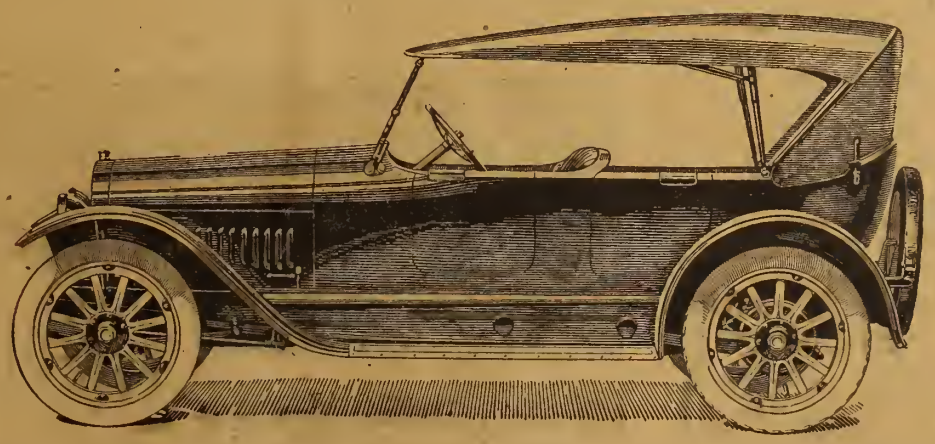


The Proper Storage of Potatoes

DESCRIPTION OF A MODEL CONCRETE CELLAR

THE accompanying illustrations show exterior and interior views of the potato storage cellar on the Colorado Potato Experiment Station farm near Greeley. This is a model cellar 30 feet wide, 48 feet long and 7 feet high to the plate, inside dimensions. It was designed by Dr. C. F. Clark in charge of station.

The roof is of unusual construction. On top of the rafters which may be seen in the view showing the interior of this cellar, woven wire fencing is stretched taut and on this is a thick even layer of straw, which in turn is covered with a layer of dry earth about 1 foot deep, which is kept dry by a shingle roof supported on a second set of rafters. The cellar has double concrete walls, each about 8 inches thick. The space between walls is filled with dry earth. The upper set of rafters rests on the outer wall, the lower set on the inner wall. Roof and inner wall are thus insulated against outside temperature. A self-recording thermometer was hung in the cellar from November 15, 1918 to April 1, 1919 and registered a constant temperature of 39 degrees Fahrenheit for the entire period. This is an ideal temperature for potato storage.

Ventilation—one of the essential requirements in every good storage cellar—is secured through four ventilators on the roof, equipped with double dampers controlled by a cord hanging within easy reach in the cellar. Free circulation of air about the stored products is insured by the construction of bin partitions which are composed of 1 by 4's spaced 1 inch apart. On the floor and against the concrete wall are 2 by 4's covered with 1 by 4-inch boards, making a 2-inch space for movement of air.

Exterior of Potato Storage Cellar, Colorado Potato Experiment Station, Greeley

There are two pairs of large entrance doors, a foot apart. When the doors are open, there is plenty of room for a wagon to back into the cellar for loading or unloading.

For successful storage potatoes must be protected from extremes of cold and heat; a temperature of from 35° to 40° F. is considered satisfactory. Sufficient ventilation must be provided to remove foul air and excessive moisture. The storage house must be so constructed as to make it possible to exclude the light, as the table quality of potatoes quickly deteriorates in the light.

The tubers should be dry and reasonably free from dirt when put into storage; an excess of moisture or soil increases the amount of heat in newly stored potatoes. The soil tends to fill up the spaces between the tubers, thus cutting off air circulation and helping to retain heat that would otherwise escape. All diseased, badly cut, or bruised tubers should be removed from the crop before putting it into storage.

It is a common practice for commercial growers and shippers to store potatoes in bins to a depth of 10 to 15 feet. This is almost certain to entail a much heavier shrinkage loss than when stored to a depth of not more than 6 feet. The heavier shrinkage is the result of the greater amount of heat generated by a large pile of potatoes, which results in a higher amount of moisture loss as well as a heavier loss from decay, as heat and moisture both help to develop organisms causing tuber rots. Frequently the losses sustained when the potatoes are stored under these conditions reach 52 per cent, and where rigid care has not been exercised to remove all diseased tubers before storing the crop the loss is even greater. It is advisable, therefore, to pile the potatoes not greater than 5 or 6 feet deep, and the floor dimensions of the bin should not be greater than 12 by 12 feet, unless provided with a series of ventilating shafts or division walls for the escape of moisture and heat.

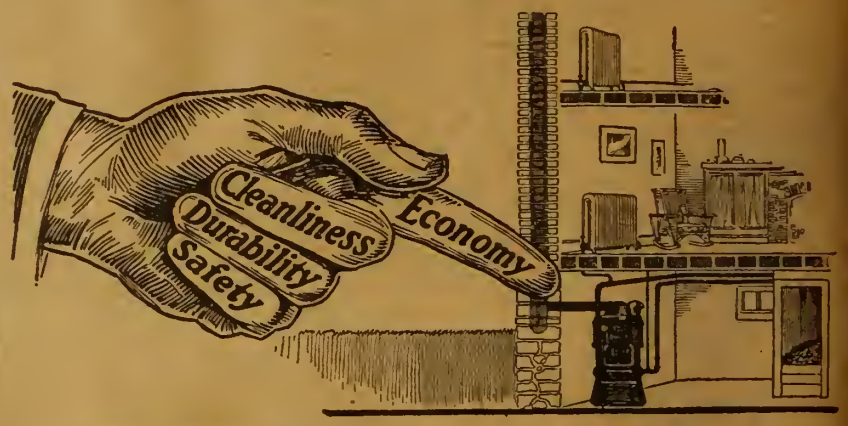
View of Interior Potato Storage Cellar

More Wheat with Tractors

Kansas farmers who use tractors in their work are getting eight to ten more bushels of wheat per acre than those who do not use them, according to J. J. Hartman, a wheat and live-stock farmer near Elmo, Kan., who is quoted in an article entitled, "Tractor Increases the Wheat Yield," contributed by F. B. Nichols to the Tractor and Gas Engine Review (Madison, Wis., July). Success in winter wheat growing, Mr. Nichols asserts, is largely a matter of plowing deeply early in the season. This will conserve moisture, aid in the forming of available plant food, and allow the capillary attraction to be restored before planting-time This early, deep plowing, however, cannot be done over a large acreage, in hot weather, with the ordinary horse equipment of a farm; and here is where the tractor comes in. Increased yields such as those reported above quickly pay for the machine, and, according to Mr. Nichols, it is "placing the wheat raising business on a new basis." He says:

"As an average for the country, year after year, deep, early preparation of the seedbed is the vital thing in getting a good yield of wheat. Fairly good yields usually are produced even in unfavorable years on the fields that were plowed deeply early in July. This early preparation allows a prompt start of the bacterial and chemical plant food forming agencies, so the amount of plant food will be available later when the crop is planted. Most of the progress made by tractor farming has come because of the appreciation of the need for deep plowing."—Literary Digest.

The Best Investment for any Farm House



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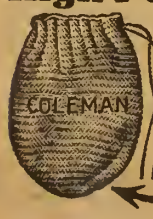

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Clark's Travel Letter

Mrs. Josephine Putnam,
Salem, Colo.

Dear Josephine:

I told Tom the other day that I was going to write to you. He dared me, so here goes. I went to Cheyenne Wells to help Josh Adams entertain the farmers from Kit Carson county yesterday. The farm bureau and H. O. Strange, the county agent, fixed up an excursion and a lot of farmers came over to see Adams' pit silos. I had been talking to them about silos, but they wouldn't believe me. They saw and now they believe. Josh fed 60 head of cattle last winter on his quarter section and didn't have to buy any feed. Adams is a wizard. You know Josh will tell the truth and some fellows don't like that.

Adams filled four pit silos last year from half his quarter and has 15 tons in the silo yet, which he is feeding and has two big ricks of old dry fodder outside. He had about 200 tons of silage and will have as much more this year. He also had a crib of corn last fall and is feeding it now to about 25 lusty shoats, along with whey and skim milk. I wish you could get the doubting Thomases to build silos. They—the silos—are the salvation of eastern Colorado. There should be two silos on every farm east of Denver. Mr. Strange says he is going soon to bring another excursion of farmers to Cheyenne Wells and if he does he will have all his farmers building silos. Every farmer in the crowd said he was going right home and build a pit silo.

Last night Josh and Mrs. Adams took me in their Ford to Sheridan Lake. The ride was delightful and I saw lots of corn that will make 40 bushels to the acre. The grazing is at its best and not enough stock to consume it. There are not two fields of poor corn in the whole of eastern Colorado, I do believe. Now listen, Josephine; eastern people are buying land down there, thinking that they will get a big crop every year, but you mind my word, that unless they do as Josh Adams does, or as he tells them to do, you will hear their moans away up at Denver, and then out they will go and in will come another crop. That's the way it goes in a dry country, one crop of farmers after another. I nearly forgot, Mrs. Adams says that the reason cement sometimes does not stick to the wall of a pit silo is because it is not made right, has not the right consistency, whatever that means, and is fooled with too much. She says, "Make it right and stick it on the first time and it will stay, and don't fool with it." And Josh says that the brush coat of cement which is the last to go on is absolutely necessary if we want good silage. He says the brush coat allows the silage to settle well. He says that the second layer of cement must be put on before the first layer sets and gets hard and the same is true of the brush coat. The cement should not be allowed to dry immediately but kept damp, so that four or five days will be required for it to dry.

Some people don't like pulling silage out of the silo, but Adams has a windlass that is run by hand. He cranked up 600 pounds the other day while I timed him and it required only 2 minutes and 40 seconds. This was from the bottom of the silo. No time would be required from the top of the silo. Why, it wouldn't pay to hitch up a team for such a little job.

On the train yesterday running from Sheridan Lake I met Dr. Lorimer of Ordway. He told me that he and L. I. Griffin, editor of the newspaper at Ordway, caused 35 silos to be built last year within six miles of the town. A lot more are being built this year and he is going to count them and let me know how many there are. I tell you, Josephine, a good doctor and a good editor can do a lot of good outside their profession, but they must have a vision and be able to see beyond their noses. I will write you more about these men later. I am going down to help County Agent Kidder this week to build more silos, but I will see you and Tom at prayer meeting Saturday night.

R. W. CLARK.

Ask Western Farm Life Service Bureau.

Colorado State Fair

The premium list of the Colorado State Fair is off the press and ready for distribution; copies may be had on application of J. L. Beaman, State Fair manager, Pueblo.

It is a handsome book of more than 200 pages and beside the list of prizes, it contains much interesting information to all persons who want to see Colorado continue in the lead of the procession of progress.

The "multiple hitch," side draft and straight-ahead system of working horses, together with various and divers new discoveries of methods of best handling "man's best friend," the horse, will be demonstrated at the Colorado State Fair this year by Wayne Dinsmore, secretary Percheron Society of America, the horse expert who is coming from Chicago for that purpose.

County agents, farmers and other men using horses have been calling on Mr. Dinsmore to give demonstrations in various sections of the state, but the whole country is calling him, and he can't be everywhere at once, so he has written Manager J. L. Beaman of the fair commission, that he will come to Pueblo and devote one afternoon—probably September 25—to demonstrations. He states that he must be provided with at least six or eight good teams, and will require fully a quarter mile stretch on which to pull off the show. Everything he wants will be furnished by the Fair officials, and gladly too.

The Percheron horse sale—the first ever attempted in the west—will be held at the Colorado State Fair this fall. This will attract the big breeders of fancy horses from all parts of the country.

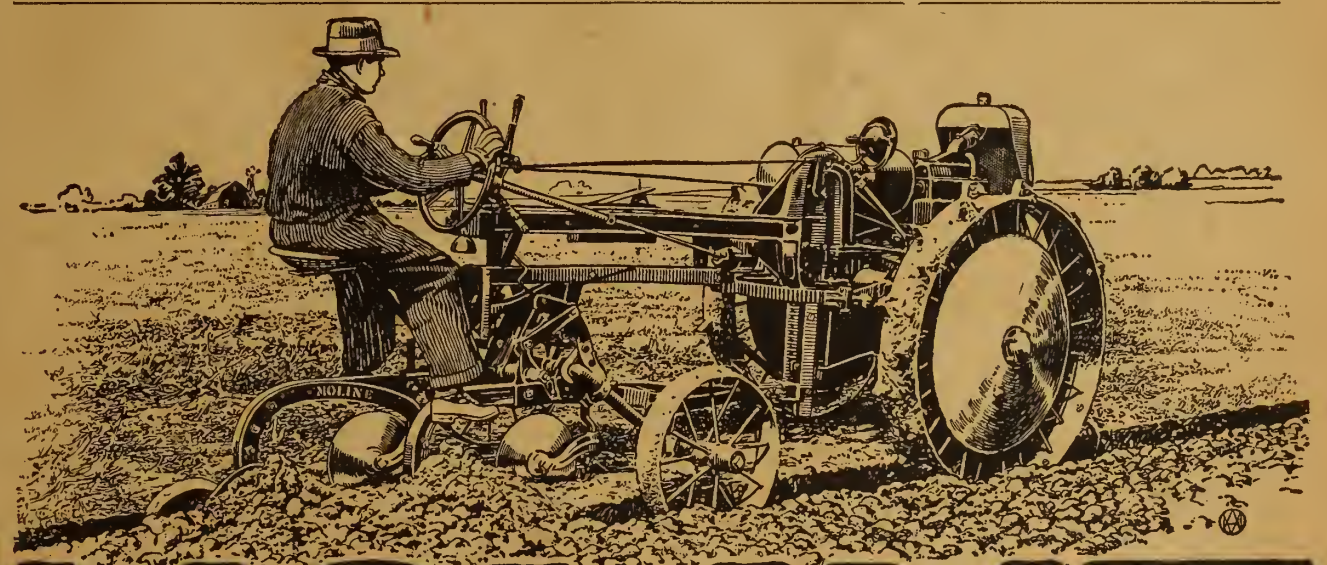
Pheasant Shooting Permits

Following is an extract from a letter written by R. G. Parvin, State Game and Fish Commissioner for Colorado, regarding the killing of pheasants which is permitted to farmers whose crops are being damaged by these birds.

"I wish you would impress upon the applicants for permits that this privilege is not intended beyond the limits of the cultivated land which is actually being damaged by the birds. We don't want anyone to imagine he has a free hand to kill them. However, if the privilege is abused I shall probably be obliged to make more stringent regulations. They cannot go out into the meadows to kill pheasants. They should understand, also, that as soon as the pheasants are destroyed the grasshoppers will again take their crops. There is no question about this. We have requests from many sections of the state for pheasants to be supplied for propagation purposes, because of their usefulness in preventing the ravages of grasshoppers and other insect pests. We will pay $1.00 apiece for all pheasants trapped. Will be glad to advise anyone interested in trapping them as to kind of trap to use. The pheasants are well worth feeding for the good they do. Kindly discourage the killing of pheasants if possible. Shooting at them, or killing a few will answer the purpose, as they become very wild when disturbed in this way."

Teacher—Johnny, can you tell me what a hypocrite is?

Johnny—Yes, ma'am. It's a boy what comes to school with a smile on his face.



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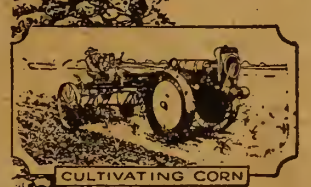

You buy a tractor to make money. The more money a tractor or implement will make for you the more you are willing to pay for it.

Consider then what a tractor will make for you in dollars and cents—how much man power it saves, how many horses it displaces, and the more and better work it will do. That is the way to buy a tractor—the purchase price alone should not influence you.

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One Thousand New Silos

Reports received from one half of the county agents in Colorado indicate at least 500 new silos put up in those counties during the present year. The other half, and the counties that have no agricultural agents, will undoubtedly double this number, so that we can safely figure on 1,000 new silos in the state, as a direct result of the silo campaign, put on last spring under the auspices of Colorado Agricultural college, co-operating with a committee working under the State Council of Defense.

Most of the silos are of the above-ground type, and the estimate of Prof. R. W. Clark, who originated the silo campaign and has been keeping everlastingly at it ever since, is that the average cost of the thousand silos will be $750. This means an investment of at least $750,000 in farm equipment which will bring each silo owner, in added revenue by greater economy in feeding, greater gains in beef production and larger milk flow, and the saving of the whole crop, perhaps five hundred dollars a year more revenue for each year that the silo is in use.

What that means to the agricultural wealth of the state may be easily computed. The figures are not extravagant. Any farmer who has wisely used a silo for a period of years will bear out the estimate of added gross returns and he will add to it the advantages of time saved in feeding, convenience and the well-being of the stock fed.

This estimate does not take into account the many farms where a silo has enabled the owner to increase the size of his herd, so that some will find their added revenue for the year to be perhaps $1,000 above the gross income before they had a silo. It is significant that in answers to a questionnaire sent out by the state silo committee last winter, many farmers who had silos stated that they paid for themselves in one or two seasons. This answer was made by owners of all types of silos, from the cheaply constructed pit type to the most modern hollow tile or concrete. The best evidence that the silo is a paying investment is the constantly increasing number of silos on livestock farms all over America.

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That Ford Libel Suit

A jury in Michigan gave Henry Ford a verdict of six cents damages in his libel suit against the Chicago Tribune. Thus Mr. Ford won a moral victory which is of greater import than one might conclude from consideration of the mere size of the award. Six cents is good only for a ride on the Denver tramway and will not get anyone far, but a judgment against the Chicago Tribune, the self-styled "World's Greatest Newspaper," in an action for libel is significant of a big fact, namely that the average American jury is possessed of a spirit of fair play. Henry Ford is a popular idol. Most everybody has a good word to say for Henry. The Tribune delights in smashing idols and Mr. Ford's attitude toward war seemed to be a good and sufficient occasion for lambasting him with editorial invective. He was called an anarchist.

The Tribune made a mistake in judgment. Mr. Ford's feeling toward war in the abstract, or war in Europe, reflected a pretty general thought among the American people. But Mr. Ford made a distinction between "a war" and "THE war." When America got into the game he, along with other captains of industry—some of them—enlisted heart, soul and resources. He turned his plant over to the national government and put loyalty above business, as he should have done. No doubt the Tribune did equally well. On the showing of the evidence, however, one must conclude that the leanings of "The World's Greatest Newspaper" prior to our entry into the war were toward a neutrality that distinctly favored Germany, whatever the intention might have been. So as between Henry Ford and the defendant in the suit those who followed the testimony could scarcely refrain from thinking of the old saying of the pot calling the kettle black.

Of course somebody had to win, so the six cents goes to the under dog and the verdict, we think, is generally approved, because Mr. Ford's sentimental opposition toward war in the abstract did not warp his judgment when he faced the fact of a war involving his own nation.

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Certified Seed Potatoes

Certified seed potato growing is to be started in 1920 on a marketing scale for the first time in Colorado. The section where this organized effort is under way is known as the Divide country, located along the line of the Colorado & Southern from Elizabeth to Eastonville. That section has always been the source of strong seed for other potato districts, as well as growing a considerable quantity for the table market. Conditions there seem to be peculiarly well adapted to the production of seed suitable for planting in the far South. The varieties selected for seed production are Bliss Triumph and the Irish Cobbler.

Growers have come to the very wise decision that the chief question to determine is not what variety they would like to grow, but what does the southern planter want. Both varieties have been tested in a limited way and growers feel sure they can produce them of a size and quality such as the seed market demands.

Organization of the movement is in the hands of the growers themselves, with the co-operation of the agricultural department of the Burlington railway, the horticultural department of the Agricultural college, U. S. Bureau of Markets, and of Western Farm Life. The growers will take care of production under the supervision of college experts and the other forces co-operating expect to help develop a market.

Prof. E. P. Sandsten, state horticulturist, whose advice will largely govern the growers in the certification of their seed, has prepared an article which will appear in an early issue of Western Farm Life, outlining in detail just what is implied by certified seed potatoes and the conditions under which they must be produced in order to be eligible to registry for purity of variety, freedom from disease and viability.

Formal launching of the movement will take place on September 19 with a monster potato-bake to be held in Gleffy's grove, near Elbert, Colo.

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Stock Show Plans

The directors of the National Western Stock Show at Denver have completed arrangements for $95,000 additional buildings and facilities for next winter's show. When the building program was stopped two years ago on account of the war, plans had been agreed upon for a building which it was thought would be large enough to accommodate permanently the single entries of pure-bred cattle. The growth of the show in the past two years, however, has been so great that these plans are wholly inadequate for the 1920 exhibition. Even with the enlargement plans now provided it is probable that entries will have to be limited in a number of classes.

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Why Not Try It?

We believe it would be a good plan if Secretary of Agriculture Houston would call all of the employes of the Department together and say something like this to them:

"For three years past this Department has been doing everything it could to increase production and promote better methods of farming. The indications are that by next spring production will have overtaken consumption. The war has made great changes for the farmer. We have been working so hard here in Washington that I am afraid some of us may have lost touch with the conditions on the farm. Therefore, I am going to ask all of you who are not engaged in the routine work of the Department, and the necessary scientific and statistical work, to make your plans with a view to working on farms next year instead of in the Department. I would like you to scatter over the country, so that at the end of the year, when we come back, we will have first-hand knowledge of farming conditions throughout the United States. It will be a good thing for your health, and, I think, will make you much more valuable in your departmental work afterwards."

We suspect that at least half the people employed in the Department could well be spared for a year. It would save the government some ten to fifteen million dollars, and it would give them the first-hand knowledge of farming and farm conditions that we are sure many of them need very much. Secretary Houston, in the meantime, after organizing his department thoroughly, might put in at least half of the year visiting farms in different parts of the country—and that would be a good thing for him also.—Wallace's Farmer.

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About F. W. H.'s Sweet Clover

I saw an article in Western Farm Life signed F. W. H., Bennett, Colo., who says that his sweet clover came up some big, some small, and he cannot understand it; that the big plants have nodules, but the small ones do not and is inclined to attribute the difference to nitrifying bacteria. I have often noticed this with both alfalfa and sweet clover, especially on bottom land. A shower comes and only some of the seeds germinate and it may be two or three weeks later before the rest come through after another rain or snow. The first lot have the start and get down to moisture before the dry weather comes (if the spring is dry), but the second lot get caught before the roots are long enough to tap the sub-soil moisture and remain stunted until the following season. I have seen and had alfalfa up to my waist and sweet clover up to my neck, without a sign of a nodule on any of the plants. The older the plants the more chance of nodules.

At the University of California they are working on nematodes which are known to cause nodules and root galls. They may find out something. These nematodes are as small as bacteria but are really microscopic worms and can bite and eat and are much more likely to be the originators of nodules rather than bacteria, which are nothing but cells that live by absorption. If F. W. H.'s sweet clover was infected at all I believe the whole field will become infected when conditions are right for these nodules to form.—E. R. Parsons.

Farmer (to one of his laborers, recently demobilized)—Well, Pat, which do you prefer, being a farmer or a soldier?

Pat—In one way, sir, I'd rather be a soldier.

Farmer—And how's that?

Pat—Well, you see, you'd be a long time workin' for a farmer before he'd tell you to stand at ease.—London Optimist.

The Branding Iron

Applied by Elias M. Ammons

The town of Center, Colo., is building a community school to cost $130,000. This will be the fourth consolidated district in Rio Grande county.

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Colorado Hereford cattle have again been signally honored by the recent purchase of two animals from John E. Painter's herd at Roggen, to be shipped to South America.

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Through the joint efforts of the United States Biological Survey, Logan B. Crawford and the local stockgrowers' associations of the state, 1,450, predatory animals were destroyed during the fiscal year ending June 30, 1919. This number does not include those poisoned and not found.

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As an illustration of the fact that less damage was done to the Colorado fruit crop by late frosts last spring than was first believed, the crop is now estimated at 85 per cent of normal, while on July 1 it was estimated at 74 per cent of normal. It is now likely that the fruit crop of the state, counting everything, will be very close to the average and in some items will exceed the normal. Damage by frosts the last of May and the first of June occurred in spots and only in a few localities was it as great as was first feared.

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The oil land leasing bill now before Congress is advertised as a measure to stimulate development. Inasmuch as the law which made this one necessary stopped all development, and as the present bill only partially restores former rights, the stimulation talked about is not nearly as great as it ought to be. Congress has the power to control the matter. Certain bureaus at Washington seeking to administer western natural resources have the ear of Congress, and western people, who are more directly interested and know better what ought to be done, are put in the position of Lazarus and must be content to pick up such crumbs as fall from the eastern Rich Man's table.

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The public sale of undeveloped land at Kit Carson, Colo., on the last two days of July illustrates very well the prices which this class of farm land is bringing on the market. The State Realty and Investment Company of Lincoln, Neb., sold 6,000 acres at prices ranging from $19.50 to $25.50 an acre. Payment of one-fourth the sale price was required, and terms were granted allowing 10 per cent payment on the first of October, 1919, and 15 per cent on the first of March, 1920. Three years' time is given on the other half at 6 per cent interest. It is not likely, of course, that any sales made under these terms will fail to go through. None of the land was improved and only part of it fenced.

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The present unhappy situation in the country illustrates the futility of constantly increasing prices to help or satisfy either labor or the general public. If 90 per cent of the cost of everything is labor, every commodity which the laborer must ultimately buy is increased in price in greater proportion every time it goes through a middleman's hands, so that when it is finally purchased by the laborer for consumption he is compelled to pay a price greater in proportion than the wages would buy at the time he was paid for his work. It is impossible to settle either wage disputes or prices of commodities by constantly making increases. After a while whatever surplus we may have must seek buyers in the markets of the world. If we cannot find any sale there, any considerable surplus must bring disastrous prices at home. It has always required years to recover from a collapse of values which has ever been the certain result of inflated prices. The effort of Attorney General Palmer to stop a further upward tendency in the cost of the necessaries of life is very timely.

Comment by Farmer Putnam

OUR MISSOURI FRIEND IS CALLED UPON TO DISCUSS THE HIGH COST OF LIVING

YOU cain't please everybody; they ain't no use in tryin'. Some people sez they likes to read my letters and others sez why does Western Farm Life take up the space with sech foolishness as this feller Farmer Putnam writes? Why don't they use the paper fur something useful? A man wrote to me the other day and sez: "I never see nothing on your page about the high cost of living. Are you afraid to attack the profiteers? You must be one of them lucky ones that has never seen hard times, or you wouldn't always be writing this cheerful stuff. People reading your letters think everything in the world is going just fine and that nobody ever had any troubles."

I hain't a-goin' to answer that by letter but just put down here what I want to say to that man. I kin git gloomy if I want to, but what's the use? Ain't things bad enuff without me harpin' on 'em in the paper? He thinks I hain't never seen hard times. If I'd a mind to I could tell him something about hard times that would make his hair curl, but I try to furgit my hard luck. Now about the high cost of livin', why I don't know as I kin add much to the sum total of information on that point. Everybody knows how high things is. Cussin' the profiteers don't bring prices down, it only relieves our feelings more or less. They is a lot of fuss bein' made in Washington now about the high cost and the profiteers and I hope somethin' good will come of it, but I doubt it. We're the greatest people to rush to Congress or the legislater when anything goes wrong. We're allus tryin' to have a law passed to fix things, when the truth is we got too many laws now. What we need is more common honesty among the people and a lot more attention to duty by the officers charged with enforcin' the laws.

This country is gittin' into the habit of trustin' to the "government" fur everything. I don't like this here tendency to "let Uncle Sam do it." We kin do a lot more fur ourselves if we go about it right. I ain't seein' black because of this here unrest which has follered the war. I been gittin' unrest myself. Night after night Josephine keeps a talkin' to me wantin' to know why things is goin' so crooked in this here world. "Tom," she sez, "if you men was any good you'd have the government git after them profiteers and put 'em all in the penitentiary. Look at us payin' 45 cents fur bacon and havin' to sell our hogs on foot fur half that, and payin' 35 cents fur fresh beef and sellin' the cattle fur 15 cents. Tom, you ain't got no influence through your writin' or you would make Western Farm Life git after them packers and other corporations."

That's the way she'll carry on till after 9:30 and work herself up into a stew over the high cost of livin' and finally when I do git to sleep I dream about bein' put in jail fur debt.

Half of our troubles is of our own makin'. We like to live easy—and I ain't sayin' that of farmers but of everybody. I don't know as I blame people much—I don't like to work none too well. My dad didn't have to cuss the high cost of livin' and he lived in Civil War times in one of them border states where the fightin' never stopped and things to eat was scarce and high, if you didn't raise 'em. We had a smokehouse and killed our own pork and smoked the hams with hickory wood. We sure had some fine grub that was raised on the farm and us farmers kin do it out west here if we're a mind to. If you cain't cure bacon why eat salt pork. We used to slice it kind-a thick and fry in a hot pan till nearly crisp. Take it out and dip in beaten egg, then in cornmeal, then put it back in the fat and cook brown. It sure was fine.

Now we kin do the same and better yet, by havin' some cooked pinto beans ready to put in the fat with the salt pork when it goes in last to be browned. Let the beans heat up in the fat and—say, you'll furgit all about them profiteers!

Now besides our pork and beans, which we kin raise, we has spuds. Every farmer ought to grow enough potatoes fur all winter. Then chicken ain't sech a bad tastin' meat, providin' a feller's hungry. A rabbit onct in a while will do fur stew. And if we want fresh beef why Prof. Bray kin tell us how to organize a beef circle. We kin purty near lay by in summer enough fruit and vegetables fur all year and in the old days we used to take our wheat to the grist mill and have it ground fur toll. It made healthier bread then the kind we eat nowadays that's had all the color and lots of the strength bleached outen it.

I was tellin' Josephine the other day that I was intendin' to write about cuttin' the cost of livin' by raisin' grub on the farm and she sez, "Well Tom, how about shoes and clothes? Don't we need ginghams fur dresses and aprons, and socks and underwear, and such like? We cain't go barefooted or half dressed."

I reckon not, but we could git along with a lot less and not be arrested—that is the men could. The wimmin is dressed as cool as the law allows.

Of course that ain't sayin' yet what we should do to the profiteers that's responsible fur the high cost of livin'. I'm thinkin' that we're all kind-a to blame because we don't know what it is to be savin'. I ain't in favor of goin' back to the days of our forefathers and usin' shanks' mares instead of Henrys, but we could be a little less extravagant in lots of ways.

If puttin' the profiteers in jail would bring down the cost of livin' I'd say lock 'em up fur life. The trouble with that is that we won't have jail room fur 'em all. It's all right to punish 'em but you got to go further and change the system of business. Us farmers is gittin' on the right track, whether we know it or not, and that is by cooperation. We got that idea in our shipping associations, in our farm burros, in our farm loan associations and in our cooperative stores, mills and elevators. At first the farmers gits kind-a tired of cooperatin' because it makes trouble fur 'em; they have to wait on their neighbor's convenience and do things to benefit him as well as theirselves. Well in the end, if they stick to it, they find out that what benefits one benefits all and that way they establishes the principle of cooperation.

Now folks I may be overly cheerful about this here cost of livin' unrest and it might be true what that letter sez that I'm allus lookin' at the bright side too much, but after fifty years of experience I learnt that this here cut-throat way of livin', of neighbor ag'in neighbor, business ag'in business, and farmer ag'in farmer ain't much of a success and I'm willin' to try the other plan. So, while them highway robbers that's been gorgin' on the starvation of the poor and hungry is coolin' their heels in stone cells, or workin' on the road gang with a chain on their ankles, let's us put through some more cooperation and see if we cain't bring back the smile on the old world once more. It's been purty dark in the last five years, but the sayin' is, it's darkest just before dawn and I kin see the sun a peepin' up over the prairie out toward Cheyenne Wells. The first beam is lightin' up the top of Gad Barney's windmill and a new day is comin' with the farmers leadin' the procession by showin' them city folks how to live and let live.

THOMAS JEFFERSON PUTNAM.

Are You the Type of Farmer We Want

I want to get in touch with a limited number of capable farmers with families—men now successful, but who have ambition for something bigger and better. You may have many reasons for wanting a change—better climate, more natural advantages, helpful co-operation and surroundings that bring out the best in you.

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I can't tell you more here—but won't you write me and ask for the whole plan, our booklet, and ask any questions you like? Our company is big and liberal and welcomes your investigation. I hope to hear from many of you.

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

INQUIRERS MUST SIGN NAME

No inquiries will be answered unless the inquirer gives name and address, so that same can be handled by letter. In publishing the answers, only initials and name of state or county are used, and all means of identification can be omitted if desired by the Inquirer. We must insist, however, on the rule, which is based on a number of good reasons, that those making use of the Service Bureau sign names and give postoffice address.

Question About Security

I am the holder of two notes amounting to $1,000 secured by two mortgages, one of them on land and the other on farm equipment. In case of a default, can I collect the full amount out of the land if the farm equipment should have no marketable value?—Subscriber, Colorado.

The lender can collect the full amount on whatever secures the mortgage. Then, if the security does not satisfy the full amount, the lender may get a deficiency judgment, and collect on that judgment as he would on any other judgment.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Capacity of Silo

Answer to W. V. S., El Paso county, Colorado:

The capacity of a silo 30 feet high and 16 feet inside diameter would he from 120 to 130 tons, depending upon the kind and condition of the silage. If containing well settled and well matured silage it should be about 120 tons. You ask for "government measurement." There is no government standard in measuring silage, the figures given being based upon Prof. King's table of capacities. These figures are used in government bulletins.

Trapping for Furs

Where can I get information regarding the trapping of fur-bearing animals? Does this business pay as a side line to farming in the western states?—Reader.

Yes, trapping for fur-bearing animals can be made a good paying side line on many farms in the mountain states. The United States Department of Agriculture has issued a number of bulletins which give detailed information on this subject. You may write to the department at Washington for any of the following. They will be furnished free if a supply is on hand for distribution. If not, you will be notified as to the cost of any bulletins on which the supply is short, which is usually 5 or 10 cents.

Laws Relating to Fur-Bearing Animals, 1919.

Farmers' Bulletin No. 587—Economic Value of North American Skunks.

Farmers' Bulletin No. 795—The Domesticated Silver Fox.

Farmers' Bulletin No. 869—The Muskrat as a Fur Bearer.

Farmers' Bulletin No. 330—Deer Farming in the United States.

Farmers' Bulletin No. 583—The Common Mole of Eastern United States.

Farmers' Bulletin No. 832—Trapping Moles and Utilizing Their Skins.

Farmers' Bulletin No. 396—The Muskrat.

Fur Farming as a Side Line—Reprint from Yearbook separate 693, 1916.

Estimating House Paint

Can you tell me how to estimate the quantity of paint which will be required to cover a dwelling house?—A. B., Idaho.

While the quantity of paint required varies somewhat with the nature of the surface to be covered, and the conditions under which it is applied, yet the following method of measurement will serve as an accurate guide: A good grade of prepared paint will cover at least 350 square feet to the gallon, two coats. First, measure the distance around the house and multiply by the average height; then divide by 350, and the result will be approximately the number of gallons to buy. Of this quantity one-fifth will represent the paint required for trimmings, cornices, etc. For blinds or shutters of average size, you will require one gallon of paint to each 12 pairs of blinds, two coats.

Bulls on the Range

Answer to M. L., Summit county, Colorado:

The law provides that persons permitting cows to run at large on the public ranges must furnish at least one bull of not less than 18 months of age for every 25 head of cows or fraction thereof. However, this does not apply to those who run less than 20 cows. Such bulls shall be high-grade animals of the beef type. There is no protection for you if your neighbor is running less than 20 cows, as he is not obliged to put a bull with a small bunch. The law is not very clear concerning the grade of animal and most any kind of a scrub that is at least half blood would come under its provision. The owner of purebred registered bulls has practically no protection unless his neighbors agree with him to use purebred sires. This is an unfortunate condition. We are now agitating the subject and will try to have action taken in the next session of the legislature for the passage of a law banishing the grade bull from the range.

Getting Alfalfa Started

Please advise me as to best plan to get alfalfa started on dry land. I sowed 15 acres last spring on bottom land which frequently overflows from floods, but the dry weather made it a failure. I have been thinking of trying it again this fall, sowing it with rye and cutting the rye early for hay next summer. I also want to put in 20 acres more next spring with a light nurse crop of barley.—J. O. M., Morgan county, Colorado.

A bottom that is low enough to be flooded should have water at 5 or 6 feet and may prove an excellent place for alfalfa. I should plow the ground in the fall 8 to 10 inches deep, so as to allow it to pack all winter, which will help the subsoil water to rise, provided there is a water table underneath, which seems probable. The reason your alfalfa failed was most likely on account of the spring plowing, which is too lose for conductivity from below. The best time to plant is about the 10th of April. Fall planting is very risky, as the plants are not sufficiently established to stand the winter. Planting alfalfa with a nurse crop is all right on irrigated land, but on the dry farm the rye or barley is liable to kill it out unless the season is very wet. I would not plow at all for alfalfa in the spring, only in the fall, but if you do, it would be better if you depend on the water from below, to plow only an inch or two and pack very solid, so as not to cut off any capillary rise, but first of all I would prospect the field with the ground auger, or pick and shovel, and find out what the moisture conditions really are.—E. R. PARSONS.

How To Get More Wheat

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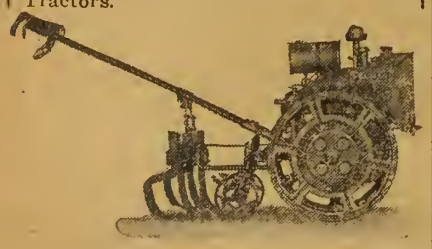

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We want a Local Representative in every locality to take subscriptions for Western Farm Life. Profitable work for a little of your time. For sample copies and full particulars write Western Farm Life, Denver, Colorado.

Starting a Dairy Farm

Answer to R. E. F., Teller county, Colo.:

We are forwarding under separate cover the following bulletins bearing on the subject of dairy farming:

The Making and Feeding of Silage (U. S. Department of Agriculture.)

Feeding Dairy Cows (Nebraska's College of Agriculture.)

Breeds of Dairy Cattle (U. S. Department of Agriculture.)

The Dairy Herd: Its Formation and Management (U. S. Department of Agriculture.)

From these bulletins you can get much practical information regarding the breed of cow which you may find most desirable, and also about the methods of feeding for milk production. In the section where you own land there are to be found three dairy breeds, the Holstein, Jersey and the Guernsey, all of which are proving satisfactory as milk producers.

You ask how many head you could profitably run on 80 acres of land. That depends entirely upon how productive your land is and whether you can depend upon enough water to give you annually three good cuttings of alfalfa. We know of many diary herds in Weld county running from 20 to 35 head that are doing fine on 80 acre farms, where plenty of alfalfa is available. Alfalfa is the foundation of milk production in that part of the state, and next in importance is corn for silage. This combination is ideal for dairy cattle and it requires only the addition of a grain mixture to keep the cows in producing form. You will find this question fully covered in the Nebraska bulletin, a careful study of which is advised.

You ask about soy beans and field peas. Neither crop has become established in Weld county. Soy beans are only in the experimental stage in Colorado. We have reports of good results on small plots in Adams and Weld counties, but only for one or two seasons. This crop has not been sufficiently tested to give it an unqualified recommendation under Colorado conditions. If soy beans can be matured in our short season climate they certainly will prove of great value to dairy farmers.

Field peas are well established in the state, but they are better suited to higher altitudes than we find in Weld county. In the San Luis valley (altitude 7,500 to 8,000 feet) field peas are one of the leading crops.

Your next question is in regard to ensilage versus grass. Yes, if your grass fails, ensilage will take its place. Most farmers use ensilage only for winter feeding, but is is a good plan to have two silos, one of them reserved for the drouth period of summer when the grass may dry up.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Remedy for Worms in Dogs

We have a collie dog that has worms. Is there a safe, reliable remedy we could use to free him from them?—L. D., Yuma county, Colorado.

Intestinal and related worms may be divided into four classes: The flat, segmented, and usually long, tape-worms; the flat, lance-shaped fluke-worms found in the liver; the thorn-headed round-worms, and the common round-worms. Dogs are very much subject to tape-worms and finding the links in the feces constitutes the only way of determining their presence with certainty. A special treatment is necessary to remove tape-worms. For round-worms the following combination has been found to be very effective: Powdered areca nut, 3 drams; santonin crystals, 20 grains; syrup, 4 ounces. Give two or three drams at a dose and repeat in about five days. Preventive treatment is more satisfactory than medicinal. Parasites are the result as well as the cause of an impoverished condition. Parasites do not generally thrive in the body of a well nourished animal.—G. H. G.

Treatment of Poll-Evil

I have a mare that has poll-evil. What can be done for her? At a veterinarian's advice we have been using iodine washes and carbolic acid washes, but with poor success. Can you suggest anything?—C. C., Las Animas county, Colorado.

There is no specific treatment for "poll-evil." A treatment that would be appropriate in one case and under certain conditions would not avail as a general treatment for all cases. There is usually dead tissue that must be removed surgically and drainage must be established and maintained. This having been accomplished, solutions and dressings of all kinds had better be withheld. This disease taxes the best skill of the most accomplished surgeons and it is not one time in a hundred that local applications alone will accomplish satisfactory results. This is a case for the veterinarian and he will be liable to dodge around the corner when he sees you coming. It requires weeks, or even months, to treat these cases and restore the animal to usefulness and many of them are not worth it. However, veterinary surgeons are succeeding better than formerly, due to a more enlightened surgical technique, the use of autogenous bacterins and non-interference with the healing wound. "Putting something on it" will not succeed with "poll-evil" or with fistula of the withers. Consult your veterinarian and first decide whether the horse is worth the expense of treatment.—G. H. G.

Complication of Diseases

I have a work horse which about three years ago had a spell of heaves. I got him over them so that you could not notice them. He has had two or three spells since, staggering in his hind legs or quarters when walking and standing stretched as if to urinate, which he does often. He nearly falls when he starts off. He doesn't seem to see good. He gapes and licks his lips. He is very thin. On the 15th of May I turned him on good grass pasture. Also has some clover and marsh grass patches around the water in it. He is about 12 years old. What can I do for him?—W. L. M., La Plata county, Colorado.

The horse is apparently suffering from a complication of liseases. Pulmonary emphysema (heaves) is incurable, but can be controlled by careful feeding and exercise so that the animal will be more or less serviceable. The other condition, as suggested by the symptoms, indicate indigestion with attacks of colic. The loss of flesh and weakness, gaping, etc., suggest the possibility of swamp fever (infectious anemia). Without a better understanding of the case an attempt at diagnosis and treatment would be futile. See that the teeth are in condition to properly masticate food. Avoid feeding alfalfa or other bulky foods. One tablespoonful of Fowler's solution of arsenic mixed with the grain three times a day may be useful as a general tonic.—G. H. G.

Ringing Bull's Nose

Can you tell me the best way to ring young bulls and what instruments I shall need? Also what would do for a cow that gives bloody milk from one quarter?—R .C. T., Weld county, Colorado.

A large trocar can be used for making an opening through the nasal septum for inserting a ring. The septum is very thin in the place where it should be opened. A special instrument for this purpose can be obtained from the instrument houses.

The blood in the milk from one quarter indicates considerable irritation, which may have originated from external violence or from infection through the natural opening of the teat. Treatment for this condition has been given in Western Farm Life several times recently. In a general way the treatment should aim to restore normal conditions for recovery by the local use of hot applications, lifting the gravid udder by means of a wide bandage, laxative foods and internal treatment through the natural opening in the teat. The latter treatment, when undertaken by laymen, has often resulted disastrously and should be left to the veterinarian. Inflammation of the udder is frequently associated with contagious abortion and by some is looked upon as usually one manifestation of that disease.—G. H. G.

Horses Chew Wood

What ails horses and burros when they chew wood? My stock has chewed the fences around the barnyard until some of the posts are nearly eaten through. Is there some mineral substance in the wood that they require, or do they do it on account of some teeth defect?—G. S., Chaffee county, Colorado.

For some unaccountable reason, young animals, and more especially calves, are prone to chew on unseemly objects. Many farmers will testify that calves have been left in the stable where harness was accessible and that straps have been chewed until they look like shoestrings. This tendency may become a habit and later a disease. Wood eating, pica, licking disease and allotriophagia are terms that describe different phases of this habit after it has assumed the proportions of a disease. The habit is invariably associated with a condition of softening of the bones and spoken of as osteomalacia, or the habit may exist independent of osteomalacia and represent merely a temporary perversion that is of little consequence. The condition is more commonly found during the winter months on dry feed, or in the springtime when they are shedding their winter coat. In case of osteomalacia it is presumed that there is a poisonous substance in the hay or fodder in comparatively small amounts, which produces gradually increasing disturbances of metabolism. This results in a defective formation of blood and bone tissue and gives rise to a morbid tendency to gnaw and lick. In all cases there appears to be a craving for mineral matter and a craving which is only partially satisfied by feeding salt. In mild cases not associated with softening of bones this craving may be due to gastric or intestinal catarrh after several months' feeding of dry feed, or feed that is mouldy, musty or otherwise objectionable. Again, it may be caused from a ration that is lacking in available minerals or possibly other food constituents. Unless associated with osteomalacia, the tendency to gnaw and lick will disappear after the animals have been on grass for a time. When occuring in the winter time, a favorable influence has been observed by changing the feed and including linseed cake, whole oats, carrots, molasses and a roughage of native hay or stover instead of alfalfa or clover.—G. H. G.

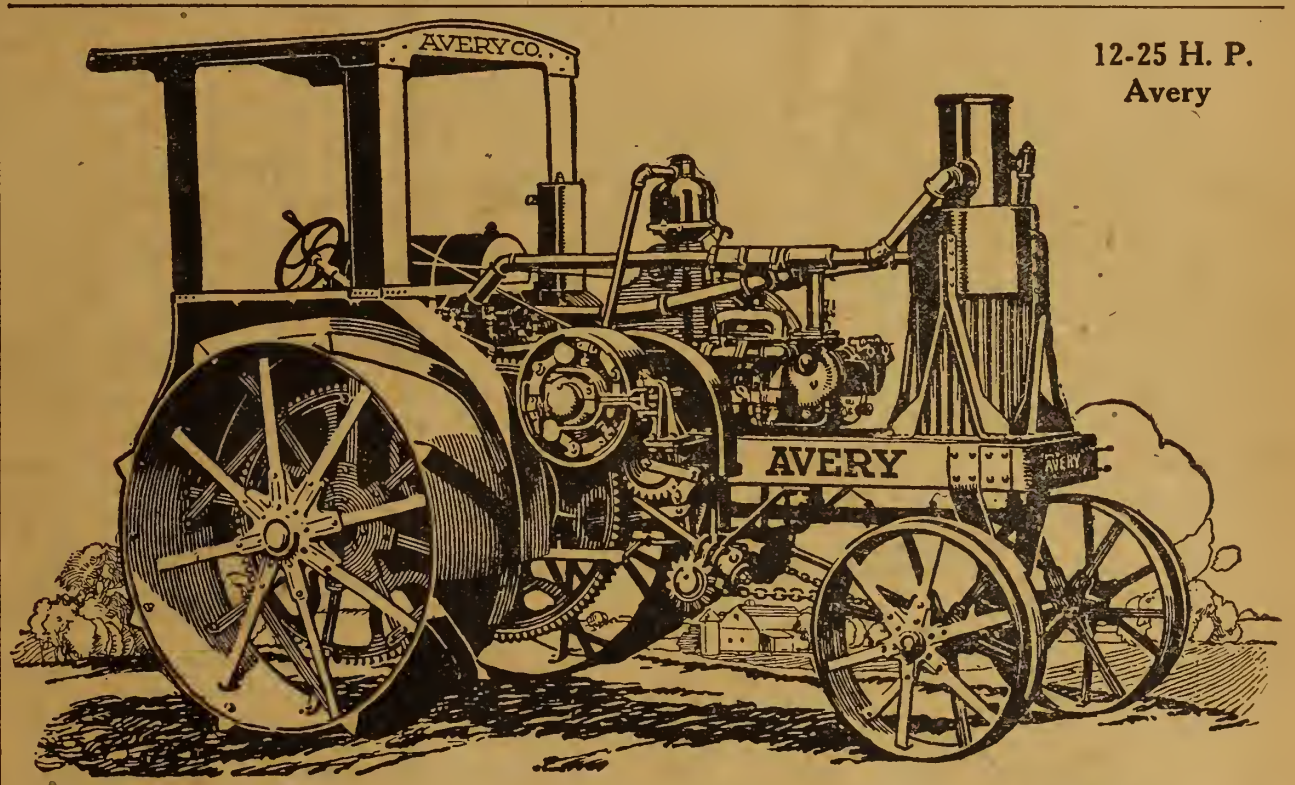
Never Been Tried Since

She—"Why are you looking so thoughtful, my dear?"

He—"I was wondering how Jonah got away with it when his wife asked him where he had been away from home all that time, and he told her a whale had swallowed him."

—Baltimore American.

If you don't know, ask Western Farm Life Service Bureau.



12-25 H. P. Avery

The Greatest Tractor Value Ever Offered

FARMERS in every State in the Union have proved the success of this 12-25 Avery. And at its popular price it is unquestionably the greatest value ever offered in a successful machine.

It is the practical size tractor for the great majority of farmers. Pulls three plows regularly—pulls four under favorable conditions. Also will pull five or six disc plows. The handy size for discing and harrowing—and it is not too heavy for drilling.

Easily pulls two binders; has plenty of power for running a small thresher, silo filler, wood saw and other belt machinery. It is the tractor you can profitably use every month of the year.

Built with *all* the famous Avery features.

"Draft-Horse" Motor

It has the famous Avery "Draft-Horse" Motor with Duplex Gasifier which turns kerosene and distillate into gas and *burns it all*, Renewable Inner Cylinder Walls, two bearing Practically Unbreakable Crankshaft, Adjustable Crankshaft Boxes, Valves-in-Head and Round Radiator with a siphon cooling system which does away with fans, pumps, belts, chains, sprockets, etc.

"Direct-Drive" Transmission

The power is delivered through the Avery "Direct Drive" Transmission which gives you direct drive in high, low, reverse or in the belt. Has only three gear contacts between motor and drawbar. All gears are straight spur gears, are easily accessible—yet well protected.

Has a low speed motor with large belt pulley right on the end of the crankshaft. No power is lost in the belt. Has large contact with the belt and puts *all* the power of the motor into it.

Here is your answer to the question of how soon to start motor farming. Where else can you get as big a value at a popular price? Remember, Avery Tractors are completely equipped. From the 12-25 H. P. up, a well constructed cab and automatic coupler is regular equipment; all sizes from 8-16 H. P. up have wheel guards, plow hitch, clutch, steel platform, lugs, safety starting lever, etc. You don't have to spend a lot of additional money to equip an Avery. Ask your nearest Avery dealer.

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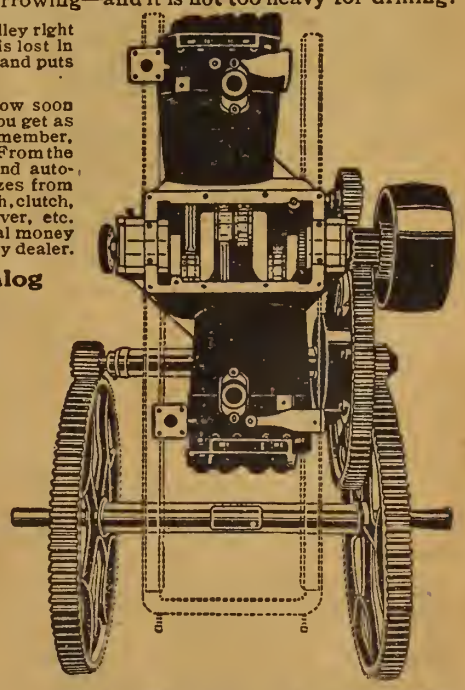
showing this machine and its five Avery brothers, all of the same design; the special 5-10 H. P. Avery Tractor for light work, the Avery Motor Cultivator, and Avery Plows and Threshers for every size tractor. Also ask for interesting Tractor Hitch Book—explains how to motorize your farm work.



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Bull Circles

There have been organized in some states farther east, cooperative bull owning groups called bull circles. The idea developed some years ago, but has not spread very rapidly, so that there are not many circles in any one state.

According to a report by R. W. Clark of Colorado Agricultural College, there are only four states having more than three circles or associations. I do not know just why the idea has not spread more rapidly. On the face of things it looks good. The idea back of the scheme is that a man who owns a few cows, anywhere from a half dozen to twenty, cannot afford to pay for the kind of a sire he should have for herd development; consequently he buys a low grade bull and breeds on from year to year without getting much of any advancement in his herd. If a number of these men could group together into an association, pool the amount of money each expects to put into a bull, and buy, with the total sum, one or two really good bulls, they could breed up their herds much more rapidly than under the individual ownership plan.

Under the scheme of a bull circle one man is given charge of the bull, must keep him, reed him, and care for him, and is paid for this service by the other members of the association. The men in the association put up for the purchase of the bull an amount of money proportionate to the number of cows in their herd, or what would appear to be a better scheme may be worked out as follows: A service fee is agreed upon, and each man puts in at first an amount of money the same as every other man puts in. The amount of money due from each man at the end of each year for service fees is then contributed, and the amount due beyond the sum each man contributed in the first place is pooled and redistributed to the men in the association on the basis of the number of service fees paid by each man.

I do not know of this latter scheme actually being in effect but it would appear to be an equitable means of distributing the cost of a bull according to the use made of him by the different members. The first difficulty is, of course, to find a group of men who can cooperate without falling out some time during the period of years which the association should cover in order to be successful. It requires fair-minded men to make any cooperative scheme work.

There is one advantage which these bull associations possess over the ordinary cooperative scheme which takes in an entire community. These associations comprise very small groups of men, and the men entering such an association should see that every member is a congenial man for the group, and they should allow only fair-minded men into this group. There was such a bull circle as this formed several years ago in El Paso county. Mr. W. H. Lauck, county agricultural agent, was working with this association. I have not heard recently how permanent the association proved. There was another similar circle formed near Berthoud about three or four years ago. This one fell by the wayside because the members in the circle thought the man who had charge of the bull neglected him and did not keep him in condition.

I rather believe there is a place for these bull circles, because of the enormous advantage to the small breeder of getting a sire with a pedigree showing generations of stock with high records of production. Most of these movements gain headway very slowly until the real merit of the proposition has reached the minds of the people in a community or a state, and has been proven beyond question. Then the movement takes sudden impetus, and the work goes ahead with little difficulty.

There has been little publicity given to the possibility of bull associations in Colorado, and it will undoubtedly take some time to gain headway for the movement. This was true of the cooperative shipping association. When the Animal Husbandry Department of the college took up this work, almost no response was gained—people were not interested, but after a year's publicity and spreading information, people began to take hold, and there are nearly twenty cooperative shipping associations in Colorado now. I hope that bull associations will develop in the same way.

There is one danger that must be guarded against. I understand that one promoter and salesman is in the state now, attempting to form a bull association to purchase a three thousand dollar bull. I am ready to say that there is no group of breeders of grade cattle in this state who could get value received for three thousand dollars on a bull, even if that bull were actually worth three thousand dollars on the market; and the chances are very great that a promoter forming an association for the purpose of placing one of his bulls would sell them about a seven or eight hundred dollar bull for three thousand. Men who are thinking of going into bull associations should get in touch with their county agricultural agent, and advise with him, or with the Animal Husbandry Extension Service of the college.

It is worth while looking up what other people have attempted before going into any scheme of this kind. The county agent and the college are paid by the state to aid just such projects to become successful, and their services cost the men using them nothing whatever aside from what they have paid in taxes.

The experiences of associations throughout the Mississippi Valley and the east cannot fail to offer some suggestions to western associations. The

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has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.

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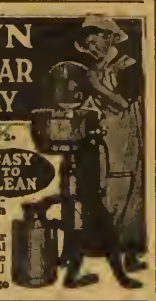

$38 Buys the New Butterfly Jr. No. 2½. Light running, easy cleaning, close skimming, durable.

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Write us about it. Dr. F. S. Schoenleber, Pres.

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$22.00 Sweep Feed Grinder | **$28.00** Galvanized Steel Wind Mill.

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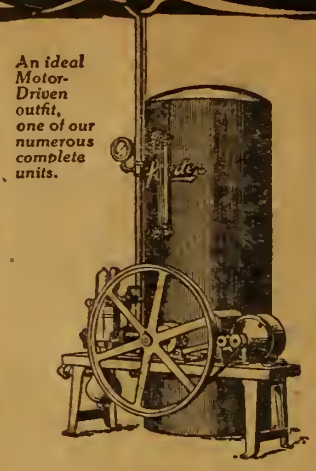

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animals once immunized with

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are safe from Blackleg for life. Only one dose necessary. Do not wait for them to get the disease. VACCINATE while well and protect them.

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We guarantee CONTINENTAL. Accept no other. Beware of PINKEYE in your herds. Great loss occurs. Not so many die, but all lose flesh—your profits.

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as originated by Dr. S. E. Houk of our laboratories will protect your herds. Summer gains retained—reduce loss.

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associations will undoubtedly be formed chiefly among dairymen, and in purchasing bulls for these associations the best advice obtainable should be gotten on value of pedigrees, because when one goes above two or three hundred dollars for a dairy bull he is paying usually far more for a pedigree than he is for individuality, unless he is out to buy a show bull. It is not good business to take a seller's word for the value of the pedigree. The buyer should himself know the value of the pedigree or have the pedigree scrutinized by some one who does know. Shrewd salesmen have a way of quoting records from pedigrees in such a way that the inexpert buyer thinks these records are making the animal offered worth a large sum, when in reality the records may be all upon one side of the pedigree, or so far back in the pedigree that they guarantee little with regard to the prepotency of the bull in getting heifers capable of large production of milk and butter.

I would like to see a good many bull circles in Colorado with one thousand dollar bulls that are worth the money. I do not want to see any right now paying three thousand dollars for a bull. A few breeders of registered stock might go in together to purchase a three thousand dollar bull, but the average dairymen cannot afford it.

GEO. E. MORTON.

Feeding Calf Meal

When the calf is started on calf meal the amount to be added varies with the size of the calf and the brand of meal. Directions included with the meal should be followed very carefully. In almost every case, the recommendations are to mix the meal with either hot or cold water in sufficient amounts to make a thick, pasty gruel. This is stirred carefully to remove all lumps and then diluted with boiling water. The gruel is usually added to the skimmilk and fed at approximately blood temperature. It should never be fed cooler than 95 degrees Fahrenheit and should be given at the same temperature every day. A thermometer is necessary; "guesswork" has no place in calf feeding. The amount of skimmilk should be gradually decreased and the amount of calf-meal gruel increased. At this time the calf may be taught to eat the dry meal from a feed box if small quantities are rubbed on its nose after it has finished drinking. Feed the dry meal regularly and in small quantities so that none will be left in the feed box to spoil. Give just what the calf will readily eat, and develop the appetite slowly. The gruel can be continued until the calf is four months old, and perhaps somewhat longer if desired.

It is always advisable to get the calves to take hay and grain at as early an age as possible. They will usually begin when three or four weeks old if given the opportunity. The early development of this habit helps greatly when calves are taken off the calf-meal ration, for they are already taking liberal quantities of hay and grain and the change to this ration alone will be gradual. The calves will not suffer such a serious "set-back" as they might otherwise experience. For the first six to eight weeks, the hay fed should be a fine grade of timothy, or a coarse alfalfa or mixed hay. Fine alfalfa hay is so palatable that the young calf will eat too much. Either feed a coarse hay or limit the amount of hay which the calf can get. After this time, alfalfa may be fed liberally in safety.—Missouri Experiment Station Circular No. 88.

Cow Testing In Idaho.

Mabel, a nine-year-old grade Holstein cow, fresh in February, produced 1751 pounds of milk and 65.53 pounds of butterfat, in the first month of testing of the Gooding County (Idaho,) Cow Testing association, thereby taking high honors for the month. She is owned by E. C. Lauer of Wendell. M. Resendes, test supervisor, reports that 288 cows were tested the first month, with an average production of 639 pounds of milk and 23.78 pounds of butterfat, per cow. Eleven cows produced 40 pounds of fat, or more, in the month. There was one 50-50-pound cow. The highest herd average was secured by Ira Anderson, Wendell, with his four purebred Holsteins, which averaged 1170 pounds of milk and 38.32 pounds of fat.

J. R. Kline, test supervisor of the Canyon County Cow Testing association, reports that 328 cows were tested and 61 of these produced 30 pounds or more of butterfat in the course of the month. Fourteen produced from 40 to 50 pounds, and one produced more than 50 pounds. E. Eichelberger's grade Jersey, known as No. 24, produced 53.8 pounds. Twenty-two herds had cows which produced 30 pounds of butterfat a month.

Silage Ten Years Old.

Captain F. G. Waley, of Mowbray Park, Picton, has submitted to the Department a sample of maize ensilage which was made in April, 1909, nearly ten years ago. The maize was cut in the milky stage of the cob, and the sample is now in a splendid state of preservation. The fermentation was perfect and the rich aroma like that of brewer's grains. Portions of the contents of the silo now being emptied was used in the drouth of three years ago, leaving 60 or 70 tons in the bottom. This, at the time, was topped off again with wet straw and properly weighted.—Agricultural Gazette, New South Wales.

Inflammation of the Udder

I have a cow that has been sick for five days. The first we noticed it she would not stand to be milked. The next milking time we noticed her udder and teats were as red as blood and swollen. She would hardly let the calf suck. Her nose is also red and dry and her skin is red. The first day she was very restless and seemed in pain. Then she got better, and would chew her cud. No wshe is restless again and seems in pain as before. Her eyes are inflamed and the lids are swollen but we thought that might be caused by flies. Is the discase contagious?—R. D. A., Saguache county, Colo.

The cow has inflammation of the udder (Mammitis) probably caused by infection through the natural opening in the teat. If the inflammation is extreme a part of the udder may become cold and slough which is a very serious condition. Mammitis is frequently associated with contagious abortion and otherwise is sometimes infectious. It is probably transmitted by the hands of the milker. These cases tax the skill of the best veterinarians. Lift the gravid udder by placing a sheet around the animal and twisting on top. Apply hot poultices and massage frequently. Laxative food and frequent milking. Medication depends upon conditions and is secondary in importance. The Monte Vista Hog-Growers Association has voted to employ a third veterinarian and will reach out for membership. May I suggest that you might take out your membership immediately and then telephone for Dr. McCullah at Center to see the case immediately? Cows are cows these days, and competent veterinarians have proven that they are worthy of their hire.—G. H. G.

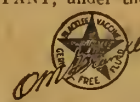
CAUTION
DO NOT BE DECEIVED

There is only one GENUINE O. M. Franklin Blackleg Aggressin (commonly called Vaccine).

Beware of imitations. You cannot afford to have anyone experiment on your animals.

Accurate use of the GENUINE O. M. FRANKLIN Blackleg Vaccine positively protects against Blackleg.

Be absolutely safe by using the ORIGINAL and GENUINE, manufactured by THE KANSAS BLACKLEG SERUM COMPANY, under the direct supervision of Dr. O. M. Franklin, the ORIGINATOR.

This seal  on every bottle

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Minutes Count When The Grain Is Ready To Cut

EVERY farmer knows that Harvest time, when the crops of a season's labor must be gathered, demands prompt action. *Minutes count.*

Any tractor-engine trouble means costly delays to him, idle hands and grain lost which might be turned into dollars.

The hot, dependable sparks delivered by the K-W High Tension Magneto, insure constant no-trouble ignition, guaranteeing service from the tractor 24 hours a day if necessary.

The K-W High-Tension Magneto is of the simple inductor type construction. There are no troublesome commutators and brushes, revolving wires or collector rings, no moving wires or sliding contacts. All connections on the K-W Magneto are permanent and stationary.

The K-W Magneto is equipped with an Impulse Starter, insuring *instant starting* of the engine, no loss of time in beginning the day's work—no interrupted service afterwards.

Spring, Summer, Autumn, Winter, the tractor that is K-W equipped can be depended upon under all weather and working conditions to develop the maximum power out of every drop of fuel used, regardless of the kind or how low the grade.

K-W Magnetos were built *for tractors* and their reputation for reliability has been proved *in tractor service.*
Write for literature and list of K-W equipped tractors.

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TRADE K-W MARK **High Tension MAGNETOS** Fire Any Kind of Fuel and Get Maximum Power Out of Every Drop Used

The Dairy Situation.

Many reports come to us concerning the serious condition of the crops in the Western States, caused by the drought. There is little doubt but what there will be a shortage of feed in some sections, but through recent inquiries we believe that the conditions are not nearly as serious as previous reports indicate. Recent rains in many parts of Utah, Idaho and Montana have greatly improved the pastures and silage crops. In some sections where farmers were talking of $40 hay, it is now selling for $25 and less. The corn crop has not been damaged to any great extent and promises a record yield of silage. With a full silo and alfalfa hay, a good milk flow can be expected.

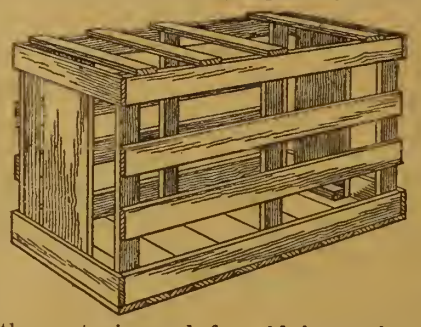
Dairy products bring a good price and the indications are that they will go higher. With cows of good quality, dairymen can still make a good profit. One dairyman told us a few days ago that he could make a profit in dairying with $50 hay. At any rate, careful judgment should be exercised before the herd, which has taken several years to build up, should be dispersed. It is a time, however, to cull closely and sell the low producers and put more efficiency into the business.

There may be some years when other branches of farming pay a greater profit than dairying, but taken over a series of years dairying will win out, particularly where care is taken to increase the efficiency of the cows through breeding and judicial feeding. It is not a time to get panicky over the situation, but a time to put a little more thought into the problem of lowering the cost of production.—J. E. Dorman, Western Office Dairy Division, U. S. D. A.

A Practical Hog Crate

Farmers who raise pure-bred hogs need practical and strong hog crates in which to ship the animals. Specialists of the United States Department of Agriculture recommend a crate in which the side slats are nailed on the outside, where they are just as secure and safe, and by which the same amount of lumber will give 2 inches more space than if the slats were placed on the inside, as is commonly practiced.

The front of the crate is closed by putting in a board standing endwise instead of nailing slats crosswise, the commonly accepted procedure. The former method is better because the end can be opened readily and the hog can walk out with ease instead of being forced to back out, as in the ordinary crate. In addition, when the slats are nailed crosswise, especially when



the crate is used for old hogs, they may be pushed off or broken into while in transit, and sometimes allow the hogs to escape.

For a properly constructed crate the sides should be made first, and the floor, top, and ends built around them. The floor should be laid crosswise, which will make the crate stronger. Only good, strong boards should be used. One 12-inch board or two 8-inch boards are sufficient for the ends. A block should be nailed to the floor 1 inch from each end to keep the end boards from slipping inward. The crate should be built to fit the hog to be shipped and should be large enough for comfort. A well-built crate may prevent serious injury to the hog in transit. A crate of suitable size for a hog weighing from 250 to 300 pounds is 2 feet wide, 4 feet 8 inches long, and 2 feet 8 inches high.

In building the sides of the crate it is essential to use nails sufficiently long to allow one-fourth-inch clinch, the nails being bent crosswise of the grain of the wood. The nails in the end boards are not clinched and the nail heads are left to protrude enough so that the nails can be removed easily with a claw hammer. The usual top cross board just above the animal's hind quarters is omitted.

Advice for Threshermen

Enormous waste of grain and much loss of time result every threshing season because of the inefficient work of threshing machines that have not been thoroughly repaired and put in working condition before the beginning of the working season. Defective parts are overlooked, or neglected in the hope that they will last through the season. When they fail in the midst of the threshing season, serious losses often result before repairs can be made. In or just before the threshing season new parts are difficult to get promptly, because of the rush of orders from many who have procastinated.

As soon after the close of the thresh-

The Great Task of Construction

With the coming of peace the Bell System faced an enormous construction program. Conditions arising from war resulted in the wiping out of the reserve equipment normally maintained, and necessary to give prompt connection to new subscribers. The release of industry and accumulated growth of population now makes telephone demands almost overwhelming.

Telephone construction, including buildings, switchboards, conduits, cables and toll lines, must, from its inherent nature, be undertaken in large units. A metropolitan switchboard, with its tens of thousands of parts, may require from two to three years to construct and install.

Only great extension can meet the present excess burden of traffic and provide for future requirements. Extension which cares for immediate demand, only, is uneconomical and calls for continuous work of such a character as to be frequently detrimental to the service.

During the war the Bell System devoted all its margin to the needs of the Government. The great task of getting back to normal prewar excellence of operation requires the reestablishment of an economic operating margin capable of taking care of a larger growth than has ever before confronted the Bell System.

Construction is being pushed to the limit of men and materials; while every effort is being made to provide the best present service.

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One Policy *One System* *Universal Service*

Increase Your Cream Profits!

Butter-fat is worth too much to feed to the pigs.

If you are not getting every trace of cream from your skimming, you're losing good money and any inferior method of skimming at present values of butter-fat means a big loss.

GET ALL THE CREAM
USE A
VIKING CREAM SEPARATOR
YOU'RE DAIRYING FOR PROFIT
MAKE SURE YOU GET IT

The Viking is the machine you need—it saves for you in two ways—by getting all the cream and by easy cleaning and time is valuable today.

MORE THAN ONE MILLION IN USE

The simplest separator made today. The whole bowl can be cleansed in three minutes.

GUARANTEED FOR A LIFE-TIME

Everywhere used it proves a profit maker for the farmer. It will pay you to investigate. Drop in on your local dealer and see the VIKING in operation.

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Closing out 100,000 acres of good land on easy terms for the McCaskill Estate.

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Have you had trouble or misunderstandings over the division of water for irrigation? Do you know if you are getting all the water to which you are entitled? The Burnham measuring device is the answer.

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We manufacture a complete line of Irrigation Supplies, such as Flumes, Pipe, Gates, and other accessories. Write for catalogues and information.

ing season as possible, says the United States department of agriculture, the separator should be overhauled, necessary repairs and adjustments made, and needed parts ordered. This not only will prevent loss of time and money during the next working season but will lengthen the life of the machine.

A bulletin has just been issued, as No. 5 in the series on "Care and Repair of Farm Implements," giving detailed instructions as to how to "lay by" grain separators. The discussion of every part of the machine is minute, constituting a handbook for the overhauling and repair of grain separators between seasons. It is a contribution from the bureau of public roads and is issued as Farmers' Bulletin 1036. Taken in connection with Farmers' Bulletin 991, which treats of operating adjustments, it is believed to constitute a complete thresherman's guide.

Pig Feeding Experiment

E. F. Ferrin, associate professor in charge of swine investigations at the Kansas State Agricultural college, has just completed a 90-day experiment to determine whether fall pigs are profitable, and what feeds best enable them to make good gains in severe weather at a reasonable cost.

Six pens were used, five pigs in each lot. The pigs used were average fall pigs, lacking somewhat in thrift and health. Fully 50 per cent of them were farrowed late, during the month of October, and did not get a good start before winter weather began. The pigs were treated for worms twice.

Here are the rations required for 100 pounds gain, together with the cost. (Ration figures refer to pounds):

Lot 1.—Shelled corn, 364.67; tankage, 47.20. Cost, $12.63.

Lot 2.—Shelled corn, 297.87; tankage, 25.36; wheat shorts, 90.07. Cost, $11.61.

Lot 3.—Shelled corn, 243.06; tankage, 19.30; wheat shorts, 94.77; semi-solid butter milk, 53.02. Cost, $11.78.

Lot 4.—Shelled corn, 407.1, linseed meal, 65.58. Cost, $13.33.

Lot 5.—Shelled corn, 269.76; wheat shorts, 82.4; linseed meal, 25.03. Cost, $11.41.

Lot 6.—Shelled corn, 224.21; wheat shorts, 79.95; semi-solid butter milk, 59.19; linseed meal, 25.83. Cost, $11.17.

The experiment indicates that in comparing tankage and linseed meal as protein supplements in every case, the tankage gives greater gains. Although tankage is much higher in price per pound, its greater protein content resulted in a smaller requirement for 100 pounds gain and gave a greater margin than linseed meal.

That there is an advantage in a variety of feeds seems evident from the results obtained from lots three and six. The daily gains increased when shorts was added to either the corn and tankage or the corn and linseed ration. With the addition of buttermilk to the feeds given in lots 2 and 5 there resulted in lots 3 and 6 greater gains and higher margins.

Rapid gains usually mean cheaper gains, if too much high-priced feed is not used. In this case the four-cent buttermilk more than paid for itself. These pigs had a margin greater by $2 a head than the pigs in lots 2 and 5.

The feed required per 100 pounds gain is uniform in all the lots except lot 4. In this case much more was needed than in any other group. During the progress of the experiment it was apparent that these pigs were not doing well. Their coats were harsh and they seemed to be wanting something not on their bill of fare. As they had a chance to eat all the linseed meal they cared for the quantity of protein should have been ample.

The explanation of the high feed required probably lies in a poor assortment of quality of protein in the corn and linseed meal. Corn is lacking in some of the most essential proteins and it is probable that linseed cannot, by itself, make up these deficiencies.

Weather conditions seem to have a marked influence upon the gains made by fall pigs, for during the severe weather little increase in weight was made, but with moderate temperature good gains resulted. For an example, lot 1 gained but four-tenths of a pound daily per pig the first 30 days, improving 1.12 pounds the last 30 days.

The shelter provided was a clay block house placed in a protected location. Windows were located on the south side.

Each lot gave good returns and satisfactory margins. The experiment was closed at the beginning of the grazing season, as it was intended to try out the feeds for winter feeding under dry lot conditions. The pigs upon alfalfa should make more rapid gains and finish for market at a lower cost than if continued in dry lot.—Kansas Industrialist.

Using Pressure Cookers.

The Twin Falls county (Idaho) farm bureau has been assisting its members in the purchase of pressure cookers, for home canning, and the cookers "went like hotcakes." Both steel and aluminum wares were sold. Miss Edna M. Ladwig, home demonstration agent for the county, said the cookers were easy to use, saved heat and long-time cooking, and were safer for canning vegetables and meats, provided good cans and rubbers were used. Twin Falls people are looking for canned goods to be high in price this year.

Federal Grain Standards

Federal grain standards are being applied to the purchase of the wheat crop and many questions are arising as to the details of these official standards. The accompanying tabulation is from the current Year Book of the United States Department of Agriculture and gives the official standards for wheat on the principal varieties.

"Farmers by familiarizing themselves with the grades" says the Year Book, "can be sure when selling their grain that the standards are being properly applied. Any information in this connection may be had by writing or visiting the nearest office of federal grain supervision. In case any person desires to check up his determination of the grade of the grain when no licensed grain inspector is located in the community, he can mail a representative sample to the nearest licensed grain inspector and have it officially inspected. This sample should be at least two quarts in size, of which at least 1½ pints is placed in an air-tight container and the remainder, if any, in a clean cloth sack. While this grade applies to the sample only, the parties to a transaction involving the sale of grain at country points may agree that the grade of the sample will be applied to the entire lot to be sold, when the sample is determined by both the parties to be representative of the entire lot of grain." The following table shows the standards as applied to the principal varieties:

GRADE	Minimum limits of test—weight per bushel.			Maximum limits of—						
				Moisture.		Damaged kernels.		Foreign material other than dockage.		Other classes.
	Class: Hard Red Spring.	Classes: Durum, Hard Red Winter, Common White and White Club; and sub-class, Red Winter.	Sub-class: Red Walla.	Classes: Hard Red Spring and Durum.	Classes: Hard Red Winter, Soft Red Winter, Common White and White Club.	Total.	Heat damage.	Total.	Matter other than cereal grains.	Total.
	Lbs.	Lbs.	Lbs.	Per cent	Per cent	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
No. 1	58	60	58	14.0	13.5	2	0.1	1	0.5	5
No. 2	57	58	56	14.5	14.0	4	0.2	2	1.0	10
No. 3	55	56	54	15.0	14.5	7	0.5	3	2.0	10
No. 4	53	54	52	16.0	15.5	10	1.0	5	3.0	10
No. 5	50	51	49	16.0	15.5	15	3.0	7	5.0	10
Sample*	..	..	..	....	....	..	...	..	...	..

*Sample grade shall be wheat of the appropriate sub-class which does not come within the requirements of any of the grades from No. 1 to No. 5, inclusive, or which has any commercially objectionable foreign odor, except of smut, garlic, or wild onions, or is very sour, or is heating, hot, infested with live weevils or other insects injurious to stored grain, or is otherwise distinctly low quality, or contains small, inseparable stones or cinders.

(1) The wheat in grade No. 1 shall be bright.

(2) The wheat in grades Nos. 1 to 4, inclusive, shall be cool and sweet.

(3) The wheat in grade No. 5 shall be cool, but may be musty or slightly sour.

(4) The wheat in grade No. 1 Dark Northern Spring and grade No. 1 Northern Spring may contain not more than 5 per centum of the hard red spring wheat variety Humpback.

(5) The wheat in grade No. 1 Amber Durum and grade No. 1 Durum may contain not more than 5 per centum of the durum wheat variety Red Durum.

(6) For each of the sub-classes of the class Durum, grade No. 1 and grade No. 2 may contain not more than 2 per centum and 5 per centum, respectively, of soft red winter, common white and white club wheat, either singly or in any combination.

(7) For each of the sub-classes of the classes Hard Red Spring and Hard Red Winter, grade No. 1 and grade No. 2 may contain not more than 2 per centum and 5 per centum, respectively, of common white, white club and durum wheat, either singly or in any combination.

(8) For each of the sub-classes of the classes Soft Red Winter, Common White and White Club, grade No. 1 and grade No. 2 may contain not more than 2 per centum and 3 per centum, respectively, of durum wheat.

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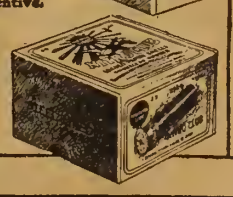

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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

"Forbearance"

Hast thou named all the birds without a gun?
Loved the wood-rose, and left it on its stalk?
At rich men's tables eaten bread and pulse?
Unarmed, faced danger with a heart of trust?
And loved so well a high behaviour,
In man or maid, that thou from speech refrained,
Nobility more nobly to repay?
Oh be my friend and teach me to be thine!

—Ralph Waldo Emerson.

In the next issue we hope to have an account of some of the particular war activities of one club of Colorado country women. Any of you groups of rural women who did something of especial or vital interest to your community during the war would be doing the readers of Western Farm Life a great favor by sending in an account of them. We want them, please.

Pearl Guinea Fowls

Whether it be as guardians of the hen roost or just to break the silences, we do not know; but several requests have come for the whereabouts of breeders or possessors of Pearl guinea fowls. Western Farm Life knows of some breeders of these trim gray fowls, and any readers interested might write us for information. If you have any of these birds to sell, we would like to hear of that also, as there may be still other requests.

Information concerning pearl guineas may be secured from any of the following:

Mrs. C. E. Anderson, Vance, N. M.
Mrs. Stevens, Seneca, N. M.
John Hass, Bettendorf, Iowa.
Mrs. Sara A. Little, Clyde, N. Y.

Green Tomato Mincemeat

That late June frost in many sections bids fair to leave many of our tomatoes in the very green stage when the early September one visits us again. Because of the airplane stunts the prices of beef are doing these days many of us have felt called upon to do without our good old-fashioned mince pies. Now look at those green tomatoes and then at this recipe, think of the price of meat and then how good a mince pie can be, and you'll try it. This sort of mincemeat doesn't add to a heavy dinner a lot of those extra "calories" that certain manufacturers of prepared foods are worrying so much about, and it isn't nearly so conducive to dyspepsia.

Iceless Refrigerators

Much interest has been manifested in the iceless refrigerator described in a recent government bulletin and reprinted in these columns at the beginning of the present summer. That farm women are putting this information to practical use is apparent from the accompanying illustration, showing an iceless refrigerator, made according to the specifications given in the bulletin, by Mrs. Willard Teller of Byers, Colo. Mrs. Teller has placed this refrigerator on the east porch, where the morning sun strikes it, in spite of which it works very effectively in keeping table supplies cool and wholesome.

Homemade Iceless Refrigerator

County Agent Walter Groom of Arapahoe county, on a recent visit to the Teller ranch, took a photograph of the refrigerator, from which the accompanying cut was made. Mrs. Teller will gladly answer questions from other farm women about its construction, if anyone desires to write to her on the subject.

Another device for keeping things cool in summer is the cold box, shown in the smaller illustration on the next page, also made from one of County Agent Groom's excellent photographs. This cold box is in the north window of the kitchen in the dwelling of Mrs. George J. Gordon, at Bennett, Colo. It is screened in and receives its cooling from pans of water placed somewhat in the manner of the iceless refrigerator.

Mock Mincemeat

(From Cornell Bulletin 113.)

3 pounds green tomatoes.
3 pounds apples, chopped.
5 pounds brown sugar.
2 pounds raisins, chopped.
2 tablespoonfuls salt.
1 cupful suet
1 cupful vinegar.
2 tablespoonfuls cinnamon.
2 teaspoonfuls cloves.
1 nutmeg.
Orange peel, if desired.

Chop the tomatoes and drain them well. Measure the juice, and add the same amount of water to the pulp Scald the mixture and drain off the liquid. Repeat twice this process of adding fresh water scalding and draining. Add the remaining ingredients in the first column to the pulp, and cook the mixture until it is clear.

Tannin is all right for tanning leather, but nobody wants it in tea.

The way to get tea-flavor without tannin is to buy a fine tea and then not boil it—steep it just long enough to get the tea-flavor.

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The Public and the Company

A COMMUNITY always welcomes the establishing of an institution that fills a recognized community need; unfortunately it doesn't always manifest a lively interest in the health of such an institution after it is established.

It is one thing to establish industries; it is quite another thing to build up, develop and maintain them.

An industry can be established by the investment of capital; its development and maintenance depend upon the attitude of the public toward the enterprise and toward the product.

Likewise, the permanency of an institution depends upon the willingness of its customers to pay a sufficient price for its product to enable it to continue strong and healthy financially.

The Mountain States Telephone and Telegraph Company's system of wires, furnishing the means of communication over mountains, plains and desert, is a tremendous factor in the development of the West.

Telephone service is a "home product" of every community in the mountain states, and is woven into the very warp and woof of commercial and social life. The permanency and adequacy of telephone service depend upon the same factors as are involved in the security and permanency of every other established industry.

With very, very few exceptions the people of the West recognize these principles and pursue a "live and let live" policy toward all legitimate business institutions.

The Mountain States Telephone and Telegraph Company

Add the vinegar, cinnamon, cloves, nutmeg and orange peel to the pulp, and cook the mixture until it is thick. This mincemeat will keep in a covered stone jar.—E. D.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2886—Over-Blouse Dress for Juniors—Blue linen with worsted embroidery in a simple couching stitch is here shown. The dress has an underbody, to which the sleeves are joined. Foulard, taffeta, gingham, shanting or rajah silk, serge and gabardine, satin and velveteen are good for this model. Cut in sizes 12, 14 and 16 years. Size 14 will require 4 5-8 yards of 44-inch material.

2893—Attractive Style for Growing Girl—This is a very comfortable style. The surplice waist has a fitted lining. The sleeve may be loose and flowing, or finished with a cuff in shorter length. This pattern is good for serge, satin, linen, taffeta, voile, gabardine or velveteen. Cut in sizes 12, 14 and 16 years. Size 14 requires 4 1-2 yards of 36-inch material.

2569—An Ideal House Dress—This model is unique and practical. It is made with reversible closing, and its fullness is held by a belt that fastens at the center back. The sleeve may be in wrist or elbow lengths. Deep, ample pockets trim the fronts. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires for a 38-inch size 6 1-8 yards of 36-inch material. The dress measures about 2 1-2 yards at the foot.

2333—A Good Comfortable Apron Model—This style is nice for percale, lawn, gingham, chambray, drill or khaki. The apron is in one piece, with added straps that cross over the back and are buttoned at the waistline. Cut in four sizes: Small, 32-34; medium, 36-38; large, 40-42; and extra large, 44-46 inches bust measure. Size medium requires 3 1-4 yards of 36-inch material.

2872—A Popular Model—This style is good for madras, percale, soisette, silk, cambric, khaki, muslin, linen and flannel. The fronts are finished in coat style. The sleeve may be finished with the cuff or in elbow length. Cut in sizes 15, 15 1-2, 16, 16 1-2, 17, 17 1-2, 18 and 18 1-2 inches neck measure. Size 16 requires 3 5-8 yards of 36-inch material.

2460—A Cool, Comfortable Play Dress—This design is good for repp, pique, linen, gingham, chambray, percale, glatea, Indian Head, drill or cotton corduroy. It may be also made of gabardine or flannelette. The model is closed with eyelets and lacing at the center front and is slipped over the head when worn. Cut in sizes 2, 4, 6 and 8 years. Size 4 requires 2 1-4 yards of 36-inch material.

2887—A Popular Style—This one-piece dress is suitable for taffeta, linen, gingham, serge, gahardine, voile, crepe de chine and satin. It may be finished as illustrated, with a graceful close-fitting sleeve in wrist length, or with an elbow sleeve. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5 yards of 42-inch matcrial. Width of skirt at lower edge is 1 7-8 yards.

Waist 2885, Skirt 2865—A Becoming Business Costume—In this you have a smart shirt waist coupled with a comfortable, stylish skirt. Sport's silk, serge, linen, voile or gabardine could be used for the skirt and linen, crepe, voile, satin, flannel, batiste or chambray for the waist. Pattern 2885 supplies the waist model. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure and requires 2 5-8 yards of 36-inch material for the 38-inch size. The skirt is cut in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Size 26 requires 4 3-8 yards of 44-inch material. Width of skirt at lower edge with plaits extended is about 2 3-8 yards. This illustration calls for two separate patterns.

A Window Cold Box

Ripening Tomatoes

Apropos of the fact that green tomatoes may remain green tomatoes and not take any advantage of sunlight versus frost to ripen, did you ever try ripening them in a cellar? When the frost comes all too soon in the fall and you are sure your tomatoes are not going to get a chance to ripen, a very good red tomato may be obtained by pulling up the vines and hanging them in a good storage cellar. We mean by that sort of cellar one in which the atmosphere is warm enough to keep things nicely but not too warm for good storage. Even very green tomatoes will develop and ripen very nicely that way, and they may be kept as late as Thanksgiving. One case known to the writer, not quite so successful as the cellar method, was carried out by pulling the vines and piling them up, covering carefully on stormy days and at nights with a heavy tarpaulin. This sort of ripened fruit is much better than none at all and doesn't require extra equipment to carry out the scheme.—E. D.

Dried Sweet Corn

Dried sweet corn is a delicious food fully equal, if not superior, to canned corn, and capable of use for practically as wide a variety of purposes. Any of the varieties of sweet corn having qualities desirable for table use will make a good dried product. Corn intended for drying should be gathered when in the milk stage, before glazing and hardening have begun and when the corn is in an ideal condition for immediate table use. It should be gathered only as rapidly as it can be prepared for drying, as corn deteriorates rapidly.

Husk the ears and trim with a knife to remove any injuries. The silk need not be removed, as it can be readily separated from the corn after drying. Place the ears in wire baskets or wire-bottom boxes and plunge into boiling water for 8 to 12 minutes, or until the milk is set. A little salt may be added to the blanching water if desired. Divide the corn into older and younger lots before blanching, as the younger ears require somewhat longer cooking than the older ones.

After cooking, remove corn from the water, allow it to drain and cool sufficiently to be handled and cut from the cobs with a strong sharp knife, taking care that none of the cob is removed with the kernels. The glumes or the hull attachments at the tip of the grains are easily screened out after the corn becomes dry. Spread the kernels upon trays to a depth of one inch if drying is done in a drier, or one-eighth to five-eighths inch if the corn is to be dried in the sun. Stir the grains thoroughly several times during the drying to break up any compact masses.

It is practically impossible to bring corn to a sufficient degree of dryness by the unaided heat of the sun. If corn is dried in the sun, it should be finished by pouring into bread pans, placing in the oven of the stove, and warming to 160 to 165 degrees F. for two hours. Whether the drying is done in the sun, in a cook-stove drier, or in a commercial drier, it should be continued until the grains are hard, semi-transparent and will break with clean glass-like fractures if crushed.

Before storing, free the corn of silks, glumes and bits of cob. This may be done by pouring the corn from one vessel to another in a strong draft. When the corn is dry, store in closely woven muslin bags or heavy paper bags. Tie tightly at the neck and place within a larger muslin bag, which also should be tightly tied.

Do not allow the drying process to stop from the time it is started until the corn is fairly dry. Corn is a product which contains considerable sugar and protein, and if the drying process is allowed to stop, bacteria are apt to develop. Protect it from insects. If sun drying is interrupted by cloudy weather or showers, remove corn to the stove and continue drying or the product may spoil.—U. S. Department of Agriculture.

About twenty-five years ago Monte Vista held a Fourth of July celebration. So many wagons were coming into town that the enterprising citizens conceived the idea of advertising the number. There were two main highways into town. Mr. H. L. Cheney was appointed to count the rigs coming over one of the highways and Mr. Dietrich was appointed to watch the other road. To be sure that nothing escaped them, a flag was offered as a prize for the one who counted the most teams. Dietrich got the flag and the two of them counted a total of 100 teams. At the Good Roads celebration at Monte Vista on the 12th of August this year it was estimated that there were more than 3,000 automobiles in the town, carrying approximately 15,000 people!

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But remember the Cletrac does far *more* than merely plow. That *is only the beginning of its work.* Its distinctive tank-type construction enables it to go almost anywhere—particularly over soft plowed ground or moist or sandy soil where the average tractor would flounder or "dig itself in". All the power of the Cletrac is used *to pull the implement.* And because of its 600 square inches of traction surface it doesn't leave two packed down tracks of earth behind it.

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Get Ready for Trapping

Careful preparation for trapping usually means more successful and hence more profitable trapping for the novice or the old-timer. After getting your outfit together—and by the way see that your traps are bought from a reputable, dependable house—there is a great deal of field work that ought to be done at least a week or two before the trapping season opens. Dens, feeding places, drinking holes, daily trails and the general stalking ground of the animals should be looked up, and to make matters simpler, charted, so that when furs are prime you can set your traps just as a general places his gun in a big drive without loss of time.

Any artificial lures, bridges, bait pens and dead falls (provided you use them) should be built several days before the trapping season opens and all trace of the human scent removed from them. The object of constructing them in advance is to make them familiar to the animals, so that by the time you are ready to trap the game will not be as suspicious of them as it would be if you put them up the same day you started trapping.

If you are a successful trapper you probably use animal bait, and in that case it would be wise to order this in advance, for to run short of bait in the height of the prime trapping season would be to lose money. It is also a good precautionary measure to get your smoker in good working order and to lay in a few more smoke cartridges than you think you will need. The smoker is a most important article in trapping animals that den up in numbers, for it gets them out without damage to fur, enables you to trap or shoot the grown animals and let kits, females and poorly furred animals escape until later.

World's Pork Outlook

The United States contains considerably more than one-third of all the swine in the world. Swine are less numerous than either sheep or cattle in the world at large, but are more numerous than either in the United States, which this year has more hogs than its 10 nearest competitors combined.

These facts showing the vast extent of the American hog growing industry are cited by Dr. J. R. Mohler, Chief of the Bureau of Animal Industry, United States Department of Agriculture, as "an anchor of confidence for weathering periods of adversity in pork production."

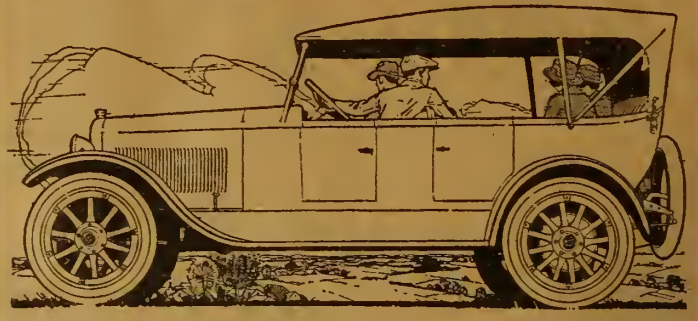
He concludes that pork products have become as well established in the diet of the American people as hogs have become established on farms, and that as more than two-thirds of the total 1918 exports of meat were pork products and more than five-sixths of the animal fats exported were lard, there is a great potential pork-absorbing ability in the densely populated European countries.

"We must take care of that business properly and realize that conditions are constantly changing both at home and abroad," says Dr. Mohler. "We must study carefully what to do next and then do it promptly."

Latest reports from department representatives in Europe indicate that pork importation by the United Kingdom may be considerably smaller in the future than during the war, price being an important factor. In general, it appears that American fresh pork products have met with favor on the British markets, but there is room for improvement in the curing of hams and bacon. It is reported from France that the swine industry there decreased most rapidly between 1913 and 1916, but the decrease since has been comparatively small. Rapid recuperation seems possible with a good grain and potato crop this year and a continuation of present high prices. While the best grades of American hams and bacon met with French approval, it is said that these products are too expensive for the average French family. It is not likely that France will import breeding swine to any large extent, although continued importations of meat and fats are expected.

South America, on the other hand, is importing swine from the United States with considerable regularity. Since the first of this year there have been seven purchases and shipments ranging from about 30 to 70 head each of pure-bred stock for breeding, in addition to a number of smaller shipments.

CHANDLER SIX $1795



The Car That Will Please You Most

Before you decide on your new car this Fall, see the Chandler. You are not entirely fair to your own interests if you don't see it. Some one of the more than a thousand Chandler dealers is not far from where you live. He will be glad to show you the Chandler, and show you why it is the car that will please you most.

Sixty thousand Chandler owners, and countless thousands of their friends, know how good the Chandler is. They know there is no other six-cylinder engine like the famous Chandler motor, now in its seventh year of refinement and development. And they know there is no other car selling within hundreds of dollars of its price that compares with Chandler in its all-round mechanical excellence and beauty of body designs.

These are facts. Convince yourself that they are.

Write for catalog and name of your Chandler dealer

7-Passenger Touring Car, $1795 *4-Passenger Roadster, $1795*
4-Passenger Dispatch Car, $1875

CHANDLER MOTOR CAR COMPANY
CLEVELAND, OHIO

Eastern Shoe Repair Factory
"Yellow Front"
1535 Champa St., Denver, Colo. Main 8453
Mail in your old shoes, have them repaired and delivered free anywhere in the United States

BABY BEET PULLER

The original and only genuine—100 per cent efficient. Adjusted for large or small beets. Foot guide, riding seat, has device for working over ditches. Simple—boy can operate. Beets left in perfect condition for the toppers. Does not drag beets under. Leaves ground undisturbed for heavy hauling.

Write for Catalog
NATIONAL BEET HARVESTER COMPANY
1800 West Colfax Denver, Colorado

Why Prevent Forest Fires

"Lodgepole pine requires 150 years to produce good-sized saw timber, while Engleman spruce, growing to a larger size than the former species, would be grown 220 years before cutting for saw logs," says Prof. W. J. Morrill, of the Colorado Agricultural College.

"Forests of both species grow at high elevations where the growing season is short. Lodgepole pine forests of average stocking and in localities favorable for its growth will yield from 15,000 to 20,000 feet, board measure, per acre when mature. The best stands of spruce will exceed these figures, as will also mixtures of the two species, occasionally producing a crop of 30,000 feet per acre.

"From prominent points on the mountain ranges one can see spread out before him many thousands of acres of unbroken forests, the standing timber on which is worth from $30 to $100 per acre at present prices —government property which yields several times that amount per acre in wages to woods labor. From such a point one is impressed with the great amount of care required to save these vast areas from fire and to insure recurring crops of trees when harvested."

Beekeepers will find Farmer's Bulletin 1039, "Commercial Comb Honey Production" interesting and helpful. Send to the U. S. Department of Agriculture at Washington, D. C., for free copy,

Root Crop Experiments

The Wyoming Experiment Station recently issued a circular on root crops which contains valuable advice for farmers located 7,000 to 8,000 feet in the mountain valleys. Experiments made on the station farm at Laramie (altitude 7,100 feet) indicate that ample succulent feed for dairy cattle can be provided in sections that are too high for profitable growing of corn or other silage crops. Following are extracts from the circular which was prepared by T. S. Parsons, Extension Agronomist.

Mangels: Some of each of the types of mangels were grown in the variety tests. The long types gave the best yields. The average for all of the long mangels were 7.12 tons per acre, while the yield for all of the mangels of the Globe type was 5.55 tons per acre. The mangels of the long type grow larger than the others, but are more difficult to dig, as they grow deeper in the ground, and they do not apparently keep as well in storage as the Globe type.

Rutabagas and Turnips: These crops gave larger average yields at the Wyoming Station than the mangels. They are somewhat hardier and continue to grow longer in the fall. They do not appear to be so easily affected by frost as the mangels. The true rutabagas gave a better average yield than the Swedish turnips. The average yield of the former was 9.22 tons per acre and of the latter 8.61 tons per acre. Apparently the main difference between the rutabagas and the Swedish turnips is in the color of the flesh, the rutabagas being yellow and the turnips white. None of the early varieties of garden turnips were grown, as it was the purpose of the experiments to grow only the feeding varieties.

Mangels and Sugar Beets: The results at the Wyoming Station show that at high altitudes mangels are better to grow for stock feed than sugar beets. A study of the tables will show that the mangels gave in all cases heavier yields than the sugar beets. At the altitude of the station (7,100 feet) the season is not sufficiently long to grow a good tonnage of sugar beets, therefore stock beets or mangels are better to grow. The half sugar beets gave better yields than the true sugar varieties. The yellow mangels gave considerably better yields than the long varieties. The Giant feeding sugar beets gave good yields.

Soils: It has been found at the experiment station that it is much easier to get a good stand of root crops in the lighter soils than in the heavier ones. The sandy loam soils are the best, as they do not crust over the surface, but remain loose even after a rain. The heavier clay soils bake and crust over, so that it is difficult for the small plants to push up through them. It has been found that raking the surface over lightly with an iron garden rake assists the plants greatly in getting through the soil. Beets made good growth in clay soil, even in alkali soil, when they were able to get above the surface.

Preparation of the soil: The soil should be plowed to a good depth for root crops, so that there will be plenty of room for development of the roots. The soil should be well packed, however, with only a loose surface sufficient to cover the seed. The soil should be worked down fine, so that there will be no open places. Root crop seeds are mostly small and they cannot do well in a soil that is full of lumps and clods. The method of preparation of the soil for root crops at the station is to plow at least 8 inches deep, disk and harrow thoroughly, to pack and fine the soil; then to run the packer over the ground to make a smooth but loose surface for the planting of the seed.

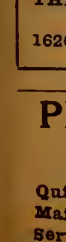
Methods of seeding: The horse-drawn beet sugar or the small hand drill may be used for sowing all kinds of root crops. If only a small area is sown the hand drill may be used. It is calibrated for sowing proper amounts of the various crops. The four-row beet drill, such as is used in the sugar beet sections, can be used for seeding beets and mangles. It has also been used at the station for sowing turnips and rutabagas by mixing a considerable bulk of sand with the seed. This prevents seeding too quickly. Sand is also mixed with the turnips and rutabagas seed when the hand drill is used and when the seed is broadcasted.

Rutabagas and turnips may be sown broadcast to good advantage provided the ground is in good condition and free from weeds. No cultivating is done when the seed is sown broadcast and it is not necessary to do so much thinning. Some thinning will need to be done, however, in root crops whether the seeding is done by broadcasting or drilling. The thinning can be done by cutting out with a hoe or pulling by hand. There should be at least six inches between plants after thinning. When drilled the rows may be from 26 to 36 inches apart. The different methods of seeding have been tried at the station with equally good results provided the seed bed is in proper condition.

Cultivation and irrigation: Frequent and shallow cultivation should be given the root crop to eradicate weeds and prevent evaporation. Cultivation should be given as soon as the surface is dry enough after irrigation. Irrigation should be given when needed. The broadcasted crop may be irrigated by the flooding method. The drilled crop is irrigated in furrows. In dry farming the crop must depend on the moisture stored in the soil and in cultivation to conserve the moisture. Under irrigated conditions the soil should contain moisture enough to germinate the seed and bring it up before irrigation is given. It is the practice at the station to irrigate the root crops only when they are in need. A root crop should not be irrigated up if it can be avoided. No experiments in the growing of root crops without irrigation have been carried on at the station, but reports from county agents and farmers in various parts of the state indicate that turnips and rutabagas do well on the dry farms.

Harvesting root crops: Turnips, rutabagas and the Globe mangels and beets do not go deep into the ground, therefore they are not difficult to pull. The ordinary potato fork may be used on small areas. The John Deere two-horse potato digger has been used to good advantage in pulling turnips and rutabagas at the station. The beet puller drawn by two horses is used for pulling the long beets and mangels. At the station the roots are allowed to lie in the row until the dirt adhering to them dries, so that it will mostly fall off during the topping and handling. After topping the roots are stored in an outside root cellar for the winter.

Root crops help to keep the land clean in the rotation. They do well after alfalfa, provided the alfalfa is first crowned and then the land plowed to a good depth. Root crops, alfalfa and grain make a good crop rotation.



ABSORBINE STOPS LAMENESS

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar troubles and gets horse going sound. It acts mildly but quickly and good results are lasting. **Does not blister or remove the hair** and horse can be worked. Page 17 in pamphlet with each bottle tells how. $2.50 a bottle delivered. **Horse Book 9 R free.**

ABSORBINE, JR., the antiseptic liniment for mankind, reduces Painful Swellings, Enlarged Glands, Wens, Bruises, Varicose Veins; heals Sores. Allays Pain. Will tell you more if you write. $1.25 a bottle at dealers or delivered. Liberal trial bottle for 10c stamps.

W. F. YOUNG, Inc., 155 Temple St., Springfield, Mass.

IRRIGATE Your Field and Garden

Get larger yields and profits. Provide fire protection for your buildings, and water for your stock, by installing an

"AMERICAN" Centrifugal Pump

A compact dependable, and economical pump that requires little attention. A size for every purpose—small farm or large irrigation project. Absolutely guaranteed.

An American Centrifugal Pump insures all the water you want when you want it. Write for new **Catalog.**

THE AMERICAN WELL WORKS
General Office & Works: Dept. 27, Aurora, Ill.
Chicago Office: First National Bank Building.

Sewing Machines Sold for Storage

Singers	$6 to $20
Whites	$6 to $35
Standards	$6 to $18
New Homes	$6 to $15
Domestics	$6 to $15

10-year guarantee Attachments complete. Repairs and needles for all makes.

Mail orders solicited.

WE PAY FREIGHT. Send for free catalog and information.

Used Machine Dept.

WHITE SEWING MACHINE CO.
1531 Champa St., Denver.

BUY VICTOR RECORDS!

Largest and newest stock west of Chicago.

The latest and best is always ready for you.

Every order is shipped the day it reaches us.

Suggest any variety; we have them and will ship you a choice selection on approval. Order today!

THE CHAS. E. WELLS MUSIC CO.
Everything Musical
1626 California St., Denver, Colorado

PHOTO FINISHING

Superior Printing and Enlarging
Cameras—Films—Albums

Quick Mail Service

THE OSSEN PHOTO SUPPLY CO.

415 16th St., Denver, Colo.

PRINCE ALBERT

Copyright 1919 by R. J. Reynolds Tob. Co.

Toppy red bags, tidy red tins, handsome pound and half-pound tin humidors—and—that classy, practical pound crystal glass humidor with sponge moistener top that keeps the tobacco in such perfect condition.

PLAY the smokegame with Prince Albert if you're hunting for tobacco that will cheer your smoke-appetite! For, with Prince Albert, you've got a new idea on the pipe question that frees you from stung tongue and dry throat worries! Made by our exclusive patented process, Prince Albert is free from bite and parch and hands you about the biggest lot of smokefun that ever was!

Prince Albert is a pippin of a pipe tobacco; rolled into a cigarette it beats the band! And, what you're going to find out pretty quick thousands of men discovered as long as ten years ago when P. A. started a smoke revolution!

Get the idea that P. A. is simply everything that any man ever longed for in tobacco! You never will be willing to figure up the pleasure you've missed once you get that Prince Albert quality flavor and quality satisfaction! You'll talk kind words every time you fire up!

R. J. Reynolds Tobacco Company, Winston-Salem, N. C

Denver The Live Stock Market

Denver is the Highest Market **Most of the Time** and the Best Market **All the Time** for Western Cattle and Sheep.

Time and again cattle have sold on the Denver market for higher prices than the same cattle would bring same days at the Missouri River.

Why don't you market your cattle and sheep at Denver, where they will bring you greatest net returns?

Another Outbreak of the Kansas Horse Plague

(Continued from page 4)

simulates this disease in many respects but is different in that the most pronounced symptoms is inability to swallow food, though it may be easily taken in the mouth and masticated. This condition can for the present be placed in the category of diseases spoken of as "Forage Poisoning," at the same time acknowledging that the term is almost meaningless because it does not describe a disease with uniformly characteristic symptoms, or designate a specific cause. Usually only a few animals in a herd are affected. They are found to be dull, blind with no inflammation of the eyes, weak and emaciated, gaunt, pupils dilated, inability to eat or drink, but without disturbance of respiration or digestion. When tempting food is placed before an animal it will usually evince hunger but after "nosing it over" will back away in discouragement. If a handful of green alfalfa be rolled into a ball and placed far back in the mouth it will be masticated and swallowed without difficulty. The animal is also unable to drink but if drenched from a bottle will swallow easily. The disease appears to be infectious (from a common source) but not contagious (transmitted from one animal to another). The symptoms are analogous to those expected in case of mould, crytogamic, or bacterial poisoning but not like those produced by any of the well-known poisonous plants. If neglected very few animals will survive but fully 50% have been saved by appropriate treatment.

Artificial feeding, as indicated above, is of first importance. A certain veterinarian has been quite successful in treating these cases, by artificial feeding and watering, stimulants, cold packs to the head, providing shade and shelter, washing out the first stomach with large quantities of water followed by large doses of salts. There does not appear to be much danger of this disease assuming epizootic proportions. We have no knowledge of how to prevent it, but considering all of the circumstances surrounding it, feed, pasture, etc., it seems best to keep cattle off low seepy ground and keep them out of pastures, unless pure water and shade can be provided.—Geo. H. Glover.

Guarding Against Spoilage

Can I guard against poison in my canned fruit, vegetables and meats?

"Yes," replies the home economics staff of the extension division of the University of Idaho, answering a question that arises in the minds of many housewives, now that the canning season is at hand.

Poison in cans can be guarded against by care for the freshness and good condition of the products canned and by the use of new lids and good rubbers and the avoidance of anything that might tend to contaminate the food in the canning process.

In addition, rules are presented for detecting the presence of spoilage when the jars are opened. The signs are three, any one of which they say should condemn the jar:

1. Gas bubbles in the jars, the tops of the jars blown, and a squirt of liquid as the top is unscrewed.

2. An odor somewhat resembling rancid cheese.

3. A mushy or disintegrated appearance of the solid parts of the contents of the jars.

Then, as a final safeguard: "Any canned goods that are in the least suspicious should be emptied into a kettle and boiled for five minutes. They can then be eaten without danger." Indeed, the really safe thing to do, they say, is to heat for five minutes all canned vegetables and meats before they are served. Trouble may result when such foods are served cold from the can. The five minutes' heating kills the toxin, if it has developed. The heating of fruits is not insisted upon, as spoilage of fruits usually is detected.

With these precautions, say the home economics experts, the housewife can feel safe in continuing to can foodstuffs and need not forego all the fine advantage that she has found re-should not, however, be eaten without boiling.

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS from Tancreds extra heavy laying strain at advantageous prices. Eggs $1.50 per setting. Blakeland Farm, Littleton, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

SEVERAL VARIETIES—BUFF LEGHORNS, R. I. Reds; best layers on earth. Buy cockerels now and save money. Champney, 25 So. Logan, Denver.

BABY CHICKS

BABY CHICKS, ALL BIG BREEDS, MIXED, for winter fries; 17c each or $16 hundred prepaid. Eva Campbell, Wilsey, Kans.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis.

WE OFFER 25 REGISTERED HEREFORD heifers which won third prize at the last stock show, Denver. We have besides two good yearling bulls and several this year's bull calves for sale, all best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

FOR SALE—REGISTERED BIG TYPE DUROC Jersey hogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

FOR SALE — REGISTERED DUROC-JERSEY pigs, either sex; best blood lines; cheap. J. E. Leiper, Mt. Morrison, Colo. R. F. D. 1

FOR SALE—PEDIGREED AND GRADE Duroc Jerseys weanling pigs of both sexes, also a few of February farrowing. Blakeland Farm, Littleton, Colo.

A FEW 8-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES

REGISTERED JACK 8 YEARS OLD AND another registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo.

SUFFOLK STALLION FOR SALE OR EXchange for pure-bred cattle of any breed; male or female. Address Box 27, Western Farm Life.

SHEEP

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamb, $35.00 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 398J.

FOR SALE—400 HEAD PURE BLOOD COTSwold breeding sheep, one to four years. Reason for selling, lady owner and poor health. Price $25 per head. An income of $8,500 per year can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 398J.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

FOR SALE, RANCH AND CATTLE. FOR particulars write Sim Moore, Gunnison, Colo.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

HAVE 120 ACRES WELL IMPROVED FARM, a bargain if taken at once. For particulars write Peter Hansen, Grand Valley, Colo.

WANTED—TO HEAR FROM OWNER GOOD farm for sale; state cash price, description. D. F. Bush, 26A, Minneapolis, Minn.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33rd St., Chippewa Falls, Wis.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

HAVE FOR RENT SUMMER AND FALL PASture, for 500 or 1000 head cattle, also winter pacture and feed if needed. Address owner, Box 35, Hillside, Fremont Co., Colo.

320 ACRES—GOSHEN HOLE UPLAND, IMproved, near new government ditch, county seat, railroad. C. S. Walker, La Grange Route, Torrington, Wyo.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

WANTED—RELIABLE PERSON TO HOMEstead adjoining me who can invest $3,000 to $8,000 and take charge of southern Wyoming improved ranch. Joins free range, grazed 700 cows last season. H. G. Fowler, 2555 West 37th Avenue, Denver, Colo.

GRASS AND WATER FOR 600 HEAD OF CATtle; rains abundant; feed crop excellent; grass the best ever; price $1 per head per month for fall and winter. Clark, Shipp & Christeson, Rt. A, Lamar, Colo.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine soil; worth $100 per acre in cultivation; on railroad; foreigners must have first naturalization papers; stamps for particulars. Homeseekers Information Bureau, Sacramento, Cal.

240-ACRE DAIRY FARM ONE MILE NORTH of Golden, 14 miles from Denver, 1 1-2 miles from malted milk factory; silo, barns, farm equipment, 8-room brick house, hot and cold water system, electric lighted; $16,000. Address R. L. Brunel, Golden, Colo.

IRRIGATED FARM BARGAIN—240 ACRES, with plenty of water; rich soil; near Longmont; 5-room dwelling, stable, storeroom, dwelling for help, chicken house, machinery shed, cellar, etc.; all fenced and cross-fenced; cultivated land in alfalfa, beets, beans and grain; $100 per acre; can give terms to good farmer. Walker Glaister, 1215 Foster Bldg., Denver, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikln Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LARGE ASSORTMENT OF ALL KINDS OF burlap sacks. Western Sack & Burlap Co., 2727 W Colfax, Denver, Colo.

GROCERIES & SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. Best beet sugar, hundred, $10.20; 5 lb. can Calumet baking powder, 90c; 3 lb. Baker's bulk Cocoa, $1.00. With every auto casing you buy, we give you a tube free. Best sized binder twine, $23.35 per hundred. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

Net receipts from the national forests for the year ending June 30, 1919, reached a total of $4,358,414.86, making an increase of $783,484.79 over the receipts for the previous year, and setting a high-water mark in receipts.

The 1918 cotton crop, lint and seed, was worth $2,067,000,000 to the producers. This is about three times the value of the cotton crop of 1914 and is twice the value of the crop of 1913, which had the highest value of record.

Livestock Field Notes

Elsewhere in this issue appears the ad of Col. H. C. Jennings. Col. Jennings is a comparatively new comer among the livestock auctioneers, but he is making good with a vim. Read his ad in this issue.

Mr. A. M. McClenahan, the Jersey Man of Greeley, Colo., announces that he has a number of high grade Jerseys that he wants to get rid of during September. He has ten head of fine bulls, all young stuff, and also some promising young cows and heifers. He is making special prices on them for September. Read his ad on the Livestock Page.

STATE FAIR WINNING BLOOD
is mixed thru our entire herd. Blood lines, and individuality second to none.
POLAND CHINA GILTS bred to our prize winning Boars to farrow in early fall.
Fine lot of early spring pigs (immuned) ready for shipment. Inspect our herd, or write
THE DEMING RANCH, OSWEGO, KAN.

Forest Glen Shorthorns
Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.
CORNFORTH LIVE STOCK CO.
Elbert, Colorado

La Mariposa
The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

HOLSTEIN BULL CALVES
We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.
PAHGRE VALLEY RANCH
Montrose, Colo.

REGISTERED DUROC SPRING PIGS
Fine quality, smooth and well grown
LA BELLE RANCH
Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver
H. G. SQUIBB AURORA, COLO.

YOUNG HOLSTEIN BULLS
Crescent Beauty Segis, Canary Sired by a son of King Segis Pontiac who had 101 A. R. O. daughters, and whose dam produced 37 lbs. of butter in 7 days. This bull's dam produced 18 lbs. butter at 4 years and 7 months. A fine individual—nothing but good blood back of him. Bull Calves With Equally Good Breeding
W. A. PURVIS Johnstown, Colo.

COL. H. C. JENNINGS
Pure-bred Livestock
AUCTIONEER
Also conduct Sales of Real Estate
534 17th St.
Denver, Colo.
Phone M-6870

Shorthorn and Polled Durham Cattle
Valentine's Last X12316 452008 at head of beef herd. Claywood White 127350 at head of milk type.
STATE INDUSTRIAL SCHOOL
Golden, Colorado

Col. H. E. BUCHANAN
Live Stock Auctioneer
1904 Logan
DENVER, COLORADO
Pure bred Sales a Specialty
For Sale Dates at My Expense
PHONE CHAMPA 5655
Anywhere in the United States My Territory

Farm, Horse and Mule and Thoroughbred Cattle Sales Conducted
Col. G. M. Banks
LIVE STOCK AUCTIONEER
Residence
709 East 11th Avenue
Phone York 7625
DENVER, COLO.

JERSEYS

We Are Over-Stocked With Jerseys And Must Sell a Bunch of Them

We are offering some splendid young cows and heifers. These are all extra-good, promising young animals; and they will go at prices that will astonish you.

10 HEAD—BULLS—10 HEAD

ranging from ten months down to young calves. These are corking top-notchers. Two are out of half sisters to the great

"$60,000 FINANCIAL SENSATION"

the bull that you have read so much about this season.

SPECIAL PRICES DURING SEPTEMBER

on anything you want, as I must cut down my herd. Write us just what you are looking for, and about what you want to pay, and we will satisfy you. Or better yet, come and inspect the herd. You are always welcome.

Our Motto—"Bigger and Better Jerseys"

A. M. McCLENAHAN, Greeley, Colo.

Member, American Jersey Cattle Club

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

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WESTERN Farm Life

Vol. XXI Denver, Colorado, September 15, 1919 Semi-Monthly

SAGUACHE COUNTY FARM BUREAU TOUR VIEWS

Upper—Farmers Inspecting Hogs on the W. A. Noffsinger Ranch. Center—Sunflowers on the J. Moore Ranch, Near Mirage
Lower—Cutting Sunflower Silage on the Gibson Ranch, Gibson, Colo. This Photo Was Taken August 26th, the Crop Being Fit for Ensilage Long Before There Was Danger of Frost

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WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, SEPTEMBER 15, 1919 | Number 18

Cooperation Gets Results For Farmers at Montrose

VETERINARY, SHIPPING, GRAZING AND OTHER ASSOCIATIONS THRIVE

RESULTS count. This is the standard by which any man's work should be judged. It is the standard that was applied in the selection of Harry A. Lindgren as Associate Editor of Western Farm Life, as announced on the editorial page of the present issue. Mr. Lindgren's work on the Uncompahgre Reclamation Project, where he has served as agriculturist for nearly four years, has brought excellent results to the farmers. This is especially true along the line of organization and cooperation. We feel sure that our readers will be interested in having some facts about these activities. They are presented not with the idea of showing how efficiently Mr. Lindgren does his work, but how a trained agriculturist of his type can do good if the farmers among whom he is laboring show the right spirit. The results at Montrose are due to two causes—organizing ability of the agriculturist and good will of the farmers. You can't beat a combination of that kind.

One of the successful forms of cooperation among the farmers of the Uncompahgre valley is the veterinary association, which received its impetus from a visitation of hog cholera An outbreak of this disease occurred in November, 1918, cholera being found on 17 farms. Prompt action was taken and the disease was well under control by the end of the year. Four veterinarians vaccinated 5,000 hogs in 185 herds. The disease had spread over a territory some 12 miles long and 5 miles wide, but the loss was held down to 300 hogs and vaccination by the simultaneous treatment successfully stopped further progress of the disease.

Naturally the experience was a costly one and farmers welcomed the plan of a veterinary association as outlined to them by Mr. Lindgren in cooperation with the Colorado Agricultural College and the county agents in Delta and Montrose counties. Two hundred farmers joined at the start, each agreeing to pay a fee of $12.00 a year for the support of the movement, and 20c a mile, one way, from headquarters to the farm on all calls for the veterinarian.

Dr. A. H. Griffith of Montrose was employed as the association veterinarian, with the understanding that he would devote all of his time to the work and receive a salary of $2,400 a year. The mileage charge is absorbed by maintenance and running expenses of an automobile, the machine being furnished by the veterinarian. Dues are paid semi-annually in advance.

After the first six months it was found that the veterinarian had more to do than he could handle, consequently the association has decided to expand, take in 100 more members and engage another veterinarian, giving each man 150 farms to look after. This plan is now being worked out.

There was considerable discussion among the farmers as to the most equitable division of the charge made for each herd included in the association. The flat rate was finally decided on, because it was believed that the heaviest charge naturally would fall on the man who calls the veterinarian oftenest, as he is obliged to pay the most mileage.

Every member of the association considers his membership virtually insurance against livestock diseases, it matters not what class of stock he handles, everything being covered, including beef and dairy cattle, hogs, horses, sheep, dogs and chickens. The association is under the management of a board of directors composed of farmers representing various parts of the territory covered, and the routine work is done at the county agent's office by a secretary. The secretary handles the work of the county farm bureau and the county agent's office, the veterinary association work being incidental routine. The secretary keeps up collections and attends to all record work.

One of the strong features of the plan is the cooperative purchase of veterinary supplies including drugs, instruments, dressings, vaccines, etc. Under the old system, when each farmer called a veterinarian as he needed him, the cost of administering serum for hemorrhagic septicemia was 50c a dose. Under the cooperative plan it is costing only 20c a dose. A similar saving is made in the administration of vaccine for blackleg and also for hog cholera. The stock of drugs and biologic supplies is kept by the veterinarian, who is careful to see that he does not run short and that he is prepared for any emergency that may arise.

In the spring, when calls are frequent, they are looked after according to the class of call. If a call is quite urgent and of an emergency nature it is attended immediately, while other calls for ordinary cases which might have preceded it, are temporarily deferred. There is an understanding that the veterinarian must not be called on Sundays except for emergency cases.

The first report of Dr. McClintock on the work of the Montrose Livestock Health Protective Association covers a period of five months ending August 10, 1919. It shows 536 calls made with the number of animals treated as follows:

Cattle: Hemorrhagic Septicemia vaccination, 3551; blackleg vaccination 969; other diseases treated 233.

Horses: Vaccinated for strangles 183; other diseases treated 355.

Hogs: Vaccinated for swine plague 1081; vaccinated for hog cholera 908; other diseases treated 113.

Sheep: Vaccinated for hemorrhagic septicemia, 86; other diseases treated 36.

Dogs: Vaccinated for distemper 2; other diseases treated 2.

Poultry: Diseases treated 32.

This report shows a total number of 8087 cases handled by one veterinarian in a period of five months, at a cost which it is safe to say has not been more than one-half of what these farmers would have been obliged to pay under the old plan of individual service.

Livestock Shipping Associations.

Livestock shipping associations are another form of cooperation highly developed among the farmers in the Uncompahgre valley. There are two active associations on the reclamation project with headquarters at Delta and Olathe. A Grange cooperative shipping association at Montrose and an association at Hotchkiss, which is outside the boundaries of the project. These associations ship cooperatively, the business being handled by a manager who lists the stock for shipment and receives a commission of 10 cents per hundred pounds for this service. According to the report of Agriculturist Lindgren it costs on an average of $1.25 per cwt. for the marketing of hogs from the project.

Judging by results, the shipping associations are a great success. This is true of hogs as well as of cattle. In hogs it has caused a great increase in the number of herds and while the shrinkage is still a serious problem, farmers feel that they are getting much better returns than they would under the old system, when everybody shipped for himself and the small men were obliged to rely on the local speculator for a market.

Some specific instances may be cited here in proof of the fact that cooperative shipping pays. One farmer shipped a 1300 pound steer in a mixed carload. He was offered $75 for the animal at Montrose, and at the Denver yards this steer brought $140. Another case is that of a farmer who was offered $65 for a cow locally and whose returns from the Denver yards showed $110 received for the animal. Farmers are especially well pleased with the plan of shipping their odds and ends—the cattle left over after the season's round-up, aged cows, can-

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MARKETING POTATOES BY AUTO TRUCK IN THE SAN LUIS VALLEY

The potato crop in the San Luis valley, one of the most important potato producing districts in the Rocky mountain region, is now being hauled to market mainly by auto truck. Very few wagons are seen in service during the potato harvest season, trucks having supplanted horses for this purpose on a majority of the farms. The above is a view taken during the marketing of the early potatoes at Monte Vista, August 26th of the present year. The large truck at the right is a three and a half ton Kelly-Springfield, loaded with 80 sacks of potatoes, averaging over 100 pounds each. In addition to that load this truck was also pulling a trailer carrying 40 sacks, making the total load brought to town over 12,000 pounds. This outfit is owned by V. H. Sanderson, a ranchman who finds the truck a money and time saver, especially during the harvest season. The three trucks lined up on the left are an International carrying 6,400 pounds, a Republic with 4 tons and a Ford carrying 4,000 pounds of potatoes, waiting to unload into cars on the sidetrack at Monte Vista.

County Agent Hyatt of Rio Grande county is of the opinion that 60 per cent of the farmers in that district are truck owners. The roads are level and weather conditions at harvest time are usually ideal for either horse hauling or trucks. The thing that appeals to the farmers about trucks is that the work is done so much more rapidly, at a time when every day and hour counts and a delay in reaching the market is often costly. Many truck owning farmers do custom work for their neighbors, in addition to caring for their own hauling.

Certified Seed Potato Production In Colorado

METHOD OF CULTURE AND HANDLING EXPLAINED BY EXPERT

DR. E. P. SANDSTEN

PRODUCTION of certified seed potatoes for the southern trade will become a commercial reality in Colorado in 1920. As was announced in a previous issue, the growers who have entered upon this new industry are located in the Divide section, in portions of Elbert, El Paso and Douglas counties. For their benefit and for the information of other potato growers in Colorado and neighboring states, we arranged with Dr. E. P. Sandsten, head of the Department of Horticulture of Colorado Agricultural College for the article on this page. The question and answer form was adopted as

The Bliss Triumph
(Courtesy American Steel & Wire Co.)

the best means of conveying fundamental information concisely. The Agricultural college, the county agents, the agricultural department of the Colorado & Southern railway, the Colorado Office of Markets, and other forces are co-operating with the growers in building up this seed potato enterprise. Western Farm Life has secured the assistance of the Dallas Semi-Weekly Farm News in developing the southern market, and Mr. V. H. Schoffelmayer, field representative of that publication, will visit the Divide section in the near future to obtain information for a series of articles on the subject. These articles will inform Texas growers about the conditions under which Colorado seed is to be produced and our growers will learn from Mr. Schoffelmayer what the Texas seed requirements are.—Editor.

* * *

1. What is the meaning of certified seed, as applied to potatoes?
2. What does this certification cover?
3. Can any potato grower engage in the production of certified seed?
4. Does such a grower have to register his field?
5. Who has charge of the certification of seed?
6. What effect does such certification have in the seed market?
7. Describe the methods of handling the crop that must be employed by the grower of certified seed and wherein these methods differ from those employed in producing market potatoes.
8. What varieties should be grown in the Divide section for seed?
9. What southern growing districts want seed of these varieties?
10. Why do not the southern growers raise their own seed potatoes?
11. Shall our growers produce immature potatoes for this market?
12. Will the trade use our small potatoes for seed?
13. What sizes are best for this seed market?
14. Will the certified seed potatoes be sold on commercial grades?
15. Will there be any call for No. 2 grade as seed?
16. At what season do these southern growers buy their seed?
17. Is it necessary for us to provide storage and hold these potatoes till the middle of winter?
18. Will the fact that these potatoes have been grown for certified seed count against them in any way as commercial table stock, in case we can't sell them as seed?
19. Would each grower market his own crop, in his own sacks, or would it be best to ship co-operatively?
20. Will we have a uniform trademark?
21. How will the Colorado or any other state seed laws affect our product?
22. Are there any requirements in the Texas law that will make it difficult for us to enter that market, or is certification of the seed sufficient to meet all legal requirements?
23. Does it cost much more per acre to produce certified seed than commercial stock?
24. How much higher is the usual market price of certified seed stock than that of table stock?
25. Will it be necessary for us to renew our own seed stock from time to time, or will the original importation of certified seed be sufficient?
26. Can we use the stock grown for southern use as our own seed for the following season, or is it advisable to grow our seed on separate plots?
27. Can you suggest a suitable rotation for our lands? We have very little alfalfa. Do you thing it will be necessary for us to introduce a leguminous crop?
28. Has the southern grower who is to use this certified seed a long and favorable season for maturing his crop, or must he have a quick maturing variety that is able to withstand considerable unfavorable weather?
29. When does this southern crop go on the consuming market?
30. Why should Colorado-grown potatoes be superior to those of Minnesota and Wisconsin for southern seed purposes?
31. Does certification mean that we guarantee our seed and that if for any reason the planter has trouble with it, even through his own fault, we would be held liable for refund?

1. Certified seed implies, first, that the potatoes are true to type; second, that they are free from injurious insects and fungous diseases. The word "free" does not imply that they are free entirely, for the rules permit a certain small percentage that may show infection of disease. Third, that certified potato seed has been inspected by a state officer having charge of the potato work. At least three inspections should have been made—two while growing, and the third after the potatoes have been properly screened and graded and are ready for shipment. In addition, each sack, or carload shipment, as the case may be, should bear a tag stating the name of the owner, the variety of potatoes, and the name of the official making the examination and certification.

2. Number 2 is partially answered under No. 1.

In addition, the certification covers the potato field inspected, as outlined in No. 1. It is a protection for the grower, since it bears an official tag of certification which shows that the grower has lived up to the requirements in every particular, and that the potato seed so grown is of the highest quality.

3. Any potato grower who will live up to the requirements and who has soil and general conditions favorable for the production of certified seed that will meet the requirements of the inspector can grow certified seed, though it should be remembered that the rules for certification are necessarily rigid, and that the general way of growing potatoes for market or table use will not do if one wishes to have the crop certified. To begin with, only a certain number of farmers who are willing to go to the expense of obtaining, first, certified seed for plainting, second, to carefully rogue the field of undesirable plants or plants of another variety, to eliminate all diseased plants, and to give the field the proper culture so that the potatoes produced will pass the inspection. There is no restriction on any grower so long as he meets the requirements laid down for the inspection and certification.

4. The grower of certified seed should make application to the inspector that he wishes to grow certified seed. In making this application, the grower should state the source of his seed and the variety grown. While it is almost necessary at the present to obtain certified seed for first planting, there are a few growers who already have pure seed and may make application for inspection and certification even though the seed they are using for planting was not certified to the previous year. The registration should be made early, or at planting time, so that if the inspector wishes to satisfy himself as to the seed used, he can inspect the seed before planting.

5. The certification, while not based upon any set law at present, is performed by the man in charge of the potato work at the Agricultural college and experiment station, and in making application, the applicant should address the Horticultural Department of the Colorado Agricultural College, Fort Collins, Colorado.

6. The certification of potato seed by a state officer is accepted in all the states requiring inspection, and the seed market now requires such certification in order that the buyers of seed potatoes may be protected. The market for certified seed is affected to the extent that certified seed always sells at a premium over seed not certified, or over table stock. Many of the southern states which purchase their seed potatoes in the north now require certification.

7. The method of growing certified seed is not materially different from that of growing table stock. Of course, the better grade of seed is always produced where the grower keeps up the fertility of the land and practices thorough cultivation. In addition to this, the grower is required to pull out or eradicate all weak hills or hills that show disease, or which indicate that the variety is mixed. In other words, only plants that show vigor and productiveness and which are free from disease are permitted to grow. In this way, the stock is kept free from disease and from a mixture of varieties, as well as from weak or unproductive hills.

8. From experience it has been found that certain sections grow certain varieties better than others. In the Divide section of the state, an early-maturing variety is preferable to a late one, and undoubtedly this section should become a very important one in the production of early-maturing varieties for seed purposes to supply the southern states. The early varieties grown in the south are the Cobbler and the Triumph. These are both very early varieties and good yielders. Later-maturing varieties like the Pearl are well adapted to this section—in fact, I believe that the Pearl is the best variety for late crop. There is no reason why the Greeley section, which produces the bulk of the Pearl crop of the state, should not obtain their seed from the Divide section.

9. The southern growing section demands either the Triumph or the Cobbler for seed, and no others.

10. The southern grower does not raise his own seed potatoes. The reason for it is this: the south produces two crops of potatoes—an early one and a late one. The early crop cannot very well be held over for seed, and the second crop, or late crop, does not seem to have the vitality to produce a normal crop the year after. Hence, practically all the southern growers obtain their seed potatoes in the north.

11. The southern grower demands mature seed stock. It is safer to handle, and when properly grown, is equal to the immature stock. We should raise what the market requires.

12. The southern trade will not use small potatoes for seed. The present requirement is seed potatoes that will pass U. S. Grade No. 1.

13. This is answered under No. 12.

14. Certified seed potatoes, while not sold on commercial grades, or the grades laid down by the United States Bureau of Markets, nevertheless fulfill the requirements for this grade in addition to certification, as above stated.

15. There should be no No. 2 grade for seed. At present there is only one grade of certified seed. Number 2 would imply greater tolerance in percentage of disease, in size, in trueness to type and varietal purity, and such grade could not be certified to. In other words, at present there is only one grade of certified seed. Number 2 would simply mean seed not certified.

16. The southern grower purchases his seed in the fall. As most of it is planted as early as January, it is necessary that the potatoes should be on hand during the months of November and December.

17. There would not be any need of expensive storage for the producers of certified seed, as they are shipped out before the cold weather sets in.

18. The fact that potatoes have been grown for certification does not in any way decrease their value as a commercial table stock. In fact, it should improve it, and the grower has the choice of either selling them for certified seed or for No. 1 table stock. From this, it will be seen that every up-to-date potato grower should practice the methods laid down for certified seed, regardless of whether the crop is to be sold for seed purposes or

The Irish Cobbler
(Courtesy American Steel & Wire Co.)

for table use. He is the gainer in either case, for by better cultural methods and greater care in keeping the variety pure and free from disease, he increases his yield and thus obtains a greater return from a given acreage.

19. The question of marketing is at present rather complex. If a group of growers in a given section are growing certified seed, they should organize into a Certified Seed Growers' Association, and market jointly. In this way they can reach a certain district, establish a reputation and obtain a permanent market. Such association will aid not only in selling and in obtaining higher prices, but also in obtaining a permanent market. Such association should be formed, and sample by-laws and constitution may be obtained by addressing Stuart L. Sweet, Bureau of Markets, Denver, Colo.

20. If the growers organize, as indicated under 19, a trademark should be adopted, as it means a protection both to the buyer and the producer.

21. The seed law of this state will in no way interfere or hamper the sale of certified seed, as outlined in previous question. They will meet the requirements.

22. The certification will be accepted under the Texas law and there will be no difficulty on this score.

23. The cost of production per acre will undoubtedly be slightly higher for the growing of certified seed than for table stock, but this is more apparent than real. When a grower has obtained a start in growing certified seed and has rogued out or eliminated weak and diseased plants, he will find that the increase in yield will more than offset the little extra labor in rogueing the field. I firmly believe that the cost of production will not increase—in fact, the additional returns for certified seed will more than compensate by higher prices and increased yield.

24. Certified potato seed in the market usually demands a premium over table stock of first grade. This premium varies from year to year, but it has never been less than 25 per cent per hundred, and during most times the prices are from 50 to 75 per cent higher.

25. The renewal of seed stock for the grower should not be necessary if care is taken in rogueing the field and the variety kept pure. Good growers should not need to renew their seed, at least not oftener than once in six to ten years. We have many growers

(Turn to Page 20)

Touring the San Luis Valley With the Farmers

CORN AND RUSSIAN SUNFLOWERS AT 7,500 FEET FOR SILAGE

ALVIN T. STEINEL

CAN we raise corn and sunflowers for silage in this region? Is it possible to improve our potatoes and is it profitable to do so? Does it cost much to raise good crops? Does it pay to select seed with care and treat it for disease? Can we grow certified seed potatoes for the southern markets? Is winter wheat a paying crop here? Are the potato club boys active? Does it pay to grow pure-bred livestock and feed it properly

These are the questions which the Saguache County Farm Bureau asked and answered in a demonstration tour of the Center community August 26th and at Mirage on the following day. Saguache is the largest of the five counties comprising the famous San Luis valley, a vast level plain, once a sea bottom, that lies at an altitude of 7,500 feet, surrounded on three sides by great mountain ranges which give source to the headwaters of the Rio Grande. To speak of growing corn, even to the silage stage, at such an altitude would have been thought foolish just a few years ago, but the doubting Thomases are beginning to admit that "maybe it can be done." The one who writes these lines is still unconvinced on the point of corn, but he gives it to the Russian sunflowers which grow apparently as well at 7,500 as at 5,000 feet, and reach the silage stage in from 65 to 70 days.

Sunflower silage was being cut on one of the farms visited. The average length of growing season is more than sufficient to mature this crop to the proper stage. Several varieties of early maturing corn have been grown for some years by a few farmers here and there in the San Luis valley, but the first organized effort to make corn a regular part of the cropping program is being made this season. Just how far the corn will get before the first killing frost cannot be stated until later, but one thing stands out in favor of the crop and that is, it weathered the freeze of the first three days of June. During that three day period of cold weather, which swept almost every section of Colorado, the government theremometer in the district where these tests are in progress, registered 23 degrees. Readings on some farms showed a temperature as low as 18 degrees in the San Luis valley. Corn that was up—and some of it had reached a height of four to six inches, froze to the ground. However, it made a quick recovery, and when the farmers inspected the various plots, on August 26th, they found some of it well along toward maturity and giving every promise of reaching silage stage in ten days or two weeks. Complete results of these tests will be published as soon as the Saguache County Farm Bureau makes its report through County Agent W. A. Sauder.

Need Cultivated Crops.

The San Luis valley is particularly in need of row crops to help keep down the weeds. The crop list includes wheat, barley, oats, field peas and alfalfa, with potatoes as practically the only cultivated crop. Weeds are infesting many fields. Either corn or Russian sunflowers will be a welcome addition not only as a means of getting rid of the weeds through tillage. but to furnish silage, and thus to increase the number of animals fed and provide more manure to keep up fertility.

The first stop made on the tour of farmers was at Jake Bennington's farm where a field of Early Murdock corn from seed procured in South Dakota, was inspected. This corn was planted May 20th and frozen to the ground early in June. Mr. Bennington was inclined to plow up the field after he saw the effects of the frost, but on the County Agent's suggestion he decided otherwise. On the 26th day of August Mr. Bennington had the pleasure of showing as fine a field of corn as one might wish to see. A heavy crop of forage was certain, silage stage was in promise, and perhaps the grain has fully matured by this time.

Russian Sunflowers on J. F. Wilmarth Farm, Center, Colo.

On the J. F. Wilmarth farm Russian sunflowers showed a most remarkable growth—easily a 25 ton yield—and were about ready for cutting up as silage. Rainbow flint corn from North Dakota and a variety of early maturing corn from Oregon also were good to look at.

On the R. A. Trout farm there were more of the Russian sunflowers and a fair stand of heavily eared Minnesota No. 13 corn.

The next stop was on the Bell farm, where Claude, a member of the Boy's Potato club, showed his plot of seed potatoes, which are being grown under conditions required for pedigreed seed. The young man explained method of planting, told how the seed had been treated with corrosive sublimate before planting and how the plants had been sprayed for blight and bugs. The seed for this plot was selected out of nearly 200 sacks of Brown Beauty potatoes. Whole potatoes were planted, as is the custom in the San Luis valley. There was practically a full stand. Hill selections will be made—or rather have been made by this time—from this plot for next season's seed. Claude Bell is one of thirteen youthful farmers in that district belonging to the potato club and engaged with a number of adult farmers in providing a strain of pure, disease free seed for farm use, with possibly a large seed market development in the future.

The young man is also a member of the Pig Club and the visiting farmers got a chance to see what he was doing with a litter of purebred Duroc Jerseys.

Seed Potato Demonstration.

On the J. B. Smith farm another seed potato plot was inspected. This had been planted from hand selected seed, the varieties being Brown Beauty and Burbank. Here the county agent pulled up several hills and gave a demonstration in potato seed selection. Discussion of the question by the farmers, out in the field, where they had the pedigreed seed plants before them, proved intensely interesting.

Thirty-five acres of pedigreed seed are being grown in this way by Saguache county farmers to furnish seed stock for their own planting for 1920 and the future.

On the farm of W. A. Noffsinger, a pioneer in the Center district, the visitors saw several demonstrations in better farming that were of great practical value. The most interesting was a field of Turkey Red winter wheat, 80 acres of which had just been cut and shocked. Winter wheat is an unusual crop in the San Luis valley. "Yon can't grow it up here," is often heard. But Mr. Noffsinger knows that it can be grown and that it has a place in the farming program of the valley, because he has tried it not one year but many.

The general impression is that winter wheat will not do well because there isn't enough snow to protect the plants from the low temperatures of the winter.

Winter Wheat Does Well.

"That is not true," says Mr. Noffsinger. "All you need to do is to provide plenty of moisture in the fall, which we can do by irrigation. If the wheat gets a good start in the fall through this moisture it will live through the winter. The great advantage over spring wheat, to my notion, is that the fields are clean of weeds. The wheat gets such a start in the spring that the weeds are choked out. With spring wheat it is always nip and tuck between wheat and weeds, consequently we have many weedy fields and that cuts down the yield and the quality of the wheat."

Looking over the stubble and examining the shocks it was clear that the weeds were missing and that the crop was one of wheat alone and not a mixture of grain and wild sunflowers, as is often the case where small grain has been grown repeatedly on the same land.

Mr. Noffsinger sows his winter wheat about the middle of August, so must carry seed over from a previous crop, as his present crop is still in the shock when time comes for sowing again. It takes more than twelve months to ripen the winter wheat but with plenty of land available and water for the fall irrigation, he thinks the crop is a paying one. The present is the fourth good crop of winter wheat he has grown. Not having threshed, the yield cannot be stated, but the judgment of those who looked over the field is that it will make upward of 25 bushels per acre.

Smutnose flint corn grown on the place also interested the farmers, as did the fine Poland China hogs. Mr. Noffsinger is a practical hog raiser of long experience, and has been one of the most successful farmers in the valley in that line. His neighbors say that much of his success is due to keeping his hogs in good condition by ample feeding. Some farmers in the district where alfalfa and field peas grow so luxuriantly without much care expect their hogs to grow in the same way. They won't do it. They need good care, good housing and intelligent feeding and that accounts for the profits that men like Mr. Noffsinger have made in pork production.

Minnesota No. 13 Again.

After enjoying a basket dinner in the grove on the Noffsinger farm, and a short program of speechmaking, with Mr. N. E. Morgan, president of the Saguache County Farm Bureau presiding, the farmers continued their roundup, going next to the George Truckenmiller place. There they saw what was pronounced the best stand of corn of any of the demonstration plots visited. Minnesota No. 13 made a growth here that could not be surpassed by the same variety in the irrigated districts of the plains counties, 2,000 feet lower. This is no exaggerated statement, for the writer of these lines, two days later, saw Minnesota No. 13 near Rocky Ford that, while further along toward maturity, was no better as forage than the corn on the Truckenmiller farm.

The corn was planted June 10th, some from seed grown in southern South Dakota and the balance from seed produced in the northernmost section of that state, on a branch experiment station. Late planting saved this corn from setback through the early June freeze, and planting on ground that had been in alfalfa caused it to make a rapid, thrifty growth that more than made up for the late planting. One could clearly see where the alfalfa field had ended, because corn rows beyond that line showed more spindling plants. Water seemed to have made no difference; there has been water enough in the San Luis valley for any crop this season—and there is seldom a shortage. Fertility and cultivation, however, have been important factors in getting corn toward a ripening stage by the end of August.

On all plots inspected it was interesting to note the progress of corn not only from seed of different varieties but from seed of the same varieties grown in different latitudes. The northernmost seed naturally makes the best showing under San Luis valley conditions—which means cool nights, cold water for irrigation, but hot days with continuous sunshine. The ground does not have a chance to get cold beneath the surface unless water is applied at the wrong time, or too frequently. After the soil warms up in spring it will stay warm, if irrigation is not overdone.

Horse Beans, A New Crop

On the W. S. Edwards farm horse beans grown for feed proved a curiosity. They showed a perfect stand, heavy growth and were covered with large podded beans. Horse beans are hardy. It is said they will stand a temperature as low as 15 degrees above zero—that is the hardier varieties will. The large flat seeded varieties may be used as a table vegetable. as are other beans, but they are generally grown for stock feed in European countries. They have practically the same feeding value as field peas. They are used for hogging down in some parts of California, but have not proved successful as a hay crop. The crop is more partial to a

(Turn to Page 12)

Sudan Grass at 7,700 Feet, on J. J. Parsons Ranch, Mirage, Colo.

Has Both Beef Breeds

If one were to ask J. H. Neal of Moffat, Colorado, which of the two leading beef breeds he preferred he would probably answer: "Both." He would be referring to Herefords and Shorthorns. There is a reason for his neutrality and it is that he owns a purebred herd of each breed—some fifty registered white faces and 30 or more of the Scotch cattle, besides a big herd of high grade range cattle. The ranch is located at the foot of the Sangre de Christo mountains. Here he has every advantage of mountain range for the 2,000 head of stock cattle and fenced meadows of rich native grasses intermingled with red and white clovers for the breeding herds.

Count Valentine, the Herd Sire of J. H. Neal's Shorthorns at Moffat, Colo.

Curiosity to see Count Valentine, a Scotch bull bred by Forsyth & Son of Missouri, brought the writer to the Neal ranch with a group of farmers from the Mirage community, in the upper San Luis valley. This young animal won the grand championship for Mr. Neal at the San Luis valley stock show in Monte Vista last winter. He is of classic Scotch blood and build, a youngster whose pedigree is in the purple and who has the style that appeals to judges. He would make a good showing in the competition at the National Western next winter and we hope to see him there.

Mr. Neal has bought a number of heifers from Sam Ball of Wray, the noted producer of shortgrass Shorthorns, and they do well in their new environment in the higher altitude. There used to be—and still exists in some quarters—an impression that mountain conditions are not conducive to the best development of the Shorthorn. That theory is being exploded. One can go to many mountain ranches now and see Shorthorns of good breeding holding their own with any other breed. Breeding herds thrive at higher elevations and foundation stock for the farms of the valleys and plains can be drawn from this stock with an assurance of health, vigor and fleshing qualities that cannot always be given by breeders in the corn belt, where pedigreed stock is too often kept under hothouse conditions.

To see the Shorthorns and Herefords handled under the same conditions, as is the case on the Neal ranch, merely emphasizes what our western farmers already know that there are sound reasons for the popularity of these two breeds in the west. Once the Herefords had the exclusive call, gut the Shorthorn breeders have overcome the handicap by putting their cattle out in the open, where they have responded just as nature intended the grassfed race of beef animals to do.

Bonnie Lad 7th and Bonnie Lad 8th, two young sires from the Weston herd, were shown by Mr. Neal as the type of his Hereford bulls of which he has a good bunch in service on the range.

Wells that go down to the artesian flow, 600 to 700 feet deep, with mountain creeks and springs furnish water for the corrals and pastures. There is a lighting system for ranch house and barns. Peas and oats are grown as a hay mixture and there are many acres of native hay, the cutting season being at hand, with a big crew of haymakers to feed and shelter. Haying time is a busy time on the ranch, but Mr. Neal was not too busy to show the purebred stock. While a good many sales are made to individual farmers who call at the ranch, Mr. Neal has an annual aucton which always brings a good crowd of buyers. This is held in the winter. Dates for the next sale will be announced in due time.

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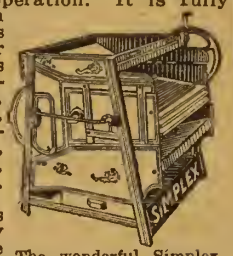

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A cereal disease survey of Colorado has just been completed for the purpose of checking the results of the smut eradication campaign conducted last spring. Notes were taken in the field on the prevalence or absence of all diseases of small grains, of which smuts, rusts, and barley stripe disease are the chief offenders. A total of 6,700 acres of wheat, oats, barley, and rye were examined in the following counties: Prowers, Otero, Pueblo, Kit Carson, Arapahoe, Douglas, Logan and Larimer. Where seed treatment was practiced very little smut was found, but where the seed had not been treated as high as 25 per cent smut infection was recorded.—James Godkin, Colorado Agricultural College.

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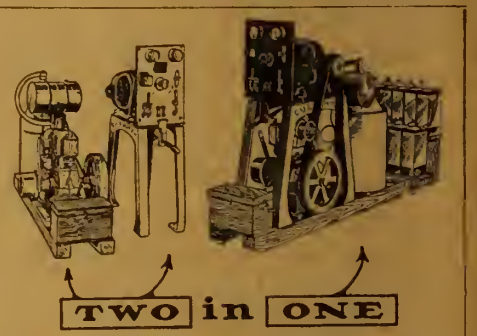

Picture on left shows outfit divided into power plant and light plant.

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Clark's Travel Letter

Mr. Thomas Jefferson Putnam,
Salem, Colo.
Dear Tom:

I must write to you and Josephine regarding our dairy excursion yesterday. It was a fine time. You know the farmers of Larimer county have what they call a farm bureau and it was this that fathered the excursion. Of course, it was made up of both town people and farmers and about 150 strong. We left Fort Collins early in the morning with our baskets laden with fruit and all kinds of good things to eat. When we got to Loveland we lined up in the street to show off and had our picture taken. We were certainly proud of ourselves. At Loveland we learned of a billy goat that was giving milk, so off we went to see it and sure enough Tom, this male goat has two well developed teats and gives about two quarts of milk a day. There is an idea there for our scientists. I never did believe in the dairy qualities residing in the sire, but Tom, we must believe it now, for there it is. Just think, Tom, what a blessing it would be if all our bulls produced milk like this billy! Old H. C. L. would get a blow. Old Billy is producing more milk than some cows! This is what I call a dual purpose sire.

We went from Loveland to the farm of J. W. Purvis near Johnstown. He has a fine herd of Guernseys both grade and purebred. His herd bull was grand champion at the National dairy show once and he has a cow that last year produced $160 above the cost of feed. After filling up on lemonade and apples we next went to the farm of W. A. Purvis, a breeder of Holsteins. This is certainly a fine layout. In this herd we saw a cow that last year produced 17,430 pounds of milk and 634 pounds of butter fat. Another cow in this herd has a record of 90 pounds of milk a day and in four months she produced 284 pounds of fat. For the four months her feed bill was $99 and her profit $101. Some people don't believe in a pasture but Mr. Purvis does and has a fine one and he thinks his success is due largely to it. Mr. Purvis feeds aside from his pasture, ground alfalfa, silage, dried pulp, corn, oats, cottonseed meal, linseed meal and gluten meal.

H. H. Griffin of Fort Collins doesn't think it poys to grind the alfalfa. He says that if the alfalfa is good the cows will grind it and if it isn't good they should not have it. I agree with him. The experiment stations have tested it and that is their conclusion.

There were lots of discussions on the trip. P. D. Goss of Loveland, a Jersey breeder, says you never hear of town people keeping Holsteins. He says it costs too much to feed them; they give more milk than the family can use and the milk is low in quality. I don't know what to think of his argument. I like to milk a cow that gives lots of milk, and if she produces it cheaply I think there will be some way of disposing of it to advantage.

The milking machine was found on many farms. Some were in use and some were discarded. They are run by gas engines and I think the objection arises mainly from the engine. Farmers don't like to fool with an engine when they have a string of cows to milk and they finally milk by hand, getting through at noon or midnight. They say it is too aggravating. I mustn't forget to say that some farmers like them fine. I guess it is about two and two.

Every farm that we visited, Tom, had a silo and the owners all said they wouldn't attempt to run a herd without one. They say silage is the best and cheapest feed they can secure. I mustn't forget to tell you about the Cow Testing association. It is great and the farmers all swear by it. Roy M. Curtis, a student of the Agricultural college is the official tester and he is doing fine work. You ought to see those farmers listen to him. They think he is it and I guess he is. He has exploded the Haecker theory of feeding according to production. I do not know about this, though Haecker is pretty good himself. Mr. Curtis says to know your cow and then feed accordingly. It looks as though he is right, because he has gotten results and has put Johnstown on the map. The day of feeding just by the pitchfork must be about over. Everything else has changed and why shouldn't methods in dairy feeding change.

The first month after calving Mr. Curtis feeds very liberally of grain. He starts in low but gradually increases until the cows will take all they can consume of a mixture of equal parts of cottonseed meal, gluten meal and linseed meal. After the first 30 days he readjusts the amount. He feeds only dried pulp as a grain when the cows are going dry, but when they are dry he feeds grain again to put them in good shape for the next lactation period. He likes barley and corn in the grain ration when the cows are dry. It looks good to me.

In paying the tester the farmers pay on the basis of 20 cows. If a farmer has 20 cows in the association he pays $3.00 per head per year, if he has 19 head he pays $3.05 and if he has 21 head he pays $2.95 per head and so on. That looks good, doesn't it, Tom? It can't be beat. This association has increased the profit of every herd in it. C. H. McNeal near Milliken had the fat increased per head per year from 234 pounds to 326 pounds, W. A. Purvis from 283 pounds to 38 pounds and a lot of other herds have increased to the same extent.

The interesting thing of the dairy industry of Johnston is it was started and developed by bankers Mr. T. H. Hill, formerly of Johnstown but now of Loveland and Mr. W. T. Letford, President of the First National Bank of Johnstown. When they started this work in 1911 people had little faith in it, but gradually they have come to see the wisdom of it. Mr. Hill has made 18 importations with an average of 50 cows, or a total of 900 cows. The bank has loaned many thousands of dollars to the dairy men of Johnstown and every penny has been paid. How fine it would be, Tom, if other bankers could see things in the same way. They would soon change farming conditions in Colorado. I think the dairy business is safe and sound. A farmer is sure to make a good living and get ahead a little. There is no gamble to it. A fellow may feed cattle or sheep and make a lot of money, or may go dead broke. I know some who went broke and are going to stay broke, but that never happens with a dairy herd. Don't forget that Tom. Remember me to Josephine and the children.—R. W. CLARK.

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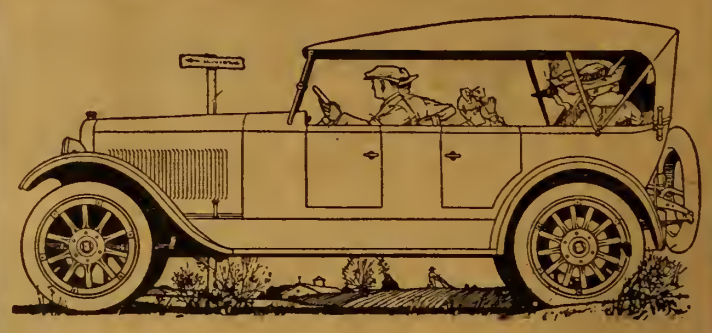

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W. E. VAPLON.....Poultry Raising
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Delayed By A Strike

The present number of Western Farm Life has been held up by a strike of the printers of Denver, which lasted two weeks. It has been necessary to omit some of the articles prepared for this issue, in order to save time. We trust our readers will pardon the long delay, which was unavoidable.

✦ ✦ ✦

Paying the Cow Tester

An item of news sent out by Kansas State Agricultural college reads as follows: "A number of positions as testers of cow-testing associations in Kansas will be open in the near future and the dairy department of Kansas State Agricultural college is making an effort to find competent men to fill the places. The work pays $65 a month and expenses. There are thirteen cow-testing associations in Kansas. It is the duty of the cow tester to spend one day of every month with each member of the association that employs him. While at the different farms he weighs the feed and milk and tests the milk for butterfat by the Babcock method."

Kansas is evidently having the same experience with cow testers that Colorado has had—that is, capable men are hard to find. The reason is not far to seek. "Sixty-five dollars a month and expenses" tells the story. Young men qualified to do the work must be graduates of the secondary agricultural schools, or of a rural high school where agricultural training is given. In many cases cow testing is the first job tackled, and "$65 and expenses" look like ample pay under the circumstances.

In practice it is found that the tester has many days when he must board himself, and there is often a question, also, as to the nature of the expenses which he can call on the association to pay, so that, at the end of the month he finds that his salary is half used up in getting around among the farmers whose cows he is testing. Under present circumstances $65 is a poor wage. Young men with ability to act as testers and equipped with sufficient knowledge to figure rations and make suggestions for improvement in the feeding program are worth a good deal more money, and can get it at other occupations. Some associations in Colorado pay much larger salaries, and their success has been in proportion to the ability of the tester. Several associations have failed and one reason undoubtedly has been the meager wage offered.

If a cow-testing association results in great increases in profits from a dairy herd through the discovery and weeding out of unproductive cows and the revision of the feeding program on the basis of the individual animal, instead of by the haphazard herd method, the young men engaged in this important labor deserve adequate pay. The cow-testing association is not a fad foisted upon dairy farmers by theorists of the colleges, but a business proposition which, if properly supervised, results in economical milk production and the building up of productive herds. Dairy farmers must realize the necessity of paying for this service. Adequate pay will get efficient men.

OUR NEW ASSOCIATE EDITOR

Progress is a short but expressive word. It will do for any man's motto. I have adopted it as mine in the conduct of this magazine, for two reasons. First, it means that I must keep on the move if I would have Western Farm Life constantly growing better and bigger, in line with the demands of this rapidly expanding territory. Second, it means that my going forward takes the reader along on the path of progress in better farming. This little explanation leads me up to an important announcement.

We are to have another addition to the editorial staff in the person of Harry A. Lindgren, whose title is to be Associate Editor. He will assist Mr. Steinel in general editorial work, with livestock as his especial field. He resembles the managing editor in that he is not what we in the publishing business call a "desk man." He will not stand for being tied down to an easy chair in a private office. He is a farmer by birth and training, loves the great outdoors, was raised on the prairies of Colorado and in the woods of Oregon, and he joins the Western Farm Life family thoroughly equipped by education and practice to help us in our program of progress on western farms and ranches.

Mr. Lindgren was graduated from the Oregon Agricultural college with the degree of Bachelor of Sciences. He took special work in animal husbandry and dairying. Having been raised on a general farm where dairying was carried on with other operations, his education proved to be the rounding out of the practical training he got in his youth, first in the Arkansas valley of Colorado and later in the state of Oregon. After his graduation he entered business life for a time—but the business was that of the manufacture of dairy products, he serving as manager of a creamery at Elkton, Oregon. Later he was appointed superintendent of a branch experiment station for the state of Oregon, located at Astoria, where the principal work was dairying.

From that post he stepped upward to enter the Bureau of Plant Industry, of the United States Department of Agriculture at Washington. His first assignment was the position of agriculturist on the Uncompahgre reclamation project, with headquarters at Montrose, Colorado. He has been serving in that capacity about four years, and his record is well known to the farmers of the Western Slope, where he has been prominent in all agricultural activities.

Livestock development has been his chief duty on the project. This has taken several lines: the bringing in of better stock, the changing of the farming program from grain growing or orcharding to a livestock basis, and the organization of co-operative associations for the better handling and marketing of livestock. He has been especially active along organization lines, and on another page of this issue will be found an article written by the managing editor regarding this phase of Mr. Lindgren's work.

The decision to engage him as Associate Editor was not a hasty one. We have been searching for the right man for the better part of a year. Mr. Steinel, in his rounds, has visited the Montrose country several titmes, and each time he was impressed with the earnestness of Agriculturist Lindgren and his effectiveness in putting over movements that benefited the farmers. He has done this not only through lectures, addresses and personal farm visits but in a most effective way also through his articles in the papers published at Montrose, Olathe and Delta.

Mr. Lindgren has a wide circle of acquaintances among the beef cattle, dairy cattle, hog and sheep raisers of the West. As Associate Editor and Livestock Specialist for Western Farm Life he will come in contact with many others of our breeders and farmers. His advice and counsel will be available through our Service Bureau and personally. He will attend meetings of the livestock associations, the fairs and stock shows and visit farms and ranches throughout the mountain states. I know you will like him, and his work will speak for itself through these columns beginning with the issue of October 1.

W. S. Edmiston

PUBLISHER.

The Denver Ram Sale

Three thousand rams and ewes will be offered at public auction at the second annual National Western Ram sale, to be held at the Denver Stockyards, September 30 and October 1, 2 and 3. The offerings will include both registered and high grade stock of all the principal breeds. The big breeding herds of the entire nation will be represented in the pens and flockmasters and farmers are expected from every state west of the Missouri river. There will be stud rams and range rams, stud ewes and range ewes of the Rambouillet, Cotswold, Leicester and Lincolns, Shropshires and Hampshires, Oxfords and Southdowns and the Crossbreds. The sale will be the greatest gathering place of sheepmen of the year.

Emphasis is being laid on the offerings for farm flocks. Every year finds a greater interest in the animal that uses up the surplus feeds on the farm and returns the owner several crops of wool and a crop of mutton at very little cost. This will be the farmer's opportunity for buying foundation stock and buying it right, for he will find at Denver the largest and best offering in all breeds ever assembled for any similar occasion.

Those desiring further information should write to Fred P. Johnson, manager, National Western Ram Sale, Denver, who will send catalogue free to any address.

The Colorado Year Book

The 1919 issue of the Colorado Year Book, prepared and published by the State Immigration Bureau, is completed and is now being distributed. It is the second book of its kind published by the state of Colorado and is conceded to be the most complete volume of general information regarding state resources and development published by any state.

The first Year Book, published in 1918, met with such general favor that the state legislature, in order to provide for the continuity of the statistical records it contained enacted a law requiring its publication annually by the Immigration Bureau. The second volume follows in a general way the plan and style of the first, but it is much more complete and contains a large amount of information that was not available for the first book. All statistical information has been revised and brought up to date and several new sets of tables have been begun.

The most important new feature is the agricultural tables, giving for the various counties the agricultural information collected by county assessors this year under a law enacted by the Twenty-second General Assembly. There are nine of these tables this year, containing the acreage by counties of all the principal crops grown in the state this year and other agricultural information gathered by the county assessors.

The Branding Iron

Applied by Elias M. Ammons

The recent slump in livestock prices has only partially been realized by consumers. This is in accord with usual experience.

✦ ✦ ✦

With three dollars' worth of wool used it is not the sheep grower who is responsible for the seventy-five dollar suit of clothes.

✦ ✦ ✦

A Colorado farmer who sold his beans last spring for four cents a pound was charged sixty cents for about one penny's worth at an eastern hotel the other day.

✦ ✦ ✦

In the titles of the oil leasing bill which just passed the senate and the licensing measures to regulate certain food products there is given the stated purpose to "stimulate production." Inasmuch as this is merely a catch phrase to gain support and the result is almost certain to curtail production, this sort of camouflage should be relegated to the junk pile of political buncombe. The United States senate certainly ought to be above such pettifogging.

✦ ✦ ✦

Northern Colorado feeds about one million lambs a year. Usually more than half of them are contracted in advance. Up to the present time it is asserted none have been purchased. The shortage in the hay crop and the consequent high prices, the prospect for continued high price of grain, and the short beet crop are enough to discourage feeding, but the agitation in congress and the desperate effort to cut down the price of meat animals have made future markets so uncertain that feeders seem unwilling to take chances.

✦ ✦ ✦

The appeal of the president for conservative thought and action during the readjustment period is timely. It is more apparent every day that constantly increasing wages and prices will never solve the high cost of living. Tariffs and other expedients may affect the situation slightly or temporarily but ultimately business must be conducted approximately on a basis of world's prices. If it be true that ninety per cent of the cost of all commodities is labor it must also be true that articles of food and clothing must advance in price in proportion to increases in wages and probably more because profits are figured in percentage on each turn over. The tendency of all investigations, official and otherwise, indicates practically a united effort to cut the prices of the original producer first. While some temporary advantage might follow from such a course the ultimate result would surely be less production, greater scarcity and higher prices. It may be possible with combined efforts to cut food and clothing materials below the cost of production but the country will certainly find out it cannot safely make the farm the shock absorber for the whole machine.

The Draft Horse Situation.

The farmer who takes any thought for the future will not sell work horses this fall, until he has located and purchased enough twos and threes to take the place of the older ones he plans to dispose of. Export buyers will not take stuff under 4½ years of age and would rather have them over 5. The demand for export horses, combined with the existing shortage, will send good big drafters very high within the next three years and the men who have held fast to good stock will reap the harvest they are entitled to.—Wayne Dinsmore, Secretary Percheron Society.

"Alcohol ruins the health."

"Yes," answered Uncle Bill Bottletop; "but a man who gets careless with alcohol now is liable to need a lawyer worse than he does a doctor"—Washington Star.

"So you married that Miss Meek. I remember her well—a quiet, shrinking sort of girl."

"Nothing shrinking about her; she's twice the size she used to be.—Boston Transcript.

Comment by Farmer Putnam

OUR MISSOURI FRIEND HAS A GOOD TIME VISITING WITH SAN LUIS VALLEY FARMERS

YOU folks that hain't never been down in the San Luis valley don't know what your missin'. It's my favorite visitin' place. People is so sociable like that it makes me think I'm back in Missouri, and it gits realistick when a skeeter bites me onct in the while—or in the back of the neck. I went down to see them two county agents, Mr. Hyatt of Rio Grande and Mr. Sauder of Siwatch county. I didn't know how to pronounce it at first and called it Sagushee, but one of the natives told me Siwatch was the right way. After spendin' a short while in Monte I drove on up to Center and put up at Sellses tavern. Old Man Sells is a hunter and fisherman of the old school —the kind that never go fishin' without plenty of bait and don't use the bait to feed the fish neither! Now since the whole world has sort a gone dry them old time fishermen and hunters don't have the luck they used to and they're more apt to get roomatism while fishin' or snakebite while huntin'. Life's perils is constantly increasin' with our higher civilization. Settin' around the stove in Sellses tavern with some of the old timers that night we all was wishin' fur the old days back—not that I'm ag'in prohibition, but sometimes I wish somebody'd come and invite me to violate the law. I had a feelin' that, away off down in the San Luis valley, outen sight of Josephine, I could a been tempted to take a swaller of rasin juice.

That ain't what I started out to write. Mr. Sauder wanted me to come down to go with him and a crowd of country folks visitin' farms where corn and sunflowers was bein' tried. He advertised me on pink handbills—"Don't Fail to Hear Farmer Putnam"—and a lot of people come to Noffsinger's grove thinkin' they'd git to hear a speech. Well they was durn bad disappointed. One feller sez: "Well I thought the old gink would make a speech. They ain't nuthin' to him except his whiskers. I wish they'd sent Josephine down, then we'd a heard somethin'."

He's right; they sure would a heard a speech. That woman is a darter of Demossthenees—and I'm her favorite forum.

What I want to tell you all is about the sunflowers and corn. The San Luis valley don't need to worry about sunflowers—they grow so promiscus like that some wheat fields looks like one big smear of yaller blossoms. Of course them's the wild or Kansas variety. It's the Russian sunflowers that the farmers wants fur silage and them will grow too. I seen 'em ten feet high on some San Luis valley farms.

But corn is not so sure, but if I don't miss my guess there'll be plenty of corn and sunflower mixed silage put up by the valley farmers in a few years What they need worse than crops is more cows to feed 'em to—beef and dairy cows and sheep.

I purty near got my foot into it by talkin' too much to a few farmers in one of the corn fields that we was lookin' over. I sez to 'em: "This here corn is the thing fur you farmers. Cut it and put it down in pit silos and insure your winter feed."

"What kind of silos did you say, Mr. Putnam?" sez one of the farmers.

"Pit silos," sez I, "Dig a hole in the ground, wall it up with concrete and you've got as good a silo as you could wish fur."

"How deep would you dig it?" he sez.

"Oh, twenty-five to thirty feet," sez I

"How would you keep it afloat? Don't you know we strike water at four or five feet most anywhere in this valley?"

Well he purty nigh had me, but I sez: "Now stranger, I know that and I didn't mean to recommend a concrete lining fur the San Luis valley pit silos. Down here where your water is so clost to the surface pit silos has to be lined with cork to make 'em water tight and keep 'em from sinking. Silos must be airtight and water tight above all things."

"Where can we git that cork lining?" he sez.

"Well," sez I, "I'm afraid it ain't to be had because durin' the war all the cork mines was taken over by the government."

"What government?" sez he.

"The government of Cork," sez I, and before he could trip me up the county agent blowed his whistle and we drove on to the next farm. I kept still after that and let the county agent do the advisin', because them conditions in the San Luis valley is queer. The valley is the bottom of a old sea but it's 7,500 feet in the air! I reckon it got turned upside down when the mountains was formed, all the water was spilled out and left the wrong side of the bottom exposed on which the grass and chico growed up and covered everything. Them thar ain't exactly geological facts, but my guess is as good as Prof. George's.

Well after spendin' a day over around Center and Hooper, me and Mr. Sauder drove on over to Moffat and Mirage. I was well filled at Noffsinger's the day before, but when we got to Moore's ranch at noon on Wednesday I could say with the Psalmist, "My cup runneth over." Not only my cup but my plate run over. It was nip and tuck between me and Sauder but tuck won—I was nip. Them county agents has got unlimited fried chicken capacity—and unlimited opportunity to satisfy the cravin'. Sauder has had a good job at higher wages offered him, but he refused to take it. He sez as long as the people of Siwatch county supports the county agent like they do—with chicken dinners and gunny sacks full of roastin' ears, red beets, spuds and so on, why he wouldn't think of quittin'.

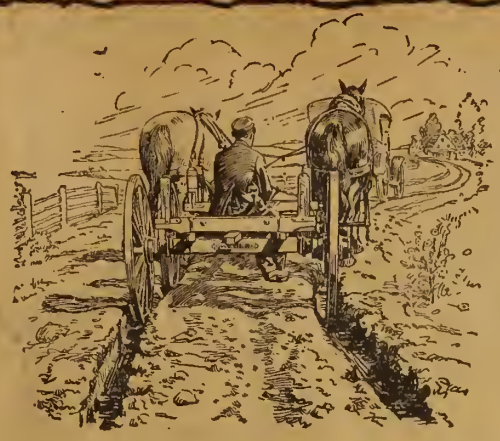
Over to Moores the wimmin folks got the grub ready while us men folks was inspectin' the fields. This ranch was only a few miles from them snowy peaks of the Sangre de Christo, but here was corn, squashes and pumkins agrowin' like in Missouri. I've made up my mind that the trick about rasin' crops in a short season country ain't in irrigatin' 'em, or in findin' new kinds of crops in China, but in puttin' our minds on the job and goin' at it intelligent like, disregardin' them frost statistics. The trouble with figgers on frost is they are gathered near sea level. On the mountains where the atmosphere is rare and the sunshine intense, after the ground once warms up in spring it takes a mighty hard freeze to stop plants from growin'.

I'd like to write more about all them good people in the Siwatch country, but space in this here magazine is sold at so much a yard and the Editor sez if I take all the space they cain't git in no money on advertisin' to pay my wages, so I'll have to quit fur this time, hopin' you are all havin' good crops and that the sellin' prices will stay up and buyin' prices come down.

Thos. Jefferson Putnam.

Getting Rid of Flies

H. R. Lochry, cheddar cheese specialist of the Western Office Dairy Division, U. S. D. A., has been visiting the various cheese factories in Utah and Idaho, assisting the cheesemakers in turning out a more uniform product, also recommending to them in several cases the need of certain equipment for the purpose of improving the methods of manufacture. Just at this time of the year the creameries and cheese factories are having a great deal of trouble keeping flies out of their buildings, and in Mr. Lochry's trip through Idaho he found several creameries using Buhach powder to good advantage. The powder can be bought at most of the drug stores at $1.75 per pound and is usually scattered in the room where the flies are by means of a bellows. If no bellows is at hand an electric fan is just as good or better. After the work is done, close the windows and door and start the fan and slowly sift the powder in front of the fan and in a short time the room will be filled with the fine dust. The flies get this dust on them and are smothered by it and can be swept up the next morning and burned. If the powder is scattered once or twice a week and the room is well screened, the room can be kept comparatively free from flies. At Kuna, Idaho, the cheese workroom is 50 by 14 by 12 feet and about three-fourths of a pound of powder was used and not a single fly was to be seen in the room the morning after the powder was scattered. The powder is not poison, so there need be no fear from using it.



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3. **Auto-track 56-inch tread**—Your new **Weber** or **Columbus** wagon will follow the universal track, smoothly, without the old rough-road strains on gears and wheels.

4. **Weber and Columbus quality**—This is the feature the economical wagon buyer places first. International best materials and careful construction give him a wagon the fine work of which shows up years later when the cheap wagon is out of the running.

It is easy to make a mistake in your wagon buying. It is not easy to detect low standards under paint and varnish, or to see the pitfalls behind so-called low price. But easiest of all is this method of buying certain and complete wagon satisfaction—choose **Weber** or **Columbus**. See the International dealer.

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Mail in your old shoes, have them repaired and delivered free anywhere in the United States

Touring The San Luis Valley With The Farmers

(Continued from Page 5)

cool climate even than field peas; in fact, it is claimed they will stand very little hot weather.

The next stop was on the J. F. Ashton farm, where Brown County (S. D.) yellow dent and squaw corn were the interesting things. Squaw corn has been grown by Mr. Ashton for several seasons and it has usually ripened before frost.

Hog Houses on American Guaranty Company's Ranch at Hooper, Colo.

On the G. F. Rudd farm 40 acres of corn including nine varieties are being grown this season. The stand was good on most of the plots with promise of maturing the earlier varieties.

Cutting Sunflower Silage.

On the C. E. Gibson ranch there was a practical demonstration in the making of sunflower silage. Mr. Gibson had his cutter rigged up with a Fordson tractor furnishing power for it. When the cavalcade of autos approached the engine was started. Here the farmers saw for the first time, the Russian sunflowers fresh from the field, being cut up and "canned" in a hollow tile silo for winter use. Mr. Gibson has two acres of sunflowers for test purposes, and he will fill up the silo with other crops.

There are only a few silos in all of Saguache county, so ensilage making was new to most of the farmers. To see a crop producing twenty tons or more to the acre, and ready for the cutter before the end of August, was a revelation of the possibilities of the Russian sunflower.

The last place on the day's schedule was the ranch of the American Guaranty Company at Hooper, where Manager W. H. Hunter showed his herd of registered Duroc hogs, of which he has some fifty or more besides seven or eight hundred stock hogs. The alfalfa fields were literally alive with pork. The ranch is equipped in the most modern fashion with movable hog houses to the number of 150.

County Agent Sauder assisted in selecting the foundation stock of registered hogs, some coming from the McIntyre herd at Denver, others from the American Beet Sugar Company's herd at Rocky Ford. Recently Mr. Hunter bought King Red Wing, 286419, a yearling boar, at the Blue Ribbon sale in Pueblo, and the farmers were eager to see this striking young show animal in his new home. They liked his looks.

In the Mirage Community.

The second day of the Saguache county demonstration tour brought us over to the east end of the county, with Moffat as the starting point and an early morning visit to the ranch of J. H. Neal, breeder of Shorthorns and Herefords, whose operations will be told about in a separate article. The second stop was at the farm of W. N. Shamhart where Northwestern Dent corn was found to be ripening while Russian sunflowers, which had been planted late, were backward.

On the J. J. Parsons ranch there were several demonstrations of what could be done in the higher elevations of the San Luis valley. The first field inspected was white sweet clover, which is being grown for hay and which had just been cut for the second time this summer, the hay being in the shock. The first cutting was made about the middle of July. This field was sowed two years ago in spring. Mr. Parsons says he has no trouble in ripening white sweet clover for seed at this altitude, (about 7,700 feet) although it is claimed by some farmers that the yellow sweet clover is the only variety that matures seed at such elevations.

Sudan grass is another interesting crop on the Parsons ranch. This hay crop, which according to the bulletins is not successfully grown at above 5,000 feet, persists in knocking tradition into a cocked hat. It not only makes fine hay year after year at 6,000 feet in some of the eastern slope counties of Colorado, but is getting a foothold in the San Luis valley, as evidenced by the crop on the Parsons ranch, which is illustrated in the pres-

HOW TO INCREASE CROP YIELDS

A Story of Interest to Every Ambitious Farmer.

By W. W. Burgess.

I have just finished reading a wonderful book that positively showed me how to make an extra $10 per acre. This book is called: "How Spreading Straw Increases Crop Yields," and is given away absolutely free by Mr. L. D. Rice who perfected the Simplex System.

I believe that the Simplex System of spreading straw will increase wheat yields from 5 to 15 bushels per acre and other crops proportionately.

This book is profusely illustrated and intensely interesting and since it is sent free for the asking, I advise every farmer to write for it. Simply write a card or letter to L. D. Rice, President, Simplex Spreader Mfg. Co., 722 Traders Bldg., Kansas City, Mo.—just say: "Send me your free book," and it will be sent immediately.

Began as Farmer Boys

At a luncheon which they attended as guests of honor sometime ago, the following men stated that they began life as farmer boys

Judge E. H. Gary of the Steel Corporation.

F. W. Woolworth, the originator of the five and ten-cent stores.

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True Value in Hosiery is Measured by the Extra Wear it Gives

It is one thing to get good looking hosiery—and quite another to get hosiery with long-wearing value. You get both when you buy Durable-DURHAM. To know the true value of this hosiery is to save on your stocking expense. Money is saved with fewer new pairs to buy—and the trouble of darning is avoided.

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GLORIANA (Banner)

All year wearing stocking. Soft combed yarn, lisle finish. Extra fine gauge. Wide elastic tops. Strongly double reinforced heels and toes. Black, white, cordovan.

DURABLE DURHAM HOSIERY

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Every pair of Durable-DURHAM Hosiery is extra strongly reinforced. The legs are full length, tops wide and elastic, soles and toes are smooth, seamless and even. Sizes are accurately marked.

Look for the trade mark ticket attached to each pair. You should be able to buy Durable-DURHAM Hosiery at any dealer's. If you do not find it, please write our sales office, 88 Leonard Street, New York, giving us the name of your dealer.

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Now is the time to buy steel roofing. It has dropped in price below what it was six months ago, and far below what you paid one year ago. Good news in these days of increasing prices.

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Write us for catalogue and samples of roofing, steel siding, barbed wire, iron posts, farm gates and many other farm necessities.

STEEL ROOFING & STAMPING WORKS,

519 S. W. 2nd St., Des Moines, Iowa.

ent issue from photograph taken by the writer August 27th. The crop was planted the latter part of May from seed obtained of an Iowa seed house.

Mr. Parsons is also growing red amber cane, North Dakota white flint corn and a variety of Mexican beans, not the pintos, but a bean of solid brown color.

Corn and potatoes were inspected on the ranch of A. Timmons, the potatoes being one of the boy's club plots. On Ed Tobler's ranch there was rainbow flint corn making a good growth and an especially good plot of potatoes, grown by a juvenile member of the family for seed, as well as some fine pigs.

The best corn for the day was that seen on J. E. Moore's ranch (7,700 feet) up against the slopes of the Sangre de Christo at the mouth of the Cotton creek flume, which harnesses the water from a mountain torrent, steps it down 700 feet in two or three miles and diverts it out upon surrounding farms for irrigation.

Minnesota No. 13 corn was planted May 13th, frosted to the ground during the first week in June, and on August 27th gave promise of reaching the silage stage before the first fall freeze. Russian sunflowers were equally good here, although not planted till June 9th. Squaw corn was making a fine growth and seemed sure of ripening with another two weeks of growing weather. Mr. Moore's garden was viewed with much interest, because it was providing enough to carry several families through the winter, the list of vegetables including practically everything that grows on the "old farm back east," but here reaching greater perfection under the stimulus of high altitude, sunshine and water. Several wagon loads of pumpkins were in sight among the vines; regular pie pumpkins, which however, will be used mostly for cattle and hog feed.

Dinner was served by the good ladies of the Mirage community who had gathered at the Moore ranch to set the tables, which were placed in the shade on the banks of the mountain stream that waters the ranch.

After an ample dinner the tour continued, the next point of interest being the Ora Gullet ranch, where the farmers saw eighty bushel oats, and marrowfat peas that covered the ground with a mat of foliage and pods indicating a tremendous yield of rich feed for hogs and lambs.

On the Rominger ranch the visitors were interested in comparing fields of Turkestan and Grimm alfalfa, grown side by side. The Grimm seemed the more thrifty growth, though there were no figures at hand to show comparative yields. County Agent Sauder had orders from Farm Bureau members for 4,500 pounds of Grimm and 1,500 pounds of Turkestan seed this season, the farmers having decided to improve their stands of alfalfa not only by obtaining better seed, but by better cultural methods.

The last stop for the day was at the ranch of Casper Eilinghof, who is known as one of the most careful farmers in the Mirage community. Here there was a field of alfalfa which had been planted on raw meadow land without plowing, that was worthy of attention. There was no other preparation than stirring up the meadow with a harrow. Seed was broadcasted in the spring of 1918 and a fine stand resulted. Alfalfa now covers the ground completely, all grass being choked out, and two good cuttings were obtained this season. The meadow is not on seep land, but on ground having fairly good drainage and a heavy soil such as produces much of the native hay in the upper part of the San Luis valley. That alfalfa can be grown on such ground without plowing was something new to those who visited the field, but the crop was there to speak for itself.

Pasturing $500 Acre Land

W. F. WILCOX

H. J. Koch of Montrose county, Colorado, owner of the highest producing herd of high-grade milk cows in that section, refutes the common belief that it does not pay to pasture high-priced irrigated land. Mr. Koch has 10 acres of high-priced pasture and has made money with milk cows. But he has the best high grade cows to be found.

Visiting his place the other day, we found that he had, as said, 10 acres, for which he would not take less than $5,000, or $500 the acre. He has two pastures, each of about two acres, in which he alternates his cows, irrigating the one while he pastures the other. The balance of his place, aside from that occupied by the buildings, is in wheat, so that he buys hay for his cows during the winter.

Mr. Koch has had as high as 15 head of cows on this 10 acres. Of late, on account of his health, he has reduced his herd and is lessening his work all he can. Among his best cows was one that in her last milking period of 275 days produced 9,956 pounds of milk containing 314.69 pounds of butterfat. The value of the product sold to a local ice cream and milk company was $289.84; cost of feed for the period: Hay, bought at actual market price, $80.50, leaving a net profit of $209.68. He figures the calf paid for her feed during her dry period and the manure for the care. He had several others almost as profitable.

In winter Mr. Koch feeds some bran and in summer the cows run on the $500-an-acre pasture. This pasture is about the finest thing in the line I ever saw. The mixture sown consisted of the following varieties and pounds per acre: Orchard grass, 14; awnless bhome, 14; meadow fescue, 4; brome, 8; timothy, 4; alsike, 1; white dutch clover, 2; yellow sweet clover, 3.

From January first to July 15, with an average of six cows milking, he sold 30,076 pounds of milk besides some cream.

A silo is insurance against drouth and grass famines.

If you don't know, ask Western Farm Life Service Bureau.

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31x3½	6.75	1.85	35x4½	11.00	3.15
32x3½	7.00	2.00	36x4½	11.50	3.40
31x4	8.00	2.25	35x5	12.50	3 50
32x4	8 25	2.40	36x5	12.75	3.65
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Send $2.00 deposit for each tire ordered balance C. O. D. Tires shipped subject to your examination. State whether S. S., C. L. (Q. D.), plain or N. S. is desired. All same price.

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IN providing complete motoring satisfaction the New Seven-Passenger Studebaker BIG-SIX offers the utmost in individuality and charming appearance. Its 126-inch wheelbase insures perfectly balanced riding qualities and maximum comfort for every passenger. The 60-horsepower motor with its two-range carburetor and hot-spot intake manifold makes possible unusual speed and power under every driving condition.

Equipment includes *cord tires,* shock absorbers, tonneau extension light, oval plate glass windows in rear of Gypsy top, genuine hand-buffed leather upholstery, silver-faced jeweled 8-day clock and magnetic speedometer mounted on a circassian walnut-finished instrument board, and many other conveniences.

Studebaker quality, dominant for 68 years is reflected in this new BIG-SIX.

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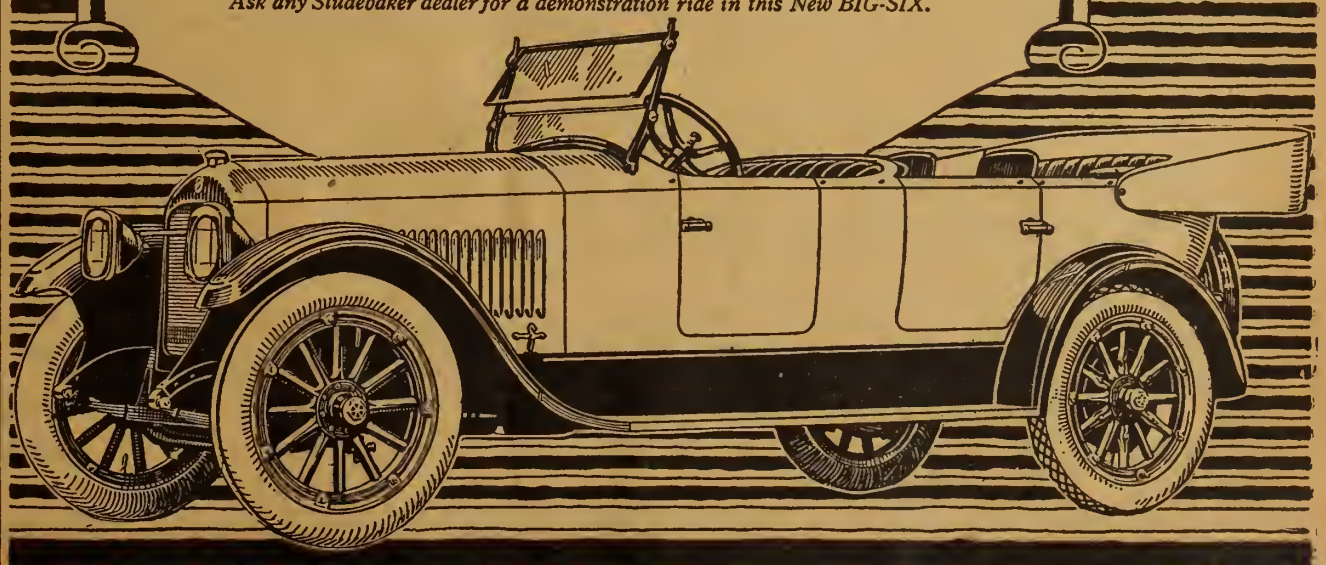
Ask any Studebaker dealer for a demonstration ride in this New BIG-SIX.



Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

Cream Grading Rules

Cream grading is now in effect in Colorado. Professor George E. Morton, State Dairy Commissioner, has issued instructions to operators of cream stations and dairy farmers showing how to grade cream and defining the classes. First grade cream consists of cream that is clean, smooth and free from all undesirable odors; clean to the taste, or only slightly sour. Second grade cream consists of cream that is too sour to grade as first; that contains undesirable flavors or odors to a moderate degree; that is foamy, slightly yeasty or slightly stale, or that is too old to pass as first grade cream. All sour cream containing less than 25 per cent of butterfat and all frozen cream shall be graded as second grade.

Cream that will not grade either first or second must not be purchased, sold or used for food purposes.

The second grade cream must be tagged with a red tag and properly marked to indicate the grade, prior to shipping. The first grade cream must be plainly tagged and marked prior to shipping.

The dairy commission has prepared placards for use in cream stations with blue as the color for first grade, this card to be placed on the wall 6 inches above the tops of the cans, where first grade cream is placed, and a red card for similar use on the wall above the space designated for second grade cream. Regulations require space of at least 2 feet to be maintained between the two classes of cream and all cream must be graded and emptied into cans while cans are under the proper placards. Instructions on grading cream are as follows:

Metallic.—Always second or third grade. Metallic flavor is caused by cream coming contact with rusty or poorly tinned separators, ceram cans or other utensils.

Weedy.—Always second or third grade. Weedy flavor is caused by cows eating large quantities of beet tops, wild onions, rag-weed, or other strongly-flavored weeds. Most prevalent in early spring or during a period of short pastures.

Prevention.—Do not turn cows in pasture until same is well started. When first turning cows on pasture in early spring, keep them in the feed lot or stable during the night and feed some dry roughness; take out of pasture a couple of hours before milking in the evening.

Oily.—Always second or third grade. Oily flavor is caused by having cream near coal oil, gasoline, or other similar product; also by carelessness in handling separator oil, or using cans in which any of these products have been handled.

Cheesy.—Always second or third grade. Cheesy cream smells and tastes like cheese. It is caused by keeping cream at too high a temperature—at or near 90 degrees F.—after it has come in contact with a dirty separator or any other dirty utensil.

Greasy.—Always second or third grade. Greasy cream has a lard or tallowy taste. It is caused by the cream coming in contact with a dirty separator or other utensil. Greasy cream is dirty cream and is invariably too old.

Bitter.—Always second or third grade. Bitter cream has a taste closely resembling quinine. It is cream which has been held too long, though at a low temperature.

Colostrum.—Always third grade. Cream taken from milk produced by a cow on or before five days after calving. The sale of colostrum milk or cream is prohibited by the dairy and pure food laws.

Yeasty.—Always second or third grade. Cream having a tendency to foam and which smells yeasty. Foamy cream is caused by dirty separators, other dirty utensils, or by exposing the cream to dust or dirt. Cream develops foam only when held at a high temperature.

Stale or Musty.—Always second or third grade. These terms need no explanation. Stale cream is caused by holding cream too long or holding cream in stale cans, or using stale water in washing or rinsing cans. Musty cream is the result of holding cream in a cave, cellar, or room having stale or musty surroundings.

Very Sour.—Always second or third grade. Cream having a very high acidity. It is the result of holding cream too long and at too high a temperature.

Medium or Slightly Sour.—First grade. Slightly sour or medium sour cream having a clean acid taste, not too sour.

Sweet Cream.—First grade sweet cream in cream which will not curdle in hot water, tea or coffee.

Note.—Medium sour, slightly sour or sweet cream having a metallic, weedy, oily, cheesy, bitter, colostrum, yeasty, dirty stale or musty taste, flavor, appearance or odor, must not be graded first.

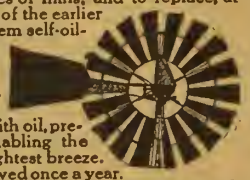
Winter Dairying

Our mountain states are not yet on a basis of winter dairying. The flush flow of milk in this section comes in late winter and early spring, as shown by the heavy increase in cream shipments at that time. This means that we have not yet come to the practice recognized in leading dairy districts of having our cows freshen in the fall of the year.

It takes several seasons to make

THE-SELF-OILING WINDMILL

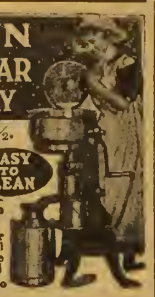
has become so popular in its first four years that thousands have been called for to replace, on their old towers, other makes of mills, and to replace, at small cost, the gearing of the earlier Aermotors, making them self-oiling. Its enclosed motor keeps in the oil and keeps out dust and rain. The Splash Oiling System constantly floods every bearing with oil, preventing wear and enabling the mill to pump in the lightest breeze. The oil supply is renewed once a year. Double Gears are used, each carrying half the load.



We make Gasoline Engines, Pumps, Tanks, Water Supply Goods and Steel Frame Saws.

Write AERMOTOR CO., 2500 Twelfth St., Chicago

Only $2 DOWN ONE YEAR TO PAY



$38 Buys the New Butterfly Jr. No. 2½. Light running, easy cleaning, close skimming, durable.

EASY TO CLEAN

NEW BUTTERFLY

Separators are guaranteed a life-time against defects in material and workmanship. Made also in four larger sizes all sold on

30 Days' FREE TRIAL

and on a plan whereby they earn their own cost and more by what they save. Postal brings Free Catalog Folder. Buy from the manufacturer and save money. [9]

Albaugh-Dover Co. 2129 Marshall Bl. Chicago

Blackleg Aggressin (Kansas Germ Free Fluid Vaccine)
One Dose Immunizes for Life — It Saves the Calf

THE U.S. BLACKLEG SERUM CO.
INCORPORATED
OKLAHOMA CITY, OKLA.
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Write us about it. Dr. F. S. Schoenleber, Pres.

25c Per Dose——WHY PAY MORE?

American Fence

Full gauge wires; full weight; full length rolls. Superior quality galvanizing, proof against hardest weather conditions.

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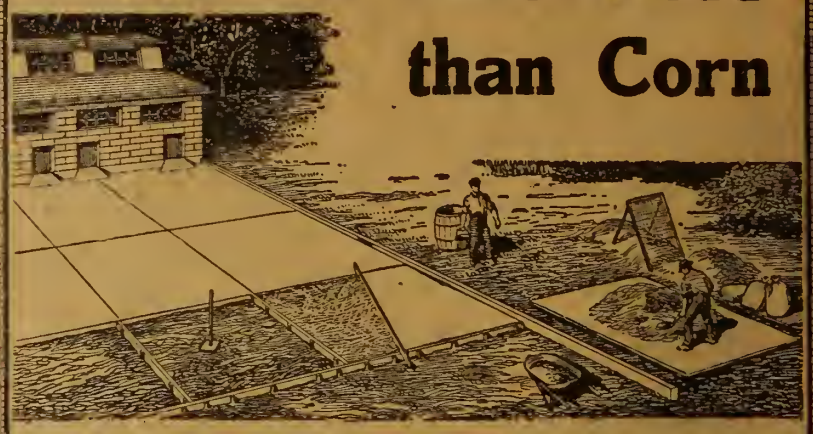
AMERICAN STEEL AND WIRE CO.
CHICAGO NEW YORK

$22.00 Sweep Feed Grinder | **$28.00** Galvanized Steel Wind Mill.

We manufacture all sizes and styles. It will pay you to investigate. Write for catalog and price list.

CURRIE WIND MILL CO.,
610 E. Seventh Street, Topeka, Kansas.

Concrete Costs Less than Corn



FEED ON CONCRETE instead of in the mud. Put the muddy feed lot back into history by building a concrete feeding floor on which the hogs will get all the valuable corn and convert it into more valuable pork. More pork from the same amount of corn pays for the floor.

It's easy to build a concrete feeding floor

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animals once immunized with
CONTINENTAL GERM-FREE BLACKLEG FILTRATE
are safe from Blackleg for life. Only one dose necessary. Do not wait for them to get the disease. VACCINATE while well and protect them.

20o SAVES A CALF

We guarantee CONTINENTAL. Accept no other. Beware of PINKEYE in your herds. Great loss occurs. Not so many die, but all lose flesh—your profits.

CONTINENTAL MIXED VACCINE FOR PINKEYE
as originated by Dr. S. E. Houk of our laboratories will protect your herds. Summer gains retained—reduce loss.

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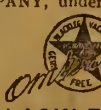
CAUTION
DO NOT BE DECEIVED

There is only one GENUINE O. M. Franklin Blackleg Aggressin (commonly called Vaccine).

Beware of imitations. You cannot afford to have anyone experiment on your animals.

Accurate use of the GENUINE O. M. FRANKLIN Blackleg Vaccine positively protects against Blackleg.

Be absolutely safe by using the ORIGINAL and GENUINE, manufactured by THE KANSAS BLACKLEG SERUM COMPANY, under the direct supervision of Dr. O. M. Franklin, the ORIGINATOR.

This seal  on every bottle

THE KANSAS BLACKLEG SERUM COMPANY

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the change from spring freshening to fall freshening without loss, and with all except very heavy producers, I believe the best way is to breed at the first heat, shortening the lactation period until spring freshening is arrived at. Hay will make as much milk as grass per acre, although the labor cost is higher and grain is cheaper in winter than in summer, while butterfat is very much higher. In addition, the natural flush flow of the cow is secured on dry feed, and pastures rejuvenate her waning milk producing powers in the spring. If the calf is raised he is carried through the winter over the period of milk feeding, and is old enough to make good use of grass in the summer.

Winter butter goes directly for consumption at high prices, while a considerable part of the summer produced butter goes into storage at low prices. In addition some summer butter goes through the grocery store to the renovating factory and from beginning to end is a drag on the price of good butter.

But whether your cows freshen in the spring or fall they are producing milk during a part of the winter and the tendency with present high feed prices is to feed as little as possible. Just remember that the cow is a machine that uses up part of the raw material going through her, for the purpose of keeping up her own energy. And this amount is the same, whether she produces much or little. With liberal feeding, the extra feed all goes for milk production up to the point where the cow begins to lay on weight and fatten. So whatever you do, feed enough—don't stint on the total amount of feed.

As to whether much of the ration should be grain, and how much, it depends on the cow—and the man. The cow will produce extra milk for extra grain feed, but as to when the gain in milk is so small as to fail to pay for the grain, it is up to the man to determine. The cow can't be her own bookkeeper as well as her own manufacturer. If the cow were as afraid of feed as many dairymen are of scales and a pencil, there wouldn't be any butter to eat. December delivery of corn, with freight added figures just under $4.00 per cwt. with oats a little cheaper just now. Hay will vary widely in cost in different sections of the state but will be high enough anywhere. It will pay to weigh your milk, test or get a test on your cows and figure a little—GEORGE E. MORTON.

Blue Ribbon Hog Sale

The Blue Ribbon Live Stock Company's summer sale of big type Durocs, held on the state fair grounds at Pueblo August 21, brought out a fair number of buyers from Arkansas valley points, the San Luis valley and northward through the state as far as Longmont. There was strong bidding for the choice offerings, especially for the bred sows, which went for good figures, though below what the same type of stuff would have brought back in the corn belt. It was decidedly a buyer's auction, and Mr. C. F. Burke, manager of the famous herd, was pleased with this result, feeling that whatever sacrifices he might have to make in the auction ring, the future would bring back to the Duroc Jersey breed through the dissemination of good blood among the farm herds of Colorado.

Other Duroc breeders were there to watch the sale and pick up a good one when opportunity offered, among them being J. W. Brauer of the El Paso herd, D. Schilling of the J. O. D. Ranch, Aroya, W. H. Hunter of Hooper and Burt Hart of Longmont.

There was great interest in the sale of Alfalfa Queen, the famous sow which has farrowed so many of the Blue Ribbon prize-winners. She is seven years of age and has to her credit many outstanding pigs, among them Burke's Good E. Nuff Again and Dagg's Good E. Nuff, the latter boar having made a fine show and breeding record on the Pacific coast, being grand champion at the Sacramento fair. Mr. Burke told bidders that he would pay $150 for the choice pig from Alfalfa Queen's next litter, which will be the get of Blue Ribbon Sensation. This sow went to J. Mortimer Pugh of Fowler for $490, which was top price of the sale. She is very prolific and her litters have been exceptionally uniform; in one litter of seven every pig proved to be a show animal. The purchaser expects to keep her in use for several seasons yet, as she leaves Blue Ribbon farm in pdime condition, carrying a litter that ought to be worth double what Mr. Pugh paid for the sow.

Mr. Burke brought in his herd boars for inspection and several hours were spent by the crowd in looking over these big individuals, as well as in inspection of the sales offerings. The boars include Burke's Good E Nuff Again, a thousand pounder, who could carry considerable more weight, and who is 43 inches tall—which is some size. He was grand champion at the state fair in 1917, grand champion at the Arkansas Valley fair in 1918, first at the state fair in 1918 in his class, and first at the National Western Stock show in '18 and '19. He was also a prize-winner at the National Swine Show in 1917. He is five years old and his dam is Alfalfa Queen, who topped the sale. Another of the boars is Big Cherry King 244511, sired by Western Cherry King, and a fine typey boar of Mr. Burke's own breeding. The youngest of the trio is Blue Ribbon Sensation, who is used to cross on the get of Big Cherry King. This boar was bought for $1,000 out of one of the best herds in the corn belt, after a long hunt for the right sort of type and blood. He is a son of Great Sensation and Orion King's Queen 574142. After inspecting the boars and their pedigrees, buyers were able to make an intelligent choice of bred sows, as they were offered in the ring.

The sale was well managed and clean, every buyer going home with a guaranty on all that was claimed for the pigs of his choice.

Fred L. Perdue of Denver was the auctioneer in charge, assisted by H. C. Jennings of Denver and H. Elson Fly of Rocky Ford. A list of the sales follows:

BRED SOWS

Alfalfa Queen 376012; J. Mortimer Pugh, Fowler; $490.
Big Cherry Queen Again 665846; Burke & Kellogg, Olney Springs; $120.
Wonder Prize; Burke & Kellogg; $120.
Star Queen 2nd 714672; Clyde Ford, Olney Springs; $125.
Lottie Good E Nuff 714666; Joe Zakrisck, Turkey Creek; $95.
Flashlight Anna Again; Joe Fabin, R. 1, Pueblo; $165.
Big Lady; J. W. Brauer, Colorado Springs; $210.
Mae Queen 608958; Burt Hart, Longmont; $135.
Show Queen 2nd 577508; —— Stokes, R. 1, Pueblo; $110.
Substitute for Lot 17; H. A. Trieves, Fowler; $130.

OPEN GILTS

Queen Anna Flashlight; J. W. Brauer; $90.
Queen Fancy Again; William A. Dickens, Longmont; $80.
Anna Lee; H. D. Russler, R. 1, Pueblo; $80.
Flashlight Anna Lee; C. C. Mendell, R. 1, Pueblo; $55.
Starlight Anna; H. D. Russler; $65.
Pueblo Queen; Burke & Kellogg; $60.
Long Maid; L. E. Harbour, Pueblo; $50.
Lady Red Gray 779672; C. C. Mendell; $60.

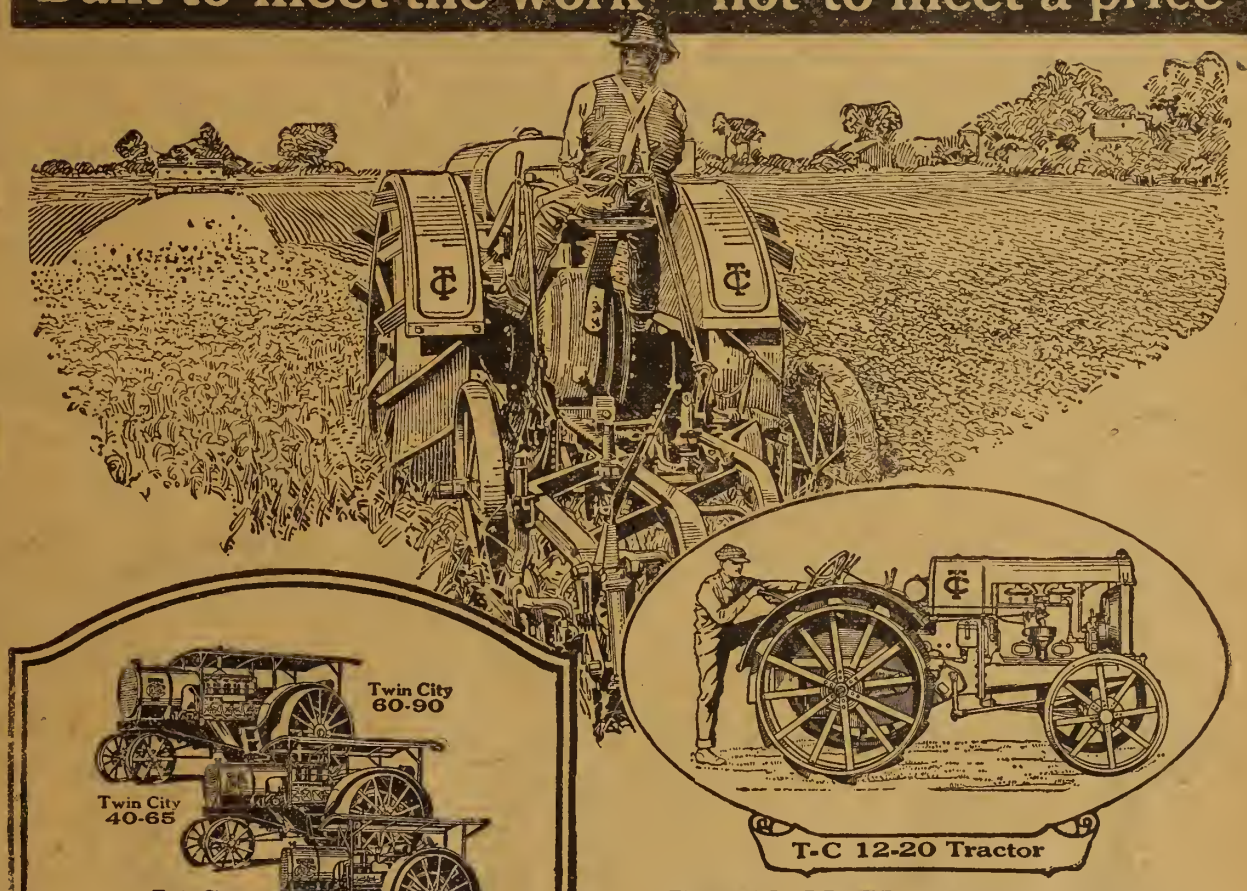
BOARS

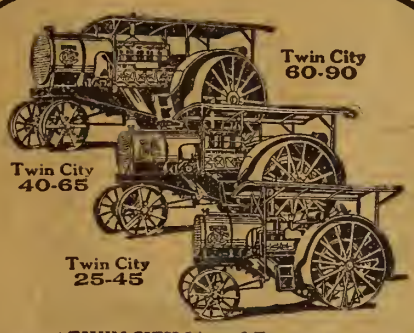
Burke's Cherry King Again 263727; Joe Fabin, R. 1, Pueblo; $50.
King Red Wing 286419; American Guaranty Co., Hooper; $125.
Pueblo Cherry; H. D. Russler; $35.
Big Queen's King; W. A. Dickens; $65.
Fancy King; Joe Zakrisck; $40.

SPRING PIGS

Boar; T. A. Brown, Olney Springs; $70.
Two gilts; Clyde Ford; $60 each.
One gilt; Burt Hart; $35.
One gilt (Ida Hoover); Burke & Kellogg; $80.

Built to meet the work—not to meet a price





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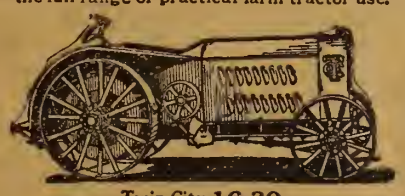

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The 16-30 has every characteristic that has made our large tractors famous.

The New All-Steel TWIN CITY Thresher has behind its 22-inch cylinder 84 square feet of separating surface. Write us for complete details.

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TWIN CITY 12-20 Tractor

—the real attraction at this year's demonstrations
—the powerful and dependable performer on all belt and drawbar work.

THE *sixteen-valve*, four-cylinder engine with its *counterbalanced crankshaft, removable* cylinder heads and cylinder sleeves, is the most successful *kerosene burning* engine made. Designed, not adapted, for kerosene—and developed in our own great plant by our own engineers. Transmission drives *direct on both forward speeds.* Gears drop forged, steel cut and case hardened, run in oil bath in one-piece, dust-proof case. Hyatt roller bearings. The simplest, most accessible and dependable tractor for your farm.

We have a widespread organization of branches, distributors and dealers. Write and we will direct you to nearest *Twin City* dealer.

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12-20 Kerosene Tractor with 16-valve engine

Divide Shorthorns to Iowa

Members of the Elbert County Shorthorn Breeders' Association report private sales for Tuesday, August 19th, amounting to nearly $11,000.

Learning that the Divide district was rapidly becoming a Shorthorn center, E. G. Wheeler of Sibley, Iowa, made a trip to Elbert and El Paso counties recently and purchased a carload of yearling heifers to fill an order of an Iowa breeder. While this class of cattle are rather plentiful in that section the breeders are not overly anxious to dispose of their young stock.

After making several visits to the home of the Shorthorn herds Mr. Wheeler finally persuaded a few of the breeders to part with enough to make up a carload. These 27 yearling heifers averaged nearly $230 per head. The load was made up by Alger Peterson, W. H. Paul, Thos. Roberts, Frank Evans and Jones Bros. Mr. Wheeler expressed himself as being well pleased with the quality of Shorthorns that are being produced in this section of the state.

On the same day a Cherry Creek breeder from Douglas county purchased 15 head of two-year-old heifers produced by men of this association at any average of $300 per head. With a yearling bull included in this sale, the total Shorthorn sales for the day amounted to about $11,600. The remarkable feature of these sales is that they were all private and none of the breeders had advertised female stock for sale. Bulls of all ages are reported to be for sale in this community, but female stock will be scarce the rest of the year.

In a recent questionnaire that was sent out by the Pennsylvania State college the following question was asked: "What animals of the Shorthorn breed have most affected the breed during the last half century? A few of the animals named were Whitehall Sultan, Choice Goods, Avondale, Cumberlans's Last, Imp. Villager, and Count Avon. It is interesting to note that the blood of these animals are in the foremost ranks of some of the pedigrees of the sires heading htese Divide herds. One of the herds in particular has an intensely bred Choice Goods bull. While this individual is only ten months old, he has made remarkable growth and development. Cumberland breeding is being carried out by another breeder in this section and in a recent sale of nine bull calves, one man from western Colorado was able to get a very uniform bunch of calves of this breeding.

The men that are producing these quality Shorthorns are practical and constructive breeders. Plans are now on foot for the erection of a sale pavilion so that annual sales may be held in this center. Later in the fall a Shorthorn calf club will be organized.

Jersey Bull Brings $65,000

Sybil's Gamboge, a recently imported Jersey bull, sold at the Edmond Butler sale at Mt. Kisco, New York, on August 4th, for $65,000, established a new figure for all animals of the breed. Right after he was sold fifteen of his get were brought into the ring and sold for a total of $44,525 or an average of $2,968, establishing right on the spot his great breeding value. His new owner is L. V. Walkley of Southington, Connecticut.

The contending bidders for the $65,000 bull were Maryvale Farms, Youngstown, Ohio, S. M. Kaplan, New York, F. D. Underwood, Wisconsin, and Carter Glass, Virginia. The new figure exceeds by $50,000 the highest previous auction price for Jerseys which was paid for Noble of Oaklands in 1910. Other previous high prices paid were for Golden Fern's Noble, bought at private sale for $25,000 three years ago, and the $30,000 half-interest paid for Financial Sensation last year. Sybil's Gamboge represents the lifework of the late Chas. Mourant of the Island of Jersey, who spent fifty years to develop his ideal. The bull is a linebred Majesty.

Another Poison Suspect

Ten head of cattle died during the night in San Luis Valley, Colorado. Investigation revealed these facts: There was very little grass and the cattle had taken to eating weeds. The one weed that had been eaten more than any other was the spreading nightshade. The nightshade family is a large one and contains many plants with poisonous properties. This particular plant has never been looked upon as a poisonous plant of much economic importance, because there has been no evidence that it is ever eaten in sufficient quantities to kill. Specimens have been sent to the college, with very positive statements that it has poisoned animals. The evidence against the spreading nightshade is not conclusive without laboratory tests but is sufficient to warrant us in strongly suspecting that this plant does poison cattle under certain conditions.—Geo. H. Glover, Colorado Agricultural College, Fort Collins, Colorado.

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Real Estate Agent—"Sure. Ten acres of swamps full of rabbits and quail; ten acres of timber full of squirrels and deer, and ten acres of lake full of trout." Philadelphia Bulletin.

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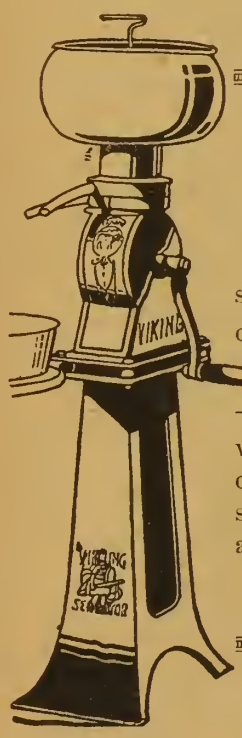

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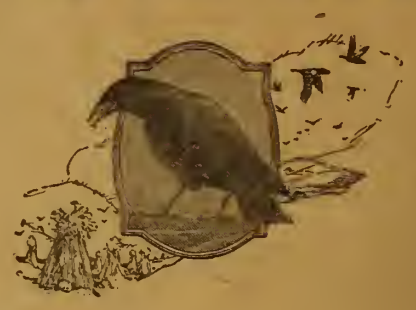

Get Him with a Savage, Boys!

CROWS are causing a lot of damage to crops throughout the United States and are the greatest pests among birds.

Take a Savage Junior Rifle and one or two of your friends, or better still, organize a Boy's Shooting Club in your town and help exterminate the Crows. Some counties are paying a bounty for them.

Be sure to get behind a straight-shooting .22 Savage Junior single-shot Rifle and you'll be the best shot in your neighborhood.

Remember, "you'll always find a Savage where the service is the hardest."

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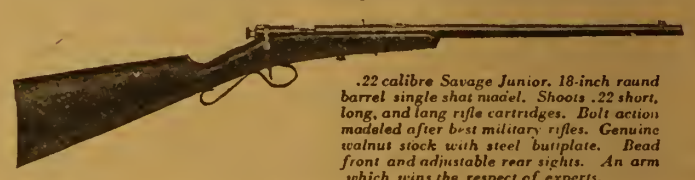

.22 calibre Savage Junior. 18-inch round barrel single shot model. Shoots .22 short, long, and long rifle cartridges. Bolt action modeled after best military rifles. Genuine walnut stock with steel buttplate. Bead front and adjustable rear sights. An arm which wins the respect of experts.

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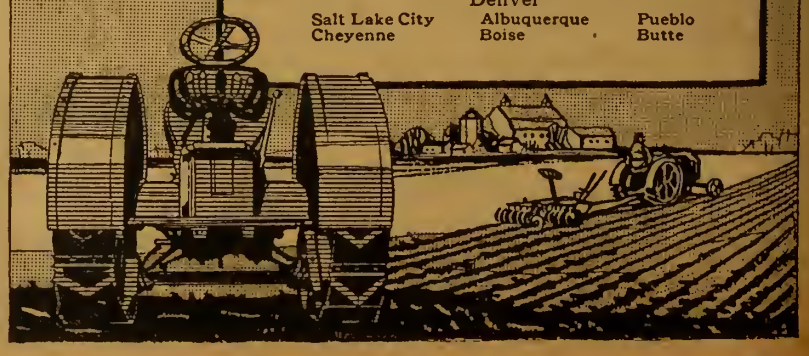

Co-operation Gets Results For Farmers at Montrose

(Continued from Page 3)

ners, here and there a steer that was overlooked in the carload shipping, etc.

Mr. Lindgren has taken several shipments of this kind from the valley to the Denver yards, one of them comprising 54 head belonging to 17 owners, carrying 16 brands. The average per head on this shipment over what the farmers would have received from local buyers was $9.77.

One of the larger shippers, Mr. T. M. Reynolds, consigned 7 steers, 5 cows, a bull and a calf with a lot of odds and ends, receiving $1,061.94 for the lot, an estimated return of $200 above what these cattle would have

H. A. Lindgren, Associate Editor, Western Farm Life

brought on the local market. Ira Monell, with only 3 cows in the lot, reports $80 more for the three than he would have received locally. Another example is that of P. I. Lewis, whose gain on three steers, a bull and a cow was $40. J. N. Burbank with four steers in the load, weighing 2920 pounds, got $9.00 per cwt., a total of $75 more for the four animals than local buyers would pay him. It is the dollars and cents return that has convinced farmers on the Uncompahgre project that cooperation pays.

All of the cooperative shipments have gone out under an insurance policy handled through a Denver agency, which makes a charge of 12 cents a head on hogs, 25c on cattle and 8c on sheep, the policy insuring against death or crippling enroute. Claims are paid on actual cash market value on arrival of the animals at the Denver yards, with a limitation of $175 a head on cattle, $50 on calves, $50 on hogs and $20 on sheep and goats. Under this plan a loss is as good as a sale.

Cooperation has seriously crippled the business of the local livestock speculator at several points in the Uncompahgre valley, but no one else has been hurt.

Complete plans for the organization of such shipping associations may be had on application to Western Farm Life, together with advice as to how to proceed in the matter of getting the farmers together. Mr. Lindgren's advice in such organization work will be available to our readers after October 1st.

Sheep Grazing Plan.

Sheep grazing on the cooperative plan is a new feature introduced this year on the Uncompahgre project through the efforts of Mr. Lindgren. The purpose of this was to provide service for the farmers with small bands which were combined into one bunch of 1400 head and herded together on United States forest ranges with the same advantages and benefits as those enjoyed by the larger individual sheep raisers. The expense of a herder was prorated and the Forest Service dealt with the farmers as a unit instead of as with individuals. In fact it would have been impossible for most of these men to get grazing on the forest for their small bands without joining in the cooperative movement.

One unit of a dairy bull association also has been formed. It has a membership of some 200 farmers, each owning from one to ten cows. The bull in use is a purebred, costing $250. The purchase was financed by the issuance of shares of stock, one share being issued for each cow owned in the circle. Full information regarding the formation of bull associations or circles was published in the issue of September 1, in Prof. Morton's department.—A. T. S.

From Son to Father

"You can't change the present generation of farmers; there is no use in trying to convince the old fellows that scientific methods pay. Put in your time working with the young folks and let the future bring results."

This statement summarizes the attitude of some people who have spent years in spreading the gospel of better farming. It may be true, in a general way, but there is a particular instance which came to notice in Rio Grande county, Colorado, not long ago, proving the contrary.

Clark Van Nostrand joined the Boy's Pig club which was organized under the direction of County Agent C. D. Hyatt. He started with registered Poland Chinas and so successful was he in producing better pork, both from a breeding and market standpoint, that his father decided to improve his own herd. He did not have to go outside the family for foundation stock, but wisely bought it from his own son, who had preceded him into the registered hog game. During the war the young man was called away for service in the Student's Army Training Corps. He had thirty-five head of registered hogs to leave on the farm, but "Dad" was there to take care of them and he did, working on a share arrangement with his son.

This is the sort of cooperation between father and son that results in building up a permanent farmstead that may be the family home for generations. It shows the value of agricultural club work and demonstrates that the lessons learned by the young people are not lost on the present generation of their elders. This was shown in the San Luis valley when the first lot of registered pigs were brought in by the county agents of Rio Grande and Saguache counties. The pigs had been ordered for use of the boy's clubs, but so great was the demand among the adult farmers for them that another shipment had to be sent for. Club work has made the most headway where the fathers and mothers of the boys and girls have taken the initiative in helping the organization along.

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Raynsters include weatherproof coats for every purpose. Light and heavy rubber-surfaced coats for outdoor work and driving, big warm ulsters that turn the keenest wind, slickers, and fine cloth coats that are worn by well-dressed men everywhere as overcoats.

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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Autumn

The morns are meeker than they were,
The nuts are getting brown;
The berry's cheek is plumper,
The rose is out of town.
The maple wears a gayer scarf,
The field a scarlet gown.
Lest I should be old-fashioned,
I'll put a trinket on.

—Emily Dickinson.

The Autumn Time

Personally I have no patience with some of these poets and folks who begin with those first whispery fall winds to quote mournfully about "The warm sun is failing, the bleak winds are wailing, The pale flowers are dying," etc. It's a great deal more fun to turn to Riley and begin "When the frost is on the punkin, and the fodder's in the shock." There was a man who knew how to appreciate that peculiar charm of autumn time which turns the rank greenness of summer into the unfulfilled promise of an awkward schoolboy, shows the dainty spring as only a little child after all, and just gets us ready for the spices and sports of winter.

The pale flowers are dying and it's time they did; they have no place in the warmth and beauty and color that fall brings us. True we'll never see this particular summer again; but she isn't going out palely and leaving you with unhappy memories of her ghostly going. She flaunts her scarlets and golds, purples and maroons in your face and defies you to remember her otherwise than gloriously.

Fall, like any other time of the year, is a time to be glad in; only to keep up with the season, you'll have to be a little gladder than usual.—E. D.

Stain Removal and Remodeling

One woman of the writer's acquaintance says that it's horribly hard for her to sew even a button on, except at two periods of the year; and then at these two times everything around the house and some things which really don't belong there are run through the sewing machine and mending basket. It is useless to resist the fever of planning—it's a regular disease that hits its very hardest in spring and fall.

Since no woman is immune from this disease, and takes it again and again, and the writer from the habit of long necessity has grown to see winter clothes from only one angle, renovation, we are going to talk a little about getting the used things ready to use again.

In making over wools or silks, the very first process is to rip carefully, clean thoroughly and press. Good wools can always be washed in Ivory or other pure soapsuds, rinsed and then pressed on the wrong side while still damp. You are much surer of removing grease spots this way. If you want simply to remove the shine from wool or silk, sponge first with one tablespoon ammonia to one quart water, and then with clear water.

To dry clean wool or silk without liquid, use powders such as French chalk, magnesia, Fuller's earth, or corn meal. This procedure is good to follow:

Warm the meal or powder. Spread it on the material and rub it in with either the hands or with a brush. Let it remain at least several hours. Renew the powder or meal as it becomes soiled. If one treatment is not enough, cover again with warm powder or meal and let it stand all night. Be sure to brush all powder or meal from the garment.

Gasoline or benzine baths may be used. Rub soap on bad spots and rub gently between the fingers. Rinse the whole garment in clear liquid, using plenty or the garment will look grimy. Marking the spots with white thread helps you to find them after the garment is wet all over. These liquids are explosive and easily combustible and should never be used except in the open air. If you must clean spots from clothes in the house, use carbon tetrachloride, which is non-inflammable. It has a very disagreeable odor but that soon evaporates. By cleaning carefully with this you do not leave a ring. It does not injure colors or fabrics, and is good to use on collars or edges of cuffs when the rest of the garment is not soiled enough to warrant a thorough cleaning.—E. D.

Hats and Styles

The milliners seem all to have gone dreaming on a different line this fall and have not stuck strictly to any one business in hand. Certainly they are not creatures of one idea, or even half a dozen, for like the old Persian potter, they turn out "shapes of all sizes, great and small." So much for shapes.

Trimmings are simple, but very carefully arranged. For every different type of hat the one feather or bit of beautifully tied ribbon must be just so far and no farther from brim, and crown and face. Wool embroideries of all sorts of fascinating colors and designs are used as flat trimmings for brim or crown. Any one clever at embroidery and capable of "inventing" even a very simple design can make these at home.

Soft crowns of velvet or silk are used not only to make over hats but in the new ones in the shops. They are used in conjunction with brims of the same materials, or of felt, and serve not only for comfort, but give a very alluring line to the hat.

Don't be afraid of not being in style this fall. It isn't so much the shape of the hat as it is that it should be furbished up to conceal signs of previous wear as much as possible. Felts may be cleaned very much like wools; velvets, ribbons and feathers steamed and shaken into a very real semblance of their brand new selves. More explicit directions for these operations may be sent if you want them. Just be sure your hat's becoming this fall, and wear it with a smile. You'll be in style.—E. D.

Renovating Feathers

Mrs. J. K. Bolum, of Arroya, Colorado, asks how to clean feathers, and also how many pounds of feathers it takes to make a feather bed.

The following directions sent her for cleaning feathers may prove helpful to some one else; but we'd like to have more suggestions about the amount of feathers.

Feathers may be cleaned in or out of the ticks. It is usually easier to empty the feathers into a cheesecloth or thin muslin bag and wash them and the ticks separately.

On a bright windy day plunge the pillows filled with feathers in a tub of hot suds. After putting them through several waters, shake and hang them on the line outdoors, but not in the direct sunlight. They should be thus aired for a week, shaking occasionally.

To steam-clean feather pillows, place a couple of boards across four tin cans and set in the bottom of the boiler; put three inches of water in the boiler, place the pillows on the board, cover the boiler, and let the pillows steam for an hour. Hang them out in wind and shade until they are nearly dry, and finish drying in the sun. They come out light and downy, clean and fresh smelling.—E. D.

About Grimm Alfalfa

What makes Grimm alfalfa hardier than common alfalfa? Is it the widely spreading crown or the more widely branched root system? Or is its hardiness just an inherited characteristic?

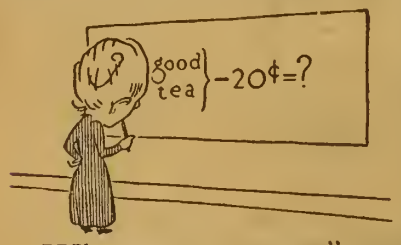
Probably all three have something to do with it. The Grimm variety has both branched and straight tap rooted plants. but the percentage of branched rooted plants is considerably higher than the common alfalfa. This may make it more resistant to the heaving effect of freezing and thawing weather.

The crown of the Grimm variety is larger, low set, widely branched and spreading. It is often completely under the surface of the soil. Common alfalfa, on the other hand, has a small erect crown which sets high above the ground and is more exposed to freezing and thawing.

One interesting characteristic about Grimm alfalfa is that it prepares itself for the siege of winter. After the third cutting it grows rather sluggishly. By the middle of October it may grow 6 or 8 inches high, while the common alfalfa may be a foot or more high. It then begins to turn brown, becomes dormant, and stops growing. It is then ready for winter. It is like a burrowing animal; it hibernates early for winter. On the other hand the common variety keeps right on growing until killing frost hits it. This sudden change no doubt has a great deal to do with winter killing of alfalfa. The Grimm alfalfa is the "early to bed and early to rise" strain In other words, it is the strain that is first to slumber in the fall and the first to awaken to spring's call.

After Grimm alfalfa is planted it will stand much longer than the common strain. Common alfalfa may stand for several years, but in most cases it begins to winter kill when the field is two or three years old Farmers in this section will be well paid to buy the Grimm variety, even if the seed does cost a little more.—Laramie County (Wyo.) Farm Bureau News.

A silo is insurance against drouth and grass famines.



When you "save" 20 cents a pound on tea, you lose money on every cup. Fine tea is really cheaper than common tea.

And you miss the real tea-flavor, the comfort, the cheer, the invigoration, that every tea-drinker has a right to.

Get Schilling Tea and your rights as a tea-drinker.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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—mother is so *thankful* for her Great Majestic Range. It cooks the big dinners—with the baking, the boiling, the frying—all so conveniently, so quickly, and everything is done just wonderfully fine!

The Great Majestic Range is made in many styles and sizes. You may have *your* Majestic beautifully

Paneled with White or Blue Enamel on Doors and Splasher Back, if desired.

Every Majestic has *all* the Majestic superiorities of construction: Body of charcoal iron, resists rust and lasts three times longer than steel; frame of unbreakable malleable iron, saves repairs; smooth nickel trimmings, stay bright; burnished cooking top, requires no polishing; air-tight oven, bakes perfectly, with little fuel. All parts *riveted*, and entire flue lining of pure ¼ inch *asbestos*, prevents waste of heat. Majestic prices the same everywhere, freight considered.

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PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2957—Girls' Blouse Dress—Checked brown and white suiting and white gabardine is combined. The style is good for serge, also for combinations of satin and serge, gabardine and crepe. Wash materials such as gingham, linen and seersucker, are also desirable. Pattern cut in sizes: 8, 10, 12 and 14 years. Size 12 will require 4 yards of 40 inch material.

2808—Dainty Dress For Growing Girl—Batiste, voile, charmeuse, satin, taffeta, velvet, serge or gabardine could be used for this model. The tucks on skirt may be omitted. The dress may be finished without the bolero and with long or short sleebes. This style lends itself nicely to combinations of material. Pattern cut in sizes 6, 8, 10 and 12 years. Size 8 requires 3½ yards of 27 inch material for the dress and ¾ yard for the bolero.

2729—Ladies' Costume—This will make a splendid street or calling dress. It is nice for velvet, corduroy, serge, poplin, duvtyn, satin

and taffeta. It will lend itself effectively to combinations of materials. Cut in sizes 34, 36, 36, 38, 40, 44 and 46 inches bust measure. Size 38 will require 6 yards of 44-inch material. Width of skirt at lower edge is about 1⅞ yards.

Coat 2954, Skirt 2874—Smart Suit For Early Fall—The coat would be fine in brown tricollete or broadcloth and the skirt in satin or velvet. The coat fronts may be open at the throat or rolled high at the neck edge. Cut in sizes 34, 36, 38, 40, 44 and 46 inches gust measure. Size 38 requires 4 yards of 44 inch material. Skirt is cut in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure. Size 24 requires 3 yards of 36 inch material. The width of the sqirt at lower edge is about 1⅝ yards.

2513—Practical Set For Little Girl—This outfit comprises a simple dress, a short-waisted petticoat and a combination garment consisting of waist and drawers, which could also serve as a model for bloomers. The dress is a design good for lawn, batiste, gingham, chambray, voile or percale. For the undergarments muslin, cambric, long cloth and nainsook could be used. If the combination undergarment is used as rompers, it could be of galatea, gingham, drill, linen, repp or percale. Pattern is cut in sizes 1, 2, 3, 4 and 5 years. Size 4 requires 2⅜ yards for the dress, 1⅝ yards for the petticoat and 1½ yards for the combination of 36 inch material.

2955—Simple Dress For Mother's Girl—This will make a good school dress in serge, voile, gabardine, plaid or check suiting, or in all wash fabrics. Pattern probides two styles of sleeve, each with a simple cuff finish. The pocket may be omitted. Pattern is cut in sizes 4, 6, 8 and 10 years. Size 6 requires 2½ yards of 42 inch material.

2750—Ideal Cover-All Apron—This style is easy to develop, easy to adjust and easy to launder. It is comfortable and trim looking. Nice for gingham, seersucker, lawn, drill, cambric, percale, alpaca and sateen. Pattern is cut in sizes small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. Size medium will require 4½ yards of 36 inch material

2943—A Practical Service Dress—A good feature of this design is the reversible closing. The model is nice for gingham, chambrey, seersucker, poplin, drill, lawn and khaki. The sleeve may be finished in wrist or elbow length. Width of skirt at lower edge is 2¼ yards. Pattern cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6½ yards of 36 inch material.

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Will Study Stock Feeding

About 120 head of steers and several hundred sheep will be used in demonstrations to be conducted at the University of Idaho Experimental farm, south of Caldwell, this winter, in the use of locally produced feeds, largely alfalfa and corn silage. Feed lots, sheds and other equipment are being prepared under supervision of J. E. Nordby, of the university agricultural experiment station staff.

To Set Colors in Gingham

To one gallon of water add one-half cup of vinegar, or two cups of salt, or one tablespoonful of powdered alum. Soak goods in solution several hours. Wring and dry thoroughly before washing.

Gooding Dairymen Get Busy

Gooding county, Idaho, farm bureau members have been stirred by the recent shipment of four carloads of dairy cows from the Gooding country to the vicinity of Caldwell and Nampa. The higher price for butterfat in the Boise valley was given as the reason, and this was credited to co-operative sales. A cheese factory for every town in Gooding county is now proposed in an article in the Gooding County Farm Bureau News.

Demonstrations in Canyon county, Idaho, on the supplementing of pasture with grain, for hog feeding, show that good gains are made on a 3 per cent grain ration. A demonstrator at Notus was able to turn off hogs fat at 18 cents, on August 22, instead of roughing them on pasture alone, as he had intended to do.

"But suppose," said one of the spectators on the Common, "that the parachute should fail to open after you had jumped off—what then?"

"That wouldn't stop me," answered the parachutist, "I'd come right down."—Boston Transcript.

If you don't know, ask Western Farm Life Service Bureau.

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"A penny saved is a penny earned." I wonder if this isn't the secret of success in a good many lines of business. I knew a poultryman once who boasted of having made a profit for the year of $5 per hen. A good enough profit, but it nearly broke him up in business, because it led him into extravagance; a checking up later showed him that his profit was largely on paper. He hadn't learned to save the pennies, and the lesson was a bitter one.

I know of no other business in which this holds so true, in season and out of season, as it does in the poultry business. That is why we come back so often in these columns to the question of culling. What's the use of having a good layer if we endure the presence around the place of a loafer? And never was there so much reason for close culling as now.

At this season something should go to market every week—not eggs, which are always in order, but fowls. How many hens were there March first? How many eggs did they average in March and April? How many hens are there now and how many eggs are gathered? If the same number of hens are laying half as many eggs and the feed bill is the same, are you going to stand it? Not much use to hold the idlers for higher prices—young fowls will keep the market supplied for months to come; not much use to hope that they will come back to business this season. Then the logical thing to do is to get them off the place the first time someone goes to town. Which hens shall we send to market? Those not laying, of course. But how to determine such? For the benefit of the newcomers we will repeat what has so often been written in Western Farm Life—the early moulters.

It would be real nice if our hens could be taught to moult early and quickly in consideration of the winter egg basket. The time of moulting would not matter if only a certain length of time were required by each hen. About a hundred days is considered the moulting period, and if a hen that begins August first would get back on the job November tenth, we might well wish that our entire flock of hens would start the moult August first; but our books do not show an egg yield in November in proportion to the number of early moulters. More, the trap nest has proven, roughly speaking, that the early moulter takes twice as much time off and lays less than half as many winter eggs as the hen that takes a late vacation.

Homer W. Jackson, a well-known authority on poultry matters, relates this interesting experience in the Reliable Poultry Journal:

In a test made by the writer a flock of 23 standard-bred yearling White Wyandottes was carefully observed on November 1st, at which time the condition of the hens with respect to moult was as follows:

Fully feathered out, 9; new feathers half grown, 3; hens bare or nearly so, 4; hens just beginning to moult, 2; hens not noticeably moulting, 5. The subsequent production of these hens, from November to February inclusive was as follows:

Lot 1, .9 egg per hen; Lot 2, 6 eggs per hen; Lot 3, 3.8 eggs per hen; Lot 4, 10.5 eggs per hen; Lot 5, 4.16 eggs per hen. The number of fowls observed was entirely too small on which to base any definite conclusions, but it is obvious that in some instances at least, only those hens that have completely moulted on November 1st can safely be eliminated as inferior layers.

With our present knowledge of the subject the only practical advice that can be given is to keep production up to the maximum point throughout the fall, avoiding as far as possible anything that will tend to check production and give the moult a chance to begin. The hens that under this treatment go through an early moult may safely be eliminated as undesirable, while those that retain their old coat until nearly the beginning of winter should by all means be retained and used in the next year's breeding pen.

Please examine Mr. Jackson's figures most carefully and note that he says that "those hens that have completely moulted November first can safely be eliminated as inferior layers."

But after all, the hen, as a profitable winter layer, is a delusion. November, December, January eggs in large numbers will continue to be laid by the pullet, and if you were late in your hatching, you may safely bet that early winter eggs will be scarce.

Certified Seed Potato Production In Colorado

(Continued from Page 4)

who never need to renew their seed, for by careful field rogueing they increase the purity and productiveness of their variety.

26. Yes. Seed stock grown for southern use under the conditions outlined in previous question can be used for seed by the grower without danger of deterioration. It is, however, advisable if the grower wishes to further increase the productiveness and vigor of his seed stock, to make hill selection from his own field and grow the potatoes so selected in a separate seed plot for his own planting. In this way, the improvement in the variety is more rapid, and is worth while for the grower to practice.

27. The question of crop rotation in the Divide section is somewhat difficult, since alfalfa is not an established crop, or at least perhaps not practical under the present conditions. Where sweet clover can be grown, I believe that it should be used and plowed under while in the succulent or

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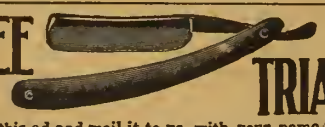

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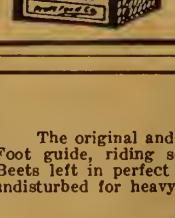

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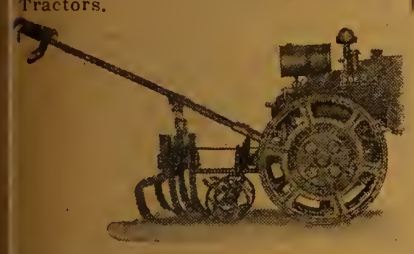

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green stage. It is true that potatoes form a most excellent crop in rotation, as it prepares the land in the best possible shape for wheat. Following wheat, there should be some intermediate crop if possible. Perhaps if the land is left fallow and the weeds permitted to grow and these plowed under before they are dry and hard, the land will be in fine condition for going back to potatoes again, or if one could follow the grain crop with a crop of sweet clover and perhaps seeded in the stubble and the same plowed under the following year, the rotation would be complete. Where livestock is kept, the question of rotation is a less serious one, as the fertility and soil conditions can be maintained in the best possible way by the use of stable manure. One advantage that the farmers have in the Divide section is that they have land enough to leave it fallow and permit the weeds to grow which can be plowed under previous to planting the potatoes in the spring, but even then I believe that sweet clover, if it can be grown successfully, would be a good thing for the land.

There are undoubtedly problems in the farm management with special relation to a rational rotation system that should be worked out in the Divide section, and I hope that such system will be worked out successfully. I am not in position to give definite advice upon this subject, as I am not sufficiently familiar with the conditions under which the farmer is working, and a purely theoretical discussion of crop rotation without much knowledge of the conditions is out of place.

28. The southern grower has a long and favorable season, usually. That is to say, the early crop in southern Texas is planted in January, and a little further north, in February. It is harvested and marketed in May and June. During the month of June and July the temperature is too high for growing potatoes, and the second crop in southern Texas is grown during the months of September, October and November. This, of course, makes two growing seasons, each of them being relatively sure. The object of the southern grower is, of course, to produce a maximum early crop—that is, the first crop, and in most sections a very small late crop is planted. The early crop comes in for the early market and brings good prices.

29. The southern potato crop, depending upon the locality—the early Florida crop from southern Florida often reaches the New York market in February and March, and from then on until June and the first part of July, as we move northward.

30. The superiority of seed grown in high altitude without irrigation (and in some cases with irrigation) is universally recognized. In the first place, the climate of Colorado approaches the climate of the native home of the potato, and for this reason the potatoes grown in Colorado have a much greater vitality, are firmer in texture and of higher quality. In other words, Colorado is a natural home for the potato. Of course, much depends upon the growers' part in proper soil conditions and proper seed. In addition to these natural advantages, we have the advantage of freight rates to Texas and Oklahoma, and can easily compete with the north central states. It is a well-known fact that so far as production goes per acre, Colorado takes a very high place above that of the north central states. This higher yield per acre can undoubtedly be increased considerably by right cultural methods and better seed.

31. The certification thus carries with it an implied guarantee as to purity of variety, freedom from disease, as implied by the certification, but it does not guarantee a certain yield or return to the southern grower, for no one can be responsible for the neglect of the purchaser of the seed. The season may be unfavorable or the soil may be poor, and the grower himself may be careless. There is no guaranteed refund of money where a satisfactor yield from certified seed is not obtained.

In other words, the railway employes wish things to go on mainly as they are going now, with the gross receipts divided among the wage-earners and the public paying the deficits.—Kansas City Star.

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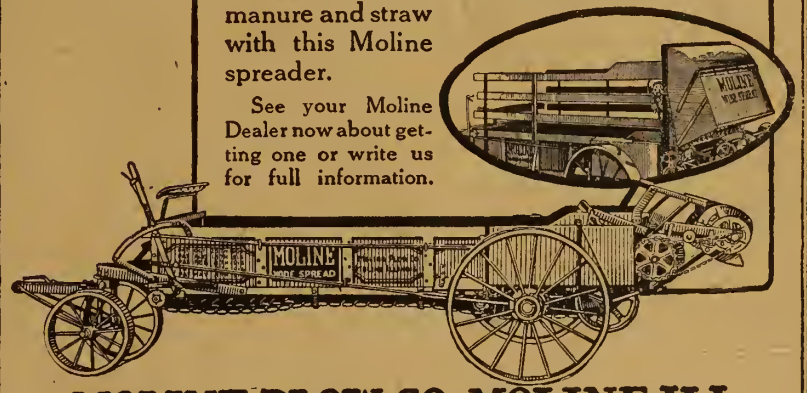

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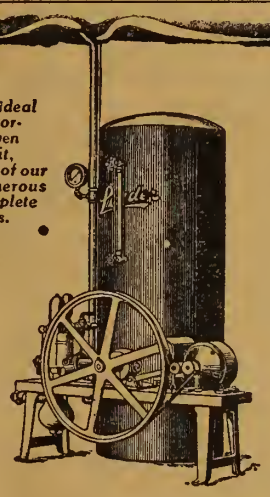

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SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlinea. Bred to lay. Farm raiaed. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

SEVERAL VARIETIES—BUFF LEGHORNS, R. I. Reds; beat layers on earth. Buy cockerels now and save money. Champney, 25 So. Logan, Denver.

DUCKS.

BUFF ORPINGTON DUCKS AND DRAKES $2.00 each. Edna Shipe, Lander, Wyo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—25 ANGUS YEARLINGS, SUITable either to feed for baby beef or to hold over. Fred Layeock, Nunn, Colo.

FOR SALE—ONE REGISTERED JERSEY BULL. Sure breeder. R. O. Darling, Rt. 1, Sedgwick, Colo.

MONEY TO LOAN ON CATTLE. IF INTERested call or write. F. E. Wrockloll, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa Wis.

WE OFFER 25 REGISTERED HEREFORD heifers which won third prize at the last stock show, Denver. We have besides two good yearling bulls and several thia year's bull calves for sale, all best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

150 HEAD OF PUREBRED HEREFORD BREEDing cows and six registered bulls. About 30 or 40 of them are registered, balance unregistered, but purebred. They are all bred to the best bred registered bulls. The registered cows are aged, but good for several yeara yet, and a good bunch to start a registered herd. I can deliver these cows November 1st, when calves will be taken from them. There are 140 calves on these cows now, can you beat that for breeders? I save all bull calves for bulls. Address H. Bert Cave, Littleton, Colo.

HOGS.

FOR SALE—REGISTERED BIG TYPE DUROC Jersey hoga from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

FOR SALE—PEDIGREED AND GRADE Duroc Jerasys weanling plga of both aexes, also a few of February farrowing. Blakeland Farm, Littleton, Colo.

WILL LEASE ON SHARES TO RESPONSIBLE farmers near Denver bred sows and Gilts, also small pigs. Referenceas required. Apply by letter only. D. Seymour, 919 Foster Bldg. Denver.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have aame age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES.

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo.

SHEEP

FOR SALE—9 REGISTERED LINCOLN rams, 7 last spring lambs, the remainder 2 years old. Price $50.00 per head. Write T. M. Deal, County Agent, Fairfield, Ia.

FOR SALE RAMS. NOW IS THE TIME TO apeak for a pure blood, Cotswold ram lamb, $35.90 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 898J.

FOR SALE—400 HEAD PURE BLOOD COTSwold breeding sheep, one to four years. Reaaon for aelling, lady owner and poor health. Price $25 per head. An income of $8,500 per year can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 898J.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANT TO HEAR FROM OWNER OF FARM for sale. Mrs. W. Booth, H. P. Sta., Des Moines, Ia.

WANTED—TO HEAR FROM OWNER OF farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

HAVE 120 ACRES WELL IMPROVED FARM a bargain if taken at once. For particulars write Peter Hansen, Grand Valley, Colo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

COMING UNDER IRRIGATION CHOICE GOVernment land, well located, easy terms, some cash, part crop, mostly work. Liberty Colony, W1223 Curtis St., Denver.

HAVE FOR RENT SUMMER AND FALL PASture, for 500 or 1000 head cattle, also winter pacture and feed if needed. Addresa owner, Box 35, Hillside, Fremont Co., Colo.

320 ACRES—GOSHEN HOLE UPLAND, IMproved, near new government ditch, county seat, railroad. C. S. Walker, La Grange Route, Torrington, Wyo.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

GRASS AND WATER FOR 600 HEAD OF CATtle; rains abundant; feed crop excellent; grasa the best ever; price $1 per head per month for fall and winter. Clark, Shipp & Christeson, Rt. A, Lamar, Colo.

OWNER WANTS TO SELL 45 ACRES CLOSE to Fort Collins. Good water right, small brick house, small baru and granary, reservoir, pasture, 10a. alfalfa, 12a. cherries, close to beet dump, will aacrifice before Oct. 15th. $5750.00, H. B. McCreary, Ft. Collins, Colo.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine aoil; worth $100 per acre in cultivation; on railroad; foreigners must have firat naturalization papers; stampa for particulars. Homeaeekers Information Bureau, Sacramento, Cal.

240-ACRE DAIRY FARM ONE MILE NORTH of Golden, 14 miles from Denver, 1 1-2 miles from malted milk factory; silo, barns, farm equipment, 8-room brick house, hot and cold water system, electric lighted; $16,000. Address R. L. Brunel, Golden, Colo.

320 ACRES UNIMPROVED, 7 MILES FROM Briggsdale, choice wheat and corn land. Owner in California wishes to sell. A snap at $16 acre; 160 acres partly improved, choice location and soil. 5 miles from two railroad towna. $23.50 acre. Write Mackley, 406 Cooper Bldg., Denver, Colo.

FOR SALE—320 ACRES IN NORTH PLATTE Valley under Government canal, 208 irrigated, 100 in alfalfa, good barn, 8-room house, plenty of water, joins C. B. & Q. station with school; five milea from county seat, in heart of best beet, potato, alfalfa land in the world. For particulars write John H. Emerick, Torrington, Wyoming.

FOR SALE—FANCY STOCK FARM OR DAIRY 5 milea from Greeley, 1 1-4 miles from awitch, 340 acres, 220 under plow, summer pasture for 50 head, best feed lot in northern Colorado; running water, never freezes, never dry. 3 houaes on farm, 75 acres in alfalfa; rich soil, two private reservoirs cover 40 acres stocked with fish. Price $45,000, terms to right party. W. R. McClellan, Greeley, Colo.

IT'S OUT! STROUT'S FALL FARM CATALOG. You will never have seen the best until you read the 100 pages of our big illustrated catalog, just out, of unequaled money-making farm bargains in the most prosperous states from Maine to Florida and west to Nebraska. For example, detaila on page 33, of 345 acres, 75-cow dairy farm, milk checks running $500 per month, 10-room house, big basement, barns, 4 horses, 33 head stock, machinery, crops, all for only $7000, part cash. Page 73 details 186-acre natural blue graaa land, rich creek botton soil, A-1 corn land, only few miles hustling western city, splendid home, barna, etc., all for $15,810. Write for your free copy showing you the farm you want, where you want it, at the price you want to pay. Strout Farm Agency, 831 BA. New York Life Bldg., Kansas City.

IRRIGATED RANCHES AT SMALL COST IN the Arkansas Valley. No other soil in Colorado excels the tracts now available near Fowler. And ranches can be had at present for from $40 to $75 an acre with full water rights. You can figure what the chances for development will be. Reservoir under construction and expected to be completed next spring will water twenty thousand acres. Ranchmen will sell some of present holdings at the low prices to better enable them to handle intensive cultivation under increased water available. Water rights under mutual control of land owners—essentially a ranchman's organization—but company itself has no land to sell. Company will handle all inquiries for ranchmen who have the land. Corn, wheat, alfalfa, beans, forage crops, sorghums now grown by irrigation. Big yields of sugar beets, also melons, can be grown. See the land, or write for information. The Apisapa Consolidated Irrigation Co., H. H. Knowlton, Sec.-Treas. Box 337A, Fowler, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

PURE KANRED SEED WHEAT; DEVELOPED at Kansas experiment station for dry land. Yields 30-50 per cent over Turkey-red. $5.00 per cent. Recleaned, sacked, F. O. B. Pueblo. Emerson Lambuth, Elmore Farm, Goodpasture, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

MASON SOLD 18 SPRAYERS AND AUTOwashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

U. S. GOVERNMENT WANTS HUNDREDS railway mail clerks. Commence $90 month. Raise to $150. Fall examinations likely every where. Common education sufficient. Sample questions free. Write immediately. Franklin Institute, Dept. K. 172 Rochester, N. Y.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

LUMBER

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LARGE ASSORTMENT OF ALL KINDS OF burlap sacks. Western Sack & Burlap Co., 2727 W Colfax, Denver, Colo.

AUTO AND TRACTOR SCHOOLS.

LEARN AUTO AND TRACTOR REPAIRING, expert, practical instruction, in our own garage. Auto mechanics draw $90 to $300 monthly. Investigate. Denver Auto Tractor School, W1223 Curtis St.

THE DENVER Y. M. C. A. AUTOMOTIVE School guarantees satisfaction in teaching these trades—Automobile repairing; tractor operation and repair; Oxy-acetylene welding; vulcanizing and tire repair; starting, lighting and ignition; machine shop practice. 334 students last year. Tuition fees moderate. Practical work under seven practical instructors. Write today for illustrated booklet. The Y. M. C. A. also conducts splendid preparatory and commercial schools for young men.

GROCERIES & SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. Best beet sugar, hundred, $10.20; 5 lb. can Calumet baking powder, 90c; 3 lb. Baker's bulk Cocoa, $1.00. With every auto casing you buy, we give you a tube free. Best sized binder twine, $23.85 per hundred. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

BEE SUPPLIES AND HONEY

DELICIOUS NEW HONEY, 60 POUND CASE, $10.50. A. A. Lyons, Ft. Collins, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

House Badly Infested

Having read your article about poultry, I am writing you to know what to do to get rid of bugs in my chicken house and on my chickens. I have a nice small flock of Barred Rocks, 16 hens and 30 young chicks. The hen house is built of old ties, covered with shingles and has wire netting from the top of the ti seto the roof on three sides, north, east and west. There hadn't been any chickens kept in the house for a year or more until we moved here last February. But every crack and crevice was full of old hulls and seeming lifeless bugs. I have used grease and sulphur on the small chickens. Have dipped the hens in Kreso dip solution and that didn't seem to have any effect on the bugs, so yesterday I took grease salt and sulphur and greased them. The little blue looking bugs are thick all over some hens while a few seem to have none. I greased them anyway. I have whitewashed the house a couple of times with Kreso dip in the white wash and have given it a good scalding with Kreso dip and salt water. Later on I looked again and found several big healthy bugs. Do you think they would be between the shingles on the roof? I have the swinging roosts and cans with oil in them about midway of the wires, but the yget on the roosts just the same. Is there anything I can put on the chickens or feed them to keep them off? Have been told to feed nuxvomica but do not know anything about it and have been afraid to use it. After each doctoring I have given the chicks they seem sick and some of them are real sick and have lost several with bowel trouble.—Mrs. J. F. N., New Mexico.

I am afraid it will be a rather difficult matter to get rid of the vermin in your poultry house. Probably there is no section of it, walls or roof, but is infested liberally with these bugs and lice. The lice on the bodies of these fowls are rather easily taken care of, the easiest way perhaps is to provide a dusting place for these hens. If this does not answer the purpose probably the best material to use for dusting the fowls individually is the lice powder to be bought on any market. Probably the most thorough way of removing lice on the body of the fowls is by dipping. We have used tobacco stems, boiling them, then diluting with water, and also some of the coal tar preparations on the market, using a weak solution, the exact amount being specified on the can in which the material is sold. However we think that a good dusting place will take care of body lice.

The material you have used, whitewash with kreso dip, is as good as anything you can secure, but you must bear in mind that the liquid must touch the insect. In a house built as yours is, it is almost impossible to reach every crevice where these insects are lodged. If you can accomplish this by thoroughly saturating every nook and corner, the insects must be eliminated. This is your whole problem. Whether or not this can be done is a question you will have to solve but I rather think it can by persistent spraying or soaking. Once the bugs and lice are entirely destroyed, the materials you spray with will probably prevent others accumulating for some time to come. We have never found more than one application a year necessary where once we have gained control over the pests. I should not recommend the greasing of fowls, as to use enough grease to cover every section is certainly injurious and dangerous. And neither would I suggest anything to put in the feed as this is a delusion and a snare. I hope you will apply your remedies as you have been applying them until every inch of your poultry house has been reached. Then I think your troubles will be over. —W. E. V.

Live Stock Field Notes.

Mr. William Upp of Deer Trail, Colorado, announces some fine spring boars and gilts for sale. Mr. Upp is a breeder of Big Type Poland China hogs. His herd is headed by such boars as Big Jumbo, Missouri Prince, and Cotton Wood King. Read his ad in this issue of Western Farm Life.

The Western Stock Show Association announces the National Western Ram Sale which is to be held in Denber beginning Tuesday, September 30th, and continuing thru Friday, October 3rd. Ober 3,000 rams and ewes of all the principal breeds will be offered at this sale. All sheep men should make it a point to attend this big public auction. Read the ad on the live stock page of this issue.

FOR SALE

I can show buyers 600 registered Herefords, also 800 regiatered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Alao six breeds registered draft stallions, marea and colts. Priced to sell. I can show breeding stock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Molnea, Iowa.

REGISTERED DUROC SPRING PIGS

Fine quality, smooth and well grown
LA BELLE RANCH
Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver
H. G. SQUIBB AURORA, COLO

YOUNG HOLSTEIN BULLS

Crescent Beauty Segis, Canary Sired by a son of King Segis Pontiac who had 101 A. R. O. daughters, and whoae dam produced 37 lbs. of butter in 7 days. This bull's dam produced 18 lbs. butter at 4 yeara and 7 montha. A fine individual—nothing but good blood back of him. Bull Calves With Equally Good Breeding
W. A. PURVIS Johnstown, Colo.

COL. H. C. JENNINGS
Pure-bred Livestock
AUCTIONEER
Also conduct Sales of Real Estate
534 17th St. Denver, Colo. Phone M-6870

NATIONAL WESTERN

RAM SALE

Denver, Tuesday, September 30; Oct. 1-2-3

3,000 RAMS AND EWES. REGISTERED AND UNREGISTERED. ALL PRINCIPAL BREEDS

Direction Western Stock Show Association

Stud Rams and Range Rams. Stud Ewes and Range Ewes

AT PUBLIC AUCTION

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name "Majesty" in a jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty, and related to many in my herd, and to 'Majesty's Feather Lad,' son of the show cow, Majesty's Feather Lass, 712.13 butter.

I have some extra fine young cows and heifers for sale. Have some extra fine bull calves, two out of half sisters to the great "Financial Sensation," the $60,000 bull. One out of fmported Cowslip's Sweet Bread, a R. of M. cow. Also others. These are extra fine calves, and my prices are right.

Two or three November gilts, by a son of Top Sensation. Write me.

A. M. McCLENAHAN, Greeley, Colorado

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

Milking Shorthorns

THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.

Pine Valley Farms

COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.

DENVER, COLO.

2055 Humboldt St. Phone Main 5713

REGISTERED DUROCS

Lakeside Herd

Big lusky March Boars. Best of Blood Lines guaranteed.

DR. F. T. DALY, CAMBRIDGE, NEB.

Weanling Pigs, Both Sexes, August Farrow

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.

Elbert, Colorado

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE BRED AND REGISTERED

Hereford

BULLS and HEIFERS

1 car 2-year-old bulls.

130 head yearling registered and pure bred bulls.

Several cars yearling heifers, 2-year-old heifers and cows.

Good Bone, Colors and Markings

Write or phone us for prices

715 E. and C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

Wyoming 4th

L. G. DAVIS HEREFORDS

ANXIETY-BRED

Sires in service:

The great BEAU CARLOS 2D 352001, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 5½ miles southwest of Denver on the Morrison Road.

Glendale Stock Farm

Irvindale Rowdy Grand Champion Belgian Stallion Chicago, 1917, Denver, 1918 and 1919

Breeders of

BELGIAN HORSES

and

POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

BEAU ASTER

Registered Hereford Cattle

Prince Domino—199611 Sire of the Champion Futurity Bull and Heifer

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER

Holyoke, Colo.

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

GEO. R. GILMORE, Ft. Morgan, Colo.

WYNNEWOOD RANCH

Big Type Poland China Hogs

For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of botb sexes, including several of a litter from the Junior Champion Gilt, Denver Stock Show, 1919.

C. E. GORDON, Mgr., Overland, Colo.

Boar Pigs For Sale

High class individuals of January and March farrow—will make exceptionally good Herd Headers. Prices in accordance with stock.

State Fair Winning Blood is mixed thru our entire herd. Inspection invited, or write

THE DEMING RANCH, Oswego, Kan.

William Upp

Breeder of

BIG TYPE POLAND CHINA HOGS—HERD HEADED BY BIG JUMBO, Missouri Prince, Cotton Wood King, and others.

Spring Boars and Gilts for sale.

Deer Trail - - Colorado

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH

Montrose, Colo.

You Learn to Drive This Tractor in 10 Minutes

Start

—If you want to go ahead, you push both levers slightly forward, just as you would loosen your lines when you start your horses.

Stop

—If you want to stop, you pull back lightly on both levers and the tractor stops in neutral.

Back

—If you want to back up, you pull back harder on both levers, just as you would on the lines in driving your team.

TurnRight

—If you want to turn to the right, you pull back on the right lever and forward on the left.

Turn Left

—If you want to turn to the left, you pull back on the left lever and forward on the right.

"The Levers Are the Lines"

THE Square Turn Tractor is easier to drive and handle than a one-horse rig. Even a boy or girl can do it. There is no tiresome, heavy work to do. You have two handy levers for lines to make the tractor **stop, start, back** or **turn.** You have two handy foot pedals to raise and lower the underslung plows.

Everything Is Done by Power

You have no steering wheel to spin. No gears to shift, no clutch to bother with. You sit comfortably above the plows where you can watch their work without twisting, turning or craning your neck. You do more and better work with less effort. You do everything you can do with horses, and more.

Plows Are Underslung and Power Operated

Enabling you to get closer to fences than you can with a team. The underslung plows are hitched to the draw bar right at the front of the tractor, so the whole outfit takes up only a little more space than a team of horses alone. You can nose the end of your plow beams right against the fence, get right into corners, clean out dead furrows; in fact finish up every job better than you can with horses No other tractor is like it. No other tractor equals it in ease of handling, efficiency and economy

Write for Free Tractor Catalog

You owe it to yourself to know all about this marvelous one-man, power-controlled outfit before you buy any tractor. Let us send you our new free catalog. We will also tell you where you can see the Square Turn Tractor at work.

SQUARE TURN TRACTOR CO., Dept. 13 Norfolk, Nebraska

The illustration below shows the Square Turn Tractor making complete turn in less than 5 seconds.

(3)

Square Turn Tractor Co.,
Norfolk, Nebr.

Gentlemen: In regard to the tractor bought of you thie Spring will say that it is all that you claim for it and anyone wishing to purchase a tractor that will fill the bill and one that will go anywhere that it ie fit to plow will make no mistake in buying a Square Turn Tractor.

Wishing you success in your good work, I remain, Yours,

MARION OWENS

Madison, Nebr.

SQUARE TURN

Norfolk, Nebr

Square Turn Tractor Co.

Gentlemen—My tractor is giving perfect satisfaction. I like it because it is a square-turn tractor. I like it because it is a two-way tractor. I like it because the Giant Grip Drive is as flexible in starting as a steam engine. In running against a rock or other obstruction, all strain on the crank shaft and bearings is eliminated by the friction transmission and with the plows hitched beneath the frame of the engine in plain sight of the driver it is a perfect plow machine.

Very truly yours,

A. J. KEIFFER, Oral, S. D.

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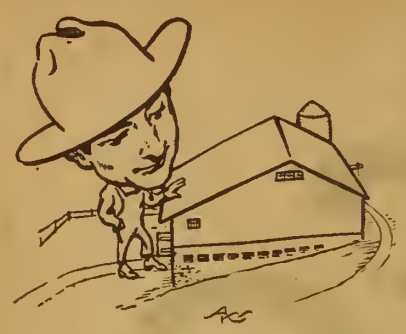
OCT 17 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, October 1, 1919 Semi-Monthly

CONCRETE SILOS ON THE AGRICULTURAL COLLEGE FARM, FT. COLLINS, COLO.



PROTECT

That
Shingle Roof
And All Wooden Buildings
Now
Against Rain, Hail and
Snow With

BITUMINOUS WATERPROOF ROOF PAINT

It Preserves the Wood—Prevents Leakage and Decay

Rich, Black Color—Doesn't Fade

For Sale by Leading Dealers in
DENVER, COLO., WYOMING AND NEBRASKA
or
CROWN TAR WORKS, DENVER
Operated by
The Denver Gas & Electric Light Company

BUSINESS
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Think Well of Lindgren

Our readers will be interested in knowing how Harry A. Lindgren, the new associate editor of Western Farm Life, was regarded at home. Following are extracts from the two Montrose papers. The Enterprise, in announcing his resignation as agriculturist for the Uncompahgre project said:

"In a few weeks when that splendid teacher of stock growing methods, Mr. Lindgren, shall have gone from this valley, many of the stockgrowing farmers will really begin to appreciate what they have lost. He has been the principal factor in filling this valley with silos, high grade hogs, purebred cows, and numerous small bunches of good sheep on the farms. He led the van in the destruction of the myriads of prairie dogs and other pests. He literally camped on Joe Brown's trail and lived at the antiquated Montrose Creamery, then down in Missouri town, until he had compelled the installation of new machinery and modern equipment in a properly constructed building in the heart of the city, where methods second to none have turned the concern into a money maker for the owners and a tremendous benefit to the farmers.

"It would seem impossible to enumerate what has been done to inaugurate co-operative and efficient efforts among the farmers in establishing bull clubs, breeders' associations, shipping societies and numerous other schemes to enrich the farmer and his lands. He induced the newspapers to devote considerable space to livestock matters and he filled it with absolutely scientific stuff for the benefit of the stock growing farmers, which was read as a matter of course, and I fear was sometimes not fully appreciated.

"His news items as well as his scientific articles, were widely copied from The Enterprise all over the nation and they constituted a valuable mass of advertising for this valley."—Montrose Enterprise.

After reciting the fact of his having been engaged as one of the editors of Western Farm Life,, the Montrose Press went on to say:

"His duties have taken him throughout the length and breadth of the valley over which he has traveled 33,000 miles in the discharge of his duties He is known by all stockmen and farmers who will regret to hear of his decision to leave the valley. In the city Mr. Lindgren has made many friends and become associated with the social, religious and business life.

"During the four years he has been in the Uncompahgre valley, directing the livestock industry, there has been experienced great strides in animal husbandry. To mention the various phases of activity in which he has been interested, and which have borne fruit for the stockmen, would require considerable space.

"When Mr. Lindgren came to the valley there were 4 silos on the project. By preaching the value of silage continually the number has increased to 75 with several building this year. He has hammered away at the advisability of growing corn and was greatly instrumental in the establishment of the Olathe corn show and the selection of seed corn.

"During his work he has brought about the importation of 175 head of fine milk cows, 30 thoroughbred dairy bulls, a number of thoroughbred sheep and beef bulls. Just prior to his arrival here there had been but one carlot of hogs shipped out. Soon after his arrival a hog shipping association was formed and since then from 85 to 125 carloads of hogs have been shipped out each year.

"Mr. Lindgren organized a bull association, a sheep raising association, the hog shipping association, the hog growers association, has been in charge of the livestock at the Western Slope fair each year and served on important committees of the Uncompahgre Valley Stock Growers' association."—Montrose Press.

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As an illustration of a great devotion to truth, a would-be M. P. told his auditors that he "underwent a severe thrashing when a boy for telling the truth." Imagine the sickly feeling which came over him when a gruff voice called out from the center of the audience: "I guess it's cured yer, guv'nor!"—Christian Life.

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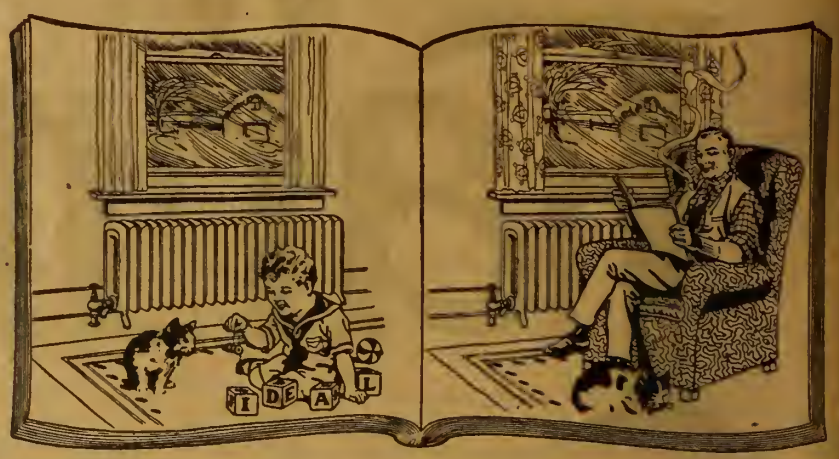

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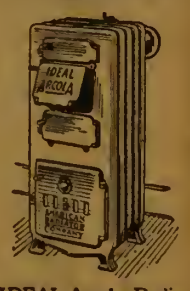

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Largest Circulation of Any Farm Magazine in the West

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Arkansas Valley Vies With Iowa In Corn Growing

FARMERS OF OTERO COUNTY INSPECT VARIETY TEST FIELDS

New Silo on C. J. Cover Farm, Rooky Ford, Being Inspected by the Otero County Farm Bureau

ALVIN T. STEINEL

TRAVELING through the Arkansas valley of Colorado the latter part of August, the writer was impressed by the similarity of that section to the river bottom country of Missouri or Iowa. Usually the predominant feature of an irrigated landscape in the mountain states is the dark green of alfalfa and sugar beets. The low growing crops—roots and small grains—are usually most in evidence. This year, in the fertile country bordering the Arkansas river eastward from Pueblo, corn everywhere overshadowed other crops, and it was the tall, heavily eared and amply foliaged corn, the king crop of the Mlssissippi valley states; cornbelt corn of the best type, hastening toward maturity during hot July and August days and apparently unchecked by the cooler nights for which Colorado's climate is justly famous.

The reason for the increasing popularity of corn is the silo. This method of saving all the crop for winter feeding is responsible for adding many millions of dollars to Colorado's farm wealth. Almost invariably where there was a cornfield there a silo was found; sometimes it was of solid concrete, sometimes of cement staves, sometimes of hollow tile, but nearly always new; in use one, two or three seasons. One could alost pick out the different classes of farms by looking at the silos. Where they were very tall it was a safe bet that the owner was a feeder of beef cattle; where of lesser height it indicated a dairy herd of 20 to 40 cows, supplying the cream market, or the conrensery.

At Rocky Ford, the writer joined a party of Otero county farmers for a tour down the valley to inspect various projects undertaken by the Farm Bureau in testing crops and farm methods. C. B. Sherwood, president and Harry P. Badger, secretary of the Otero County Farm Bureau, and County Agent W. F. Droge, were in charge of the party.

Sixteen farmers were carrying on variety tests of corn and a number of these test fields were included in the day's inspection. On the state experiment farm, where a test of 29 corn varieties is in progress under the direction of Prof. P. K. Blinn, there was a long stop. Other projects visited included tests with sweet clover as a fertillzing and pasture crop, silos and other dairy farm equipment, home building arrangements, pumping plants and livestock feeding methods.

More than forty auto loads of farmers and townspeople participated; the farmers for the purpose of learning from others of their calling what the new crop or new method might teach them, and city people from a desire to get acquainted with the men and resources of the country.

The first stop was at the C. J. Cover farm, a mile east of Rocky Ford, where a field of Leaming's yellow dent corn was the chief point of interest. This corn had made a tremendous growth, being the equal in forage and grain of any field that might have been seen in the heart of the Iowa cornbelt. A new cement stave silo on this farm, which will contain the corn after it is cut up, also was inspected with much interest.

Immediately across the road from the Cover farm there was a field of Leaming's yellow dent grown under the direction of Prof. Blinn of the Experiment Station. There were three plots, one from Illinois grown seed, another from Iowa seed and the third from Colorado grown seed. The Iowa plot was already in the silage stage and lacked but little of being absolutely ripe. It was fully ten days in advance of the other two plots. All of the corn had made a fine growth and was well eared, but the early maturity of the Iowa strain was the advantage that seemed to appeal to the farmers.

On the Experiment farm, which was next visited, there was much to see. The tests which are being made there with 29 varieties are a continuation of the work done in 1918, a report of which was published in Western Farm Life last winter. Prof. Blinn will again furnish a report for the benefit of our readers when this season's test is completed. It will be interesting now to have the preliminary information, as it was given to the farmers on the inspection trip.

Corn Variety Tests

These test plots were planted May 6, and badly frozen down on June 1, at which time there was a freeze practically all over Colorado. It was not necessary to replant, the corn making good recovery. The varieties grown, together with date of tasseling, are given as follows:

Funks 90-Day corn, July 20th.
Golden Glow (Colorado seed), July 20th.
Bloody Butcher, July 15th.
Minnesota No. 13, July 9th.
Boone County White, July 25th.
Riverview Special (So. Dakota), practically ripe August 28th.
Wimples, July 11th.
Iowa Silver Mine, July 25th.
Griffith's 90-Day, July 15th.
Western Plowman, July 20th.
Murdock, July 15th.
Gold Mine, July 15th.
Dakota 90-Day, July 9th.
Funk's Tribird, July 23rd.
Wisconsin No. 7, July 9th.
Leamings, July 22nd.
Silver King, July 18th.
Iowa Reid's Yellow Dent, July 23rd.
Illinois Reid's Yellow Dent, July 15.
White Australian, Jnly 6th.
Swadley, July 6th.
U. S. No. 206, July 31st.
U. S. No. 193, July 9th.
U. S. No. 17, July 28th.
U. S. Mill Pond, August 8th.
U. S. Squaw, July 15th.
U. S. 182, July 25th.
U. S. 133, July 6th.
U. S. 201, July 31st.

These plots were given two irrigations and cultivated four times, the treatment being absolutely uniform for each variety. There are duplicate plots of each so that the work can be checked. It will be noted that Minnesota No. 13, here as elsewhere, has shown its quick maturing quality. This is also true of Swadley, White Australian, Dakota 90-Day and Wisconsin No. 7, which were in tassel early in July. These corns were all ready to cut for silage the last week in August. Of course, they could not compete with some of the taller varieties in tonnage, but they have the habit of quick growth needed to escape frost damage.

On the farm of William Morrison, which was next visited, the demonstrations included variety tests of corn, sweet clover sown in corn for pasture and for fertilization and wheat sown in corn for pasture. Mr. Morrison's corn was planted May 8th and frosted to the ground the first day of June. It had fully recovered by the 20th of that month but suffered from a hailstorm June 30th. In spite of these vicissitudes the inspection party found the stand to be perfect and the crop to have made apparently as good growth under careful tillage and irrigation methods as could be wished for. The wheat sown between corn rows for pasture was put in just ahead of the last cultivation. It was making a fine growth, indicating that after the corn is cut for silage, there will be good fall pasture with a crop of grain to be harvested next season.

Rye would have been used for this test if seed had been available, because rye stands pasturing much better than wheat as a rule.

The sweet clover did not fare quite so well. It was put in after the last cultivation of the corn, the object being to furnish fall pasture and then a green manure crop to be plowed under in the spring. However, the army worm attacked the sweet clover and destroyed considerable of it. That which remained was making a fine growth. The sweet clover was drilled in at the rate of 10 pounds of hulled seed per acre. The wheat was broadcasted by hand.

County Agent W. F. Droge of Otero County in William Morrison's Corn Field

Sweet Clover Pasture

On the Joe Beeler farm the party inspected an irrigated sweet clover pasture. This field was sown in the spring of 1918 with a nurse crop of oats. The oats were cut, leaving the sweet clover to stand for pasture. Forty head of cattle were put on it last fall and six head have been running on the pasture all of this summer. The field comprises 4½ acres and will carry regularly about ten head. In spite of having been well pastured during the entire summer the sweet clover has gone to seed and the pasture will reseed itself. Mr. Beeler says that sweet clover has proven very satisfactory as a pasture for milk cows.

The Libby, McNeil & Libby Condensery at LaJunta was the next point visited. Here the party was taken in charge by Manager J. F. Hurley, who explained the methods of condensing milk and gave the farmers some good pointers regarding the production of quality milk. All were very much interested in his explanation of the process, as well as in the factory inspection which followed, the party being divided into several groups, each group headed by an employe of the plant, who acted as guide. The plant is one of the most modern in the United States. It is not yet running to capacity, but more cows are being brought into the district, as the farmers on irrigated land are finding the dairy cow a revenue producer, as well as a source of fertility and a consumer of farm by-products. In fact, the cow turns the by-product into profit.

Inspect a Dairy Farm

After the picnic dinner in a grove near LaJunta, the party went to the farm of J. E. Lewis in East Holbrook. Mr. Lewis has a modern dairy barn and equipment, milking machines, power plant, and milk cooling house and loading dock. He also has a fine herd of Holstein cows. The milk is

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Fine Showing of Crops at Wyoming State Fair

GOOD EDUCATIONAL DISPLAYS BUT PRACTICALLY NO LIVESTOCK

T. S. PARSONS

THE Wyoming State fair, held at Douglas, September 9-13, was conducted along different lines than ever before and was the best state fair the writer has attended in ten years. The last legislature placed the management of the fair in the hands of the state board of charities and corrections. Many predicted that the fair would not be successful but they proved themselves false prophets.

The state board appointed a fair board composed largely of Douglas citizens and Dr. B. F. Davis was elected president. The president and his assistants then called upon other prominent state officers, members of the agricultural college faculty and extension division and others for assistance. The result was a fair that lacked much of the sporting element of former years but one that drew the largest attendance in the history of the fair.

A comparison of last year's and this year's receipts gives an idea of the success of the fair. Last year there were five days on which an admission fee of 50 cents was charged. The receipts were something over $7,000. This year there were three days on which an admission fee of 25 cents was charged and the receipts were over $5,000. It has been demonstrated this year that the State fair can be carried on successfully without a large appropriation and without a large deficit to be made up by the next legislature.

The Exhibits

The agricultural exhibits were larger and of better quality than for some years. Considering the adverse season the agricultural and horticultural displays were wonderful. Even the dry farm sections came out with fine exhibits. Bighorn and Washakie counties as usual had the largest displays and carried off a large number of premiums. Converse, Crook, Niobrara, Natrona, Fremont, Platte and Albany counties also had good exhibits. Niobrara and Converse counties were the strongest in the dry farm displays, Niobrara county taking first place for the best farm bureau exhibit and Converse ranking second in the vegetables display. Bighorn county took first place in the fruit display and Washakie first in the general display. The artistic arrangement of this county exhibit was very fine. Fremont county came back this year with a good exhibit after several years' absence.

The University Exhibit

The university and agricultural college put on a more extensive exhibit this year than was ever before attempted by the institution. Nearly every department of the university was represented and the exhibit, along with that of the extension division, occupied nearly one-fourth of the agricultural hall. The extension division, the department of home economics and domestic science and the library were the parts of the exhibit that attracted most attention. The library exhibit occupied a large booth which was fitted up as a rest room. The home economics exhibit showed a completely equipped modern kitchen. The exhibits of the zoology, veterinary and engineering departments also attracted their share of attention.

The County Agent Exhibit

A new and interesting feature of the fair this year was an exhibit by county agents showing some of their activities in the various counties of the state. Charts and demonstrations showed methods of rodent destruction, grasshopper poisoning, treating grain and potatoes for smut and scab, selecting and grading potatoes and other activities carried on in their counties. Charts showing the number of acres affected, number of bushels increase in crops and amounts of money saved covered the walls of the booth and gave important information to the public.

Boys' and Girls' Club Work

The boys' and girls' club exhibit occupied an important piace. Canned fruits, vegetables and meats, fancywork, sewing and garden products made up the exhibit. Girls' canning teams from five counties demonstrated each day in the women's building for the state championship. The Sheridan county team won out and had the honor of representing the state at the Interstate fair held at Sioux City. Here the team again upheld its reputation winning first place in canning and second place in all the contests. This is indeed a record to be proud of. The Sheridan county boys' team also won first place in the stock judging contest at the State fair.

The Women's Work

The fine arts hall was entirely filled this year with the women's work and the educational exhibits from various schools. The culinary exhibits were removed to the basement of the agricultural hall this year. The display of cooking and canned goods was never greater than this year. Other industrial exhibits and displays also occupied the basement floor of the agricultural building.

A large tent was given up to the display of automobiles, trucks, and tractors. Many models of late cars were shown along with farm lighting systems, labor saving devices, etc. All these along with the trucks and tractors made a very attractice display.

The Government Exhibits

The government exhibits, while not as extensive as last year, were very interesting and instructive. The main exhibit occupied the center of the agricultural hall and consisted of model poultry houses, spraying apparatus, soil and crop displays and forestry products. The main forestry exhibit was in the basement and was the best ever seen. A complete summer home and camp in the forest reserve was shown in miniature, as was also a complete ranger station in the forest with its ranger's cabin, barns and fire watchtower.

Poor Cattle Exhibit

When livestock is mentioned in connection with the Wyoming State fair there is a temptation to swear. The less said about it the better as there almost wasn't any. George Foxton and Hauf & Son of Glendo were there with their Shorthorn herds. Had it not been for these there would have been no beef cattle on exhibition. Bishop & Sons of Virginia Dale had a herd of Jerseys on exhibition, and this was the extent of the cattle shown. It is regretable that a better showing of livestock cannot be made in as important a stock state as Wyoming.

The horse exhibit had but little over the cattle. A number of horses from the horsebreeding farm that Colorado didn't want were shown along with a few others. The horses did not create a great deal of interest. If one wanted a saddle horse he might find one at the horse breeding farm, but it would be a poor place to go for a useful ranch or farm horse.

A member of the boys' pig club from Goshen county showed the only hog at the fair. The boys are giving the men pointers on farming all along the line.

Good Sheep Show

The sheep exhibit was very good, the sheep barn being entirely filled. The King Brothers flocks took ,the lion's share of the prizes as usual. The Corriedale Sheep company of Cheyenne had some fine specimens of this breed on exhibition, and Roscoe Wood of Douglas had his usual good showing. There were also a few outside flocks shown.

The poultry exhibit was also very good, being helped out by a carload of fancy stock from the Roselawn Poultry farm at Beaver Crossing, Nebraska. Nearly all the breeds of poultry were shown in the display, but for utility none of them were better than the birds shown by Hawley & Speis of Douglas. Messrs. Hawley and Speis are developing a fine poultry plant at Douglas and their stock is as good as any to be found in the country. They are making a specialty of five or six of the utility breeds and are not growing the fancy varieties.

Taking all things together the State fair may be considered very successful this year and the officers and those in charge are to be congratulated on their good management. They should be continued in the management of the fair and should be given every assistance possible another year.

Does Cultivation Bring Increase In Rainfall?

CLIMATE IS NOT INFLUENCED BY SETTLEMENT OF THE COUNTRY

E. R. PARSONS

DOES the rain follow the plow? Some think so and we would all like to believe that it does, but here enters the Weather Bureau with its usual array of cold facts and compelling figures and insists that there is no foundation for any such belief. There is, however, one thing we can tie to, for we know more about it than they do and that is that the longer a country is settled, the easier it seems to raise stuff and this may be one of the reasons we think it rains more than it did a few years back.

In the states subject to hot winds, for instance, the damage done by them has steadily decreased with the opening up of the country, for the simple reason that air moving over green crops is much cooler than that from the sun burned prairies.

When the dry farmers first began to encroach on the cattle country they were all at sea as to how to proceed with their operations, but with experience came knowledge of the new conditions and the varieties of crops best adapted to them. The farms that were well plowed began to store moisture in the subsoil and year by year things began to look more promising. It is true that some became discouraged in the dry years, and some failed but this happens in every undertaking.

As methods improved, crops increased and more moisture was stored in the soil, it became natural to suppose, especially after several good years, that the precipitation was increasing. About that time a dry year would butt in and those who believed would find that they were leaning on a broken reed. Better conditions had prevailed, not because of increased precipitation but because more of it was conserved. Another fact which has helped the dry farmer is that every irrigating ditch, every lake, every reservoir, and every acre of cultivated or irrigated land increases the atmospheric humidity of the neighborhood. This moisture in the air generally lies close to the ground where it can do the most good, for while hot, dry air drews the moisture out of a plant, the humid air cuts off evaporation almost entirely and saves considerable moisture for the crops during the growing season, which otherwise would be lost.

This increased humidity expresses itself principally in dew. The warmer the air the more water it can hold. At a temperature of 90 the limit is 15 grains to the cubic foot, at 70, eight grains; at 50, four grains and at 32 two grains. Now supposing in the neighborhood of crops, trees, ditches, etc., the air at 90 degrees is charged with all it can hold, 15 grains to the cubic foot and the temperature at night drops to 70, what happens? Every cubic foot of air has to let go of 7 grains of water, because at a temperature of 70 each cubic foot can hold only 8 grains. This water leaves the air in a fine vapor, too fine to notice, and settles on the leaves of plants, etc., in the form of dew. The cooler anything is the more dew will condense on it. It is not often seen on the ground, which holds its temperature far into the night.

When the weather man gives out the dew point all he has to do is to look at his hygrometer, which tells him how much water the air is holding, and then look at his tables to find out what temperature the air will begin to let go.

Dew is a help to plants, although not much of it is absorbed. It freshens them up after a hot day, lessens transpiration and gives them a chance to recuperate. On the coast of California beans are raised in the summer months where there is dew every night without rain or irrigation; all they have to draw from is the moisture conserved during the winter months, but further inland where the air is dryer this is impossible.

No one can deny that settling a country produces more local humidity. Now comes the question why should this not affect the rainfall? It does but in such a small way as to be unappreciable. This stratum of humid air is close to the ground and only a few yards thick; the dry air always moving east from the mountains merges with it and carries most of it away in the direction of the states to the east of us. When a cold rain happens to fall through it, it is true that it carries some of this moisture into the ground with it, but how much? Probably about 2 or 3 drops extra to each square foot.

Our precipitation is not a local affair at all. A storm lasting a day or so and bringing an inch or more of water may travel a thousand or more miles before it reaches us and may have originated in the northern Pacific on the west side of Alaska, eventually petering out in the mid-Atlantic. The big blizzards which strike New York often freeze the oranges in Florida and cause rain in the West Indies. It is not possible that local conditions in any particular spot could affect storms of such magnitude.

The evaporation in many of our western states is estimated at about 40. This means that if we place a barrel of water in the sun it will lap up about 40 inches of it in a year or about an inch in nine days. This process is going on continually on all bodies of water. What the sun takes up from the oceans every year, which have three times the surface of the land, is hard to compute. The precipitation is primarily the work of the sun. It is caused like dew by changes of temperature. Then cold strikes a moisture laden atmosphere condensation and rain or snow result.

The birth of a storm is always coincident with a falling barometer which indicates an area of low pressure. Our protection from the below zero cold of space is our atmosphere and when this becomes thin, a drop in temperature naturally results and if there is sufficient moisture present down comes the rain or snow. When there is no moisture present the equilibrium is re-estabiished by wind.

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Some Features of the Boulder County Fair

SPLENDID EXHIBITION OF FARM PRODUCTS AND LIVESTOCK

BOULDER county's fair this year maintained its standard as an educational exhibition of farm products and livestock the equal of any county fair anywhere in the United States. There are bigger county fairs but it would be hard to find one which better exemplifies a county's agricultural progress. This season has not been normal in northern Colorado Shortage of snow water for early irrigation and a dry May and June cut the wheat and sugar beet yields, two of the main crops. This water shortage, however, had no appreciable effect on the exhibits at the fair in Longmont. The showing of agricultural products was as good as ever and there was a noticeable increase in the number of livestock exhibits. The livestock department had not been as strong as it should be, but this year all classes were well represented, including dairy cattle, beef cattle, hogs, horses and mules, sheep, poultry and pet stock.

Races and other entertainment features are always a part of the program, but secondary to the educational features. It has been the history of fairs that they have their ups and downs. The Boulder county fair was at a critical point this year. There seemed to be plenty of reason for letting down a little in view of the dry weather of early summer, but the feeling was not allowed to dominate. The highest standard of excellence was maintained in every department and the liberal patronage of town and country people was proof to the directors that the public will support an educational fair.

One of the most interesting incidents occurred this year in regard to the exhibits of Minnesota No. 13 corn, the variety which Boulder county farmers have decided upon as best suited to their conditions. Corn was shown in two divisions of the fair, there being a general exhibit and a Boys' Corn club exhibit. One of the club boys, Rudolph Brand, of Hygiene, brought in 20 ears from which to select a 10 ear exhibit. With the aid of County Agent Simpson he divided this into 10 ear lots, the best to be entered in the Boys' Club division, which was all Minnesota No. 13, and the other 10 ears going into the general exhibit, in competition with corn grown by adult farmers. The remarkable thing is that the boy won the blue ribbon with his 10 ears of second choice in the adult class on Minnesota No. 13, and got only third on his best 10 ears, which went into the club competition. This indicates the high standards maintained in the juvenile division. In the club exhibits Glen Leggett won first and Bernard Buster second.

The corn exhibits are only an incident of the Boulder county fair, which is held before corn has fully matured. The corn question is thrashed out each season at the midwinter corn show, which will be held at Longmont in December.

Wheat is one of the main features of every fair, as that is the big grain crop of the county. For three years the farmers have been engaged in a test of the Marquis and Defiance varieties, to determine which of these is the surest and most profitable as a spring wheat under irrigation. So far the result is about "fifty-fifty."

One thing this test has emphasized is the variability of our seasons. Those who believe that farming under irrigation leaves nothing to chance are mistaken. Records kept on crop tests show that each season has its peculiarities. Sometimes spring comes late and wheat sowing is deferred. Again the early season is right for planting, but a long dry spell follows when we should be having our spring rains or snows to start the wheat. So in 1918 there was too much rain in mid-summer, which caused the Marquis and Defiance wheats to act differently from the previous season. This year the dry weather of May and June interrupted normal development of the test fields, so that instead of 20 fields of each variety the test was narrowed down to ten fields. The following summary shows results given in a graphic exhibit at the fair, and which will be supplemented by a complete report from County Agent Simpson later:

MARQUIS WHEAT TEST 1919

Name	Acres	Ground	Seed	Sown	Cut	Yield in. bu.
Arthur Turner	10	Beet	75	3/15	7/16	46
Walter Carlson	23	Beet	90	3/12	7/14	41
Albert Lund	13	....	40	3/24	7/19	34
Robert Wilson	12	Alfalfa	70	2/28	7/18	51
Gabe Lucas	13	Beet	73	3/1	7/14	45
W. B. Oliphant	16	Alfalfa	100	4/1	7/23	38⅔
Wm. Hanson	24	Beet	90	3/15	7/17	38
George Abbot	8	Wheat	90	3/5	7/16	52
J. A. Davidson	21	Beet	78	3/12	7/22	38
Grant Hartman	18⅓	Beet	90	2/15	7/17	50

Summary:
Acres: 158⅓.
Average time to mature: 126.1 days.
Average seed per acre: 79.6 lbs.
Average yield per acre: 42.3 bu.
Highest yield per acre: 52 bu.

DEFIANCE WHEAT 1919

Name	Acres	Ground	Seed	Sown	Cut	Yield in bu.
Gabe Lucas	30	Beet	66	2/29	7/16	56
Fred Muhme	24	Beet	55	2/	7/19	51
Fred Muhme	42	Beet	55	2/	7/17	41
Wm. Shannon	16	Beet	70	3/14	7/18	52
W. B. Oliphant	16	Alfalfa	90	3/15	7/25	45
D. R. H. Ewing	20	Wheat	90	3/23	7/24	32½
H. D. Showalter	9	Wheat	90	3/25	7/23	40
Albert Lund	11	....	50	3/26	....	29
Wm. Hanson	16	Wheat	85	4/15	7/26	28
Guy Jones	48	Beet	60	2/27	7/21	35

Summary:
Total: 232 acres.
Average time to mature —
Average seed per acre: 71.1 lbs.
Average yield per acre: 41 bu.
Highest yield per acre: 56 bu.

"Thank you, Mr. City man." This inscription on a placard attracted attention to the exhibit of barbery eradication work. "The barberry eradication workers tell me," so the inscription read, "you took out your ornamental common barberry bushes cheerfully, willingly and in a spirit of true co-operation. I want to thank you. I assure you I will do my part with you in the interest of bigger and better crops." (Signed, Mr. Farmer Man.)

This placard directed attention to the fact that eradication of barberry as a preventive of rust in grain crops had been crowned with success. The campaign was undertaken by the Colorado Agricultural College less than a year ago and according to figures given at the Longmont fair by Walter J. Roth, in charge of the exhibit, 97 per cent of the common barberry bushes in the state have been destroyed. A placard was shown whereon were marked areas in the state containing most of the barberry bushes. Denver was shown with 8,952, El Paso county 3,828, Boulder county 1,482, Pueblo county 1,422, Weld county 1,293, Larimer county 996, Fremont county 499, Arapahoe county 437, and all other counties combined, 666. A notable fact brought out was that the great majority of the offending plants

(Turn to Page 17)

Livestock Fair Supp'ants the Wild West Show

MORGAN COUNTY BREEDERS MAKE THE FALL FAIR A SUCCESS

LIVESTOCK is being made the principal feature of the Morgan county fair. For many years Fort Morgan has had a fall roundup and race meet, the chief feature of which was a wild west exhibition. Crowds were attracted from Morgan and surrounding counties and there was always plenty of excitement. But agriculture received no benefit whatever from these exhibitions. This year the Morgan County Purebred Livestock Breeders' association took matters in hand and decided on a real county fair, with livestock as a strong department. The fair was a success, farmers showing their appreciation by a liberal attendance and a lively interest in the judging.

Morgan county is one of the most progressive communities of the mountian region in regard to juvenile agricultural clubs, and the county fair naturally reflected this in exhibits made by the boys and girls. The pig club class was especially strong and the canning demonstrations, too, were an attractive feature of the fair. To this county goes the honor of having the state champion canning team for 1919, comprising Dorothy Maris, Gertrude Law and Vanetta Hanscom, whose reward was a trip to Sioux City, Iowa, where they entered competition with teams from a dozen other western states, and acquitted themselves creditably. A second team, comprising Amenta Ambrose, Louise Starrett and Mary Work, was sent to the State fair at Pueblo. Mrs. Roy J. Hale, wife of the agricultural instructor in the Fort Morgan high school, is in charge of club work in the district, which includes the high school and a number of rural schools.

Vanetta Hanscom was chosen for the All-Star team at the Sioux City Interstate fair and was second in that contest in competition with the best individual demonstrators from twelve states.

The girls are not alone in showing aptitude for canning, several boys also taking up this work. Three of them, William Bowie, Lindsey Smith and Reginald Waters, each about 11 years of age, volunteered to give a demonstration during the fair. They showed themselves expert at canning tomatoes, explaining the process as they went along and answering all questions put to them from the audience.

The fair was used for practical work by the students of the agricultural classes under Mr. Hale. Teams of these young men judged horses, cattle and hogs by the score card, adult farmers watching the placings, and some of them envying the boys' technical knowledge of stock judging acquired in the class room and on the farms of Morgan county, under supervision of Instructor Hale.

County Agent Walter J. Ott worked with the committee of breeders in carrying out the details of the fair and putting over a real livestock exhibition which included purebred Hereford and Shorthorn beef cattle, Percheron horses, Jersey and Holstein dairy cattle, Poland China, Duroc-Jersey, Berkshire and Mulefoot hogs and Hampshire sheep. The breeders' association is officered by R. L. Ripley, president, and Ralph Sergent, secretary.

"This fair is our first along livestock lines," said President Ripley, "but we hope to make it a permanent thing. We feel that livestock, being the basis of our agriculture, should have first place at the fair. Next year we will probably put on a sale of purebred registered stock to take place as one of the fair features. We believe this will attract many buyers."

The herd of registered Holstein cows used by the Great Western Sugar Company to demonstrate the value of dairying as a part of the program on an irrigated farm, was on exhibition and it attracted much attention. This demonstration herd is managed by Mr. H. C. Giese, agricultural superintendent for the company, and it was in immediate charge of J. A. Carnahan, foreman of the Sugar company's farm. The principal sire is Avoca Lodge Uhlan Johanna 215010, of J. A. Donley's breeding, Mount Morrison, Colo. Another good bull on exhibition was Pompey Gene Dexter 250321. Among the fine cows shown was Zeldenrust Snowflake Pontiac 278201, who finished an advanced registry test last April with 591.8 pounds of milk and 25 pounds of butter in seven days.

Beet tops, alfalfa and barley are the farm-grown feeds used in the herd, with dried beet pulp and bran purchased. The tops are cured in the shock and fed as hay. The herd paid a profit the first season and already many farmers are making inquiry regarding it, with a view to buying milk cows.

Another interesting exhibit for the farmers from irrigated land was that of registered Hampshire sheep by C. D. Turner of Rangeside ranch, Hillrose. He has fifty head of purebred Hampshires and besides running the breeding herd he also feeds out range lambs in the winter and raises spring lambs. At the head of his flock is the ram, Imp. Harkness 25273, brought from England by Walnut Hill farms, Kentucky.

"I consider the Hampshire the ideal farmer's sheep," said Mr. Turner. "Every farmer should have a flock. All the way from 50 to 200 head can be run on the average irrigated farm with assurance of profit. They can be pastured in the orchards and along the ditch banks and they will convert surplus feeds into wool and mutton at practically no cost. A flock of sheep on the farm is a new source of revenue needing little outlay and no new feeds, disposing of feeds that now go to waste and keeping down the weeds on ditch banks and in fence corners. I tell the farmers to start the boys out with a dozen ewes and a ram. It means money for all concerned."

A look through the stock pens showed exhibits that included the R. A. Chace Percherons, Galloways and Poland Chinas; Sergent's Cherry Lawn farm Percherons and Shorthorns; Jake Bath's grade Percherons; C. H. Gilbertson's White Top ranch Herefords; Cumberland Shorthorn farms (R. L. Ripley); Stewart & Shaws Shorthorn herd headed by Scottish Dale 719513; O. S. Larson's Jerseys; the Work boys Jersey herd and a large number of swine herds, both of adult and of boy club ownership. The showing was fine in every class of livestock and there was a good display of agricultural products, from both the dry and the irrigated districts of the county.—A. T. S.

Water System For the Farm Home

TYPES OF WELLS AND WATER DELIVERY

GEORGE H. DACY

A VERY SATISFACTORY GRAVITY WATER SYSTEM WHICH IS SUPPLIED FROM A HILLSIDE SPRING

A, spring; G, galvanized pipe; K, field hydrant; M, shallow trench around spring site to divert surfaos water; N, fenoe inclosing land around spring.
Inset 1—A, spring; B, curb oomposed of large size vitrified clay or shale T branches; C, tight cover; D, screened overflow; E, cemented joints; F, concrete platform; G, delivery pipe; H, gate valve and box.
Inset 2—G, delivery pipe; K, field hydrant; L, watering trough. Diagram furnished by U. S. Department of Agriculture.

THE amount of water consumed by the average farm family varies directly with the accessibility, pressure, quality and quantity of the supply. If carried by hand a long distance, water will be used sparingly, perhaps one or two buckets drawn beforemeal time sufficing for a famialy. If delivered under pressure and of good quality and ample quantity, it will be used liberally. Large quantities are used on wash days, during hot weather, and, if water is wasted at faucets to prevent freezing, during cold weather.

The average consumption of a person for 24 hours amounts to 8 gallons for domestic purpóses, where there is only one pump at the kitchen sink; 15 gallons for domestic purposes where there is one faucet at the kitchen sink; 25 gallons for domestic purposes where hot and cold water runs in the kitchen, bathroom and laundry; 15 gallons for sprinkling and cooling purposes, outdoor washing, waste, leakafge, etc. The average daily consumption for a modern home is about 40 gallons, while the maximum daily consumption under similar conditions amounts to 100 gallons.

Where the water is supplied from artificial sources, fair allowances are 12 gallons daily for each horse, mule or cow, and two gallons daily for each sheep or hog. Heavily worked horses and mules and milch cows may consume 20 to 25 gallons a day in hot weather, and with all farm animals conditions of weather, food and living may double or halve the ordinary requirements.

Know Ground Before Sinking Well

Good ground water is the ideal supply for the farm. Any farmer who contemplates a deep or expensive well and who is uncertain of the depth and the quantity or quality of the water likely to be encountered, should describe fully the location and conditions of his project to national or state geological authorities and ask for advice. Times without number, wells have been sunk to great depths in the belief that eventually a plentiful supply would be reached, only to find that water was not there, or that it was unfit for use, or that a mere hole or sump had been created only to drain water from relatively near the surface. There is no short cut and no better guide in this matter than information as to the kind, thickness, porosity and dip of the strata of the region and of the results obtained in neighboring wells, study of land slopes and character of the vegetation, and examination for evidences of seeps and springs.

The less said about the use of a forked willow, hazel or peach stick for locating underground water, the better, as such methods are without merit, although so-called "forked-stick artists," from their experience in observation of surface conditions, usually are better able to judge of the probabilities of ground water than is the average person not thus trained. There is little to recommend the patented automatic water finders, which are based upon the possible, but largely conjectural, proposition that electrical exchanges between the earth and atmosphere are stronger in the vicinity of subterranean waters.

The most likely appearance of seeps and springs is near the base or toe of slopes, and shallow wells similarly located usually are stronger than those higher up the slope or farther out on the flats. Often vegetation is the only visible evidence of the presence of water, which, if it reaches the surface, suggests prospects for flowing wells and even for artesian wells. Wells upon the crown of a hill or close to rock outcrops are not likely to yield plentifully. The

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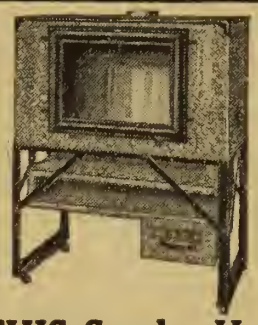

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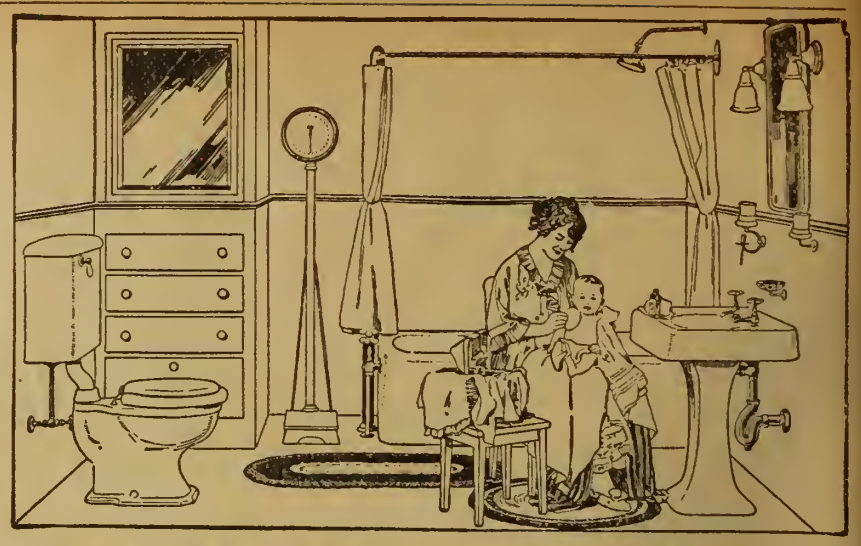

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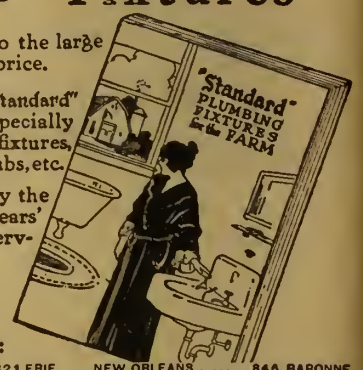

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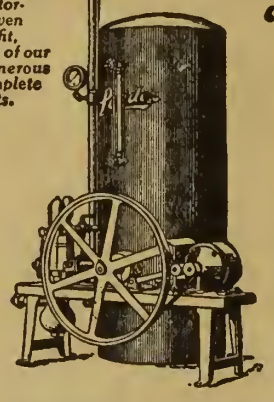

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stronger artesian flows usually come from the lower strata.

Choosing a Type of Well

The type of well will depend largely on the desire of the individual owner, as well as upon local conditions. It may be either a dug well, a bored well, a driven well, or a drilled well; each of these types possessing special merits under certain conditions. If properly located, built and protected, dug wells are more likely to be permanently satisfactory than any other kind. The advantages relate to the larger volume of water immediately available, whereby the pumping may be rapid and the average lift low, and

The Overhead Storage Tank is Unsightly, Exposed, and Expensive, and Is Inferior to an Underground Concrete Storage

to less liability to trouble with air and sand in suction pipes and pumps.

It is necessary to clean out dug wells occasionally on account of entrance of dust or other foreign matter at the top and to the washing in of clay and silt with the ground water. There is little use in attempting to disinfect wells with chemicals because the volume of water receiving the chemical solution cannot be ascertained definitely, and the results are neither certain nor permanent. The United States Department of Agriculture, in Farmers' Bulletin 941—which will be sent free of charge to any farmer in the United States on request—provides a complete and comprehensive description of the "how," "when," and "wherefore" of well-digging, with discussion of the various types of wells. Consult this publication if you desire further information along this line.

An ideal source of water supply is a good, pure spring at a high point of the farm so that the water can be piped by gravity to all the buildings and fields, if desired. It does not require a great fall to provide the necessary water pressure for such a system. In case a spring is not available it may be advisable to dig a well on a high hill on the farm, or else to place an underground concrete storage tank at such a point that water may be lifted into it from one of the farm wells by means of a pumping engine.

Storing and Delivering Water

Above ground and overhead wooden tanks are not desirable storage places for the water supply because they are subject to freezing during the winter, while unless they are provided with covered tops the water is exposed to pollution from dust or dirt, and unless the supply is used shortly after being pumped into the tank it tends to get warm during the summer season.

Water may be stored and delivered to the faucet by the use of a hydro-pneumatic tank. With this system the tank need not be elevated and usually is conveniently located in a utility room, basement, cellar, or even underground, although the latter situation favors rust and prevents inspection and painting. For house service generally, the pressure ranges between 20 and 30 pounds a square inch. Maintenance of the air supply is a vital factor in the successful operation of hydro-pneumatic systems.

A hand air pump may be used, but it is easier and more convenient to introduce the air with the water when the pump is running. This is accomplished in several ways, such as by using a combined air and water pump, an air compressor, and in one type of deep-well pump, a combined air inlet and check valve. Hydro-pneumatic tanks are made of steel with either riveted or brazed joints. They may be black or galvanized and be set vertically or horizontally, vertical tanks requiring less floor space, although when over six feet long, a horizontal setting is usually preferable.

Water may be raised by hand, windmill, hydraulic ram, hot air, steam, gas, gasoline, or other internal combustion engine, and electric motor. Hand power is the readiest applied, but is unsuited to large supplies or high lifts. Windmills are used extensively, and may be arranged to start and stop automatically, according to the height or pressure of the tank supply.

Gasoline and oil engines are well adapted to farm pumping and may be equipped to stop at any desired pressure in the tank supply. The use of electricity for pumping is increasing rapidly. The method is clean, quiet and convenient, and starting and stopping a distant pump by throwing a switch may be a reality wherever electrical power is available. Electric motors are to be had in small sizes and low power rating and may be arranged to start and stop automatically with changes in the tank pressure.

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Western Farm Life

Issued the 1st and 15th of Each Month

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The Holstein Scandal

The owner of the average herd of Holstein cows on the dairy farm has little cause for uneasiness over the disclosures of fraud in records confessed to recently by Charles E. Cole. These frauds were committed only on cows owned by a few of the millionaire fanciers of the breed who, either personally or through their farm managers, were able to pay liberal bonus for high records. The offspring of cows upon which these frauds were practiced have probably remained largely in the hands of breeders of wealth who can well afford, if they are honest, to submit to cancellation of questionable records. Whatever the attitude of owners may be, it is clearly the duty of the Holstein Friesian association to eliminate records of all tests open to suspicion.

Cole's method of injecting diluted cream into the milk from a rubber hot water bottle carried under his jacket, was as crude as it was bold. It was practiced only in the seven day tests, which are the only ones that can be called in question. The disclosures again direct attention to a practice which seems unfair to the buyer of record cows, namely the seven day test. The Holstein Friesian World insists that it is not an indictment of the seven day test, but conservative breeders (and there are many of them) have long felt that the short period test is unfair and misleading. That it has opened the way for a brazen fraud is only another reason why it should be abolished by the association.

That the self-confessed falsifier is not alone to blame is quite evident when one reads, in the breed journals, that owners for whose benefit these frauds were committed, paid a bonus for high records, in some cases amounting to thousands of dollars. They assert that they thought these records were honestly made, nevertheless they must have been aware of the fact that a bonus was a direct incitement of fraud.

The association has tackled a messy job, but here is hoping that the clean-up will be thorough. There is one comfort for the lover of the Holstein breed; it isn't the fault of the gentle cow whose qualities were so aptly blazoned forth on posters during the war as "the foster mother of the world." Human cupidity and cunning are responsible; bossy has done nothing to earn censure. She goes right on adding wealth to the farm and nourishing the human race, in spite of the treacherous effort to bring her into disrepute.

Farm Journals in the Schools

"I think your paper is the best farm paper in the west. I shall call attention to the articles it contains and have them read in connection with the agricultural course."

This is a quotation from a letter received by Western Farm Life from a supervisor of agriculture in one of the rural vocational shools. We are mentioning it not solely as an acknowledgment of a compliment from an educator, but also with the purpose of directing attention to the study of farm magazines as a necessary part of agricultural training.

Text books and practical training in farm and garden work may well be supplemented by a course of reading from standard farm journals. These publications, if they are alive, reflect current agricultural progress. They record the history of applied agricultural science. Sometimes they are in advance of science in recording the experiences of farmers with some new crop, or some new method of farming. Through their editors they keep in intimate touch with farming development, as much as the extension men of the agricultural colleges. Pupils of the agricultural high schools should find in the farm journals of their region agricultural information that is helpful in rounding out the training that comes through the text book lessons and through work in the laboratory or in the field. If they do not find the farm journals helpful the fault is with the editors who are out of touch with their field.

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Doubling Your Farm

How would you go about it to double your farm? Would you buy the one adjoining you? That would be doubling your work, doubling your capital invested, doubling your taxes and nearly doubling your operating expenses.

Would it double your income?

Probably not.

Well income is what you are after. Not area, acreage.

The way to double a farm is to double its productiveness. And on a great many farms this is perfectly feasible. How? Of course, by manure and then more manure.

I don't know how many tons of manure it would take to make an acre that now produces two tons of oat hay, produce four tons. I know that the increase of production on land after it has been manured is simply magical.

Suppose you need thirty tons of oat hay to put your stock through. If you have poor land you must plow and plant thirty acres. If your land is good it will produce two tons to the acre and you will only have to plow fifteen acres and buy half the amount of seed. But say, if your land would produce four tons to the acre you only need plow seven and a half acres, and buy six hundred pounds of seed oats and still get all the hay you need.

Put it another way. Suppose you want to handle eight milk cows and two mares, besides young stuff. You need at least twenty tons of oat hay. If the land is good you need plow and plant only seven acres. If it is poor you will need nearly twenty acres. Good seed oats has been five cents a pound of late. Eighty pounds, or four dollars worth, plants one acre. Seven acres of good land costs you twenty-eight dollars for seed. Twenty acres of poor land costs you eighty dollars for seed, and you finally get the same amount of hay anyway.

Not only does it cost you three times as much for seed but it takes three times as long to plow and plant. And you only get your twenty tons in the end just the same.

A ranch with seven acres of plow land would not cost you as much as one with twenty acres, provided they were equal in other respects, even though there was the great difference indicated in their fertility.

But you could make more on it.

You may double the area of your farm, but it will pay you better to double its quality.

A few loads of manure is equal to an acre of land. Don't drain it away. Don't let the rain leach it away. A manure pile well saved and protected is another farm bought and paid for. —Gordon Kent, Pinecliffe, Colorado.

A Good Cow Story

I have been in professional life now for over seven years, but being raised on a farm can't seem to get away from it. Last fall I persuaded the wife to try out some cows and just a little bit against her will started out to look up a few. We did not know just what breed we would like to tackle as a side issue. I fished most of the slack time last summer, which wasn't very profitable but lots of sport, and as it happened I landed in a herd of Holsteins, Jerseys and Guernseys, and after looking around some time at the different ones, I came home without buying any and told my wife I didn't know which to take, there were so many. We talked it over for a day or two and I went back and bought four of the best Holsteins, I thought; some that other people had passed up on account of the price.

We kept them in our back lot in a little stable through the winter, bought alfalfa, shorts and oil meal for feeding. We found after the feed was paid for, we always had some cash left, so we leased a little ranch four miles from town, fifteen minutes drive from the office, bought eight more head in April and sold what milk we didn't use at home wholesale to the creamery. We were surely surprised when we got our milk check September 1 to find that we had received more than the original price of the cattle from milk sold, not counting what we used ourselves, besides six calves and a great part of the time there were ten in the family!

I figured the thing up averaging the time and find those twelve Holstein cows paid their original purchase price in milk sold wholesale in just three months and 25 1-3 days! We weigh all the milk and keep records of all the cows.

I also got a chance to get a Holstein bull, recommended to be well bred. I find that he is sired by King Segis No. 51507, dam, Park Place DeKol No. 302691, and am having him registered. He was two years old June 23, 1919, and I think I must have got into the aristocratic class in the cattle business when I bought him. How my wife did make fun of me when I took him home. He was so poor he almost had to lean against a mullein stalk to stand, as he had been running on the range all winter with no feed.

The other day my wife said to me: "Daddy, I would hate to sell Segis and see him leave the herd, wouldn't you?" I told her she had changed some in her opinion since last winter.

These cows are all bred to him. We would like some Holstein breeder to tell me what to expect from his calves. Let me tell you we are not much ashamed of the way those old cows have used us! We do not think this bad as a side venture.—Dr. McLain Morgan, Laramie, Wyo.

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Try Co-operative Buying

The Union County Farmer-Stockmen Bureau members are planning to unite their orders and buy several of their most necessary articles in car-lot shipments. They will submit their orders to the local merchants and will buy from the one making them the best proposition. By buying in this way they will be able to buy much cheaper and the dealers will still be able to make a fair profit.

Among the articles scheduled to be purchased in this way are coal, flour, stock salt and fruit. At present the coal proposition is receiving their attention. Bids have been received from the local coal dealers for coal in car lots and the locals are now considering these prices. According to bids submitted the members will be able to save from $1 to $1.50 per ton on all coal bought. This will mean several hundred dollars to bureau members and will be well worth their efforts.

As soon as the coal deal is finished the locals will take up fruit, stock salt and flour buying. In this way they will be able to buy enough supplies to last for several months but will also buy at a cheaper rate. This is one point to be gained by co-operation, many others can be handled in the same way.—Union County (N. M.) Exchange Bulletin.

Live cattle exports in the year ending June 30th, 1919, amounted to 42,345 head.

The Branding Iron

Now let the farmers and the preachers strike and make it unanimous.

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Sodium arsenite and sodium arsenate are being found successful in poisoning Canada thistle in Idaho. Nothing has yet been discovered that will poison the Russian thistle; they are said to be immune even to rattlesnake bite. The only thing that will kill them is elbow-grease applied through the cultivator handles.

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Colorado's State Fair was signally honored this year by having President Wilson as its guest for a short period. Pueblo and the people of the Arkansas valley were there to greet the nation's chief executive with a rousing welcome. The 6,000 steel mill strikers mingled with other citizens in a reception that lacked nothing in warmth and good cheer by reason of disturbed industrial conditions.

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Consumers who had hoped for lower food costs during the approaching winter will be disappointed in regard to potatoes. The crop is short all over the United States, and a poor yield always means an unsupplied demand at high figures. The weather man thus will share with the much-maligned middleman the blame for the high cost of the useful and nutritious spud. The producer hasn't noticed any great difference in prices paid at harvest time.

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The Otero County Farm Bureau is planning a corn show for the winter. These Colorado corn farmers are nothing if not progressive. Iowa and Illinois will some day come west for pointers on the king crop of America. One tradition after another is being exploded in the development of corn varieties that will ripen in the cool climate of the mountain states. The limiting factor seems to be moisture rather than cool nights.

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Nineteen-twenty is a census year and we shall all have to stand up and be counted. Uncle Sam will find his job is a big one in these western states. Figures on the population per square mile will be considerably revised when the count is completed. The political orators who have been in the habit of dwelling upon "those vast stretches of sparsely settled country toward the setting sun" will be obliged to change their figures of speech to accord with the new figures of the census.

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The Colorado State fair management is to be congratulated upon the excellent support given to the Boys' and Girls' Agricultural club work. The young people who were privileged to visit the fair by reason of excellence in some branch of crop or livestock production are the future farmers and farm wives of the state. They are learning early in life the lessons that come from community contact and competition in production. The fair visit is a useful part of their education, and it is to be hoped that the management will continue the plan of an annual club encampment.

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Secretary of Agriculture Houston has given out the following statement regarding the national conference on the relations between capital and labor: "I am thoroughly in sympathy with the notion that farmers should be generously represented in any conferences which are to consider matters affecting the agriculture of the nation. I have very definitely made such a suggestion to the President, and with the view he has concurred. You are aware that he has asked each of the three outstanding national farmers' organizations to name a reprsentative. In addition, he has placed on the committee representing the public two farmers—Mr. Sweet of Colorado and Mr. Bradefute of Ohio—and an editor of a farm paper, Mr. Meredith of Iowa. This makes six agricultural representatives at the meeting."

Many a farmer is overlooking an opportunity in the matter of keeping a few mares on the farm.

Comment by Farmer Putnam

OUR MISSOURI FRIEND MOTORS OVER TO ELBERT TO ATTEND THE POTATO BAKE

EVERY so often I have to write something about spuds. I like to do it, too, because they is nothin' bettter'n good potatoes—and nothin' worse then poor ones. So when I hear of a bunch of farmers settin' out to improve the spud crop why I want to help 'em along fur selfish reasons. We used to raise a few spuds on our place up in the hills, but last spring when we took up a dry farm over near Salem, in Arapahoe county, why it was too late to git the ground in shape and consequence was we hain't got none this season, so when I heard there was goin' to be a potato bake in Gleffy's grove over to Elbert I told Josephine me and her had better motor up thar and take part. I believe in takin' part in all them affairs. I told the feller who was bakin' the spuds that I come over to take part and he sez: "That's all right, Farmer Putnam, we don't mind if you come and take part, but fur heaven's sake don't take all of 'em. The rest of the crowd wants some spuds too."

The El Paso County Democrat is responsible fur me gittin' roasted by the people in that neck of the woods. That paper is run by little Johnny Green and Judge Cunningham and they allus pretended to be friends of mine, but they give me a unkind roast in their paper just before the potato bake, readin' as follers:

"The opening gun of the campaign for certified seed potatoes will be fired and talks will be made by expert potato men from the Colorado Agricultural College and others. Thomas Jefferson Putnam of Western Farm Life is expected to to be on hand—in fact, we KNOW he will be there, since it has been announced that there will be free eats. Thomas Jefferson is long on eats—and after he gets tanked up on baked potatoes and buttermilk he's likely to make a speech."

I reckon the Democrat meant well enough, but them thar words cut me right to the core. Why them people in El Paso county will think my visits is hunger visits—and they won't invite me anymore! Well, that's what a feller gits fur tryin' to be polite. What makes it worse is that the people believes everything they see in the Democrat. It ain't like one of our Denver papers; that is like dreams, which allus goes by contraries. If you see it in the Post believe the opposite.

I'm willin' to bet that John Green and Judge Cunningham kin both eat their share of fried chicken. I'd be willin' to enter into a contest with 'em and then let the good people of El Paso county furnish the chicken and decide the bets. Us participants couldn't lose nuthin' by a wager of this kind—and the people payin' fur it would have lots of fun. It would be a attractive feature fur the next potato bake up in the Divide country.

My, I seen lots of friends at the bake. Free eats does bring out a motley crowd: Dave Thomas, Roud McCann, Art Johnson; (he's a brother of that Fred Johnson that Josephine objected to me runnin' around with in his high powdered car); Stuart Sweet, Early Reed (that sounds like a new variety of potato); John Goe (I bet he drives a Ford); Mr. Lamson of Chicago; Mr. Lovett, the state county agent leader, and the usual quota of county agents, all thar fur the purpose of investigatin' the certified seed potato industry and samplin' the potatoes as baked in pits under the pine trees. Besides the average run of experts, etc., we also had with us two big guns, Mr. Lou D. Sweet and Dr. E. P. Sandsten. Mr. Sweet was one of Hoover's right hand men in Washington durin' the recent unpleasantness in Europe and Dr. Sandsten is the college potato expert. Them two made speeches and some of the others was called on fur remarks.

Mr. Sweet told the farmers how the potato crop is goin' backwards ag'in, the people not eatin' enough because we don't grow enough good ones. That's what made the Potato Association of America, of which he was president in 1918, git through them rules on gradin' potatoes, so's the housewives would git a better article and people would eat more spuds. I think this explanation ought to be give to the growers and I hope the Greeley papers will copy it, because some of the growers up thar thought the gradin' rules was spite work put over by German propaganders.

The Potato Association didn't stop with gradin' but got the people interested in makin' potato flour and starch from culls, so's the growers will have a market fur spuds that's off grade. We kin use fifty million bushels of small spuds fur makin' potato flour, Mr. Sweet sez, and this flour kin be mixed with wheat flour, about 2 to 4 per cent, and it makes a fine bread. I kin remember my mother used to use half a dozen cooked spuds to mix with the yeast when she set on her dough the night before bakin'. Us people on the farm kin do that yet, but what we want is them city people to use potato flour in their bread. If they don't know how to bake, let the bakers put it in fur them, and give 'em the kind of bread we used to git. Not that I'm knockin' Josephine's bakin'; she does all right, (I'll say she does) but our mothers somehow put brawn and mussel in the bread. I never could-a growed a fine crop of whiskers like mine if I hadn't a-been fed up on solid bread when I was young. Potatoes gives bread a flavor and adds strength to the wheat, so Mr. Sweet sez, and I reckon he knows, because what he don't know about potatoes ain't been found out yet.

He sez before they was any gradin' a investigation was made of potatoes in sacks as they was found in the retail stores and in the big markets, and in every sack they found from 3 to 7 pounds of dirt, cuts and culls, that the consumer was expected to pay fur. No wonder the consumer got tired of consumin'. Then in the east they used to sell spuds by the peck and many pecks was weighed and found about three pounds short, so the Potato Association got them to adopt the hundred-weight measure like we have in the west, and now you buy spuds by the pound in the east.

All them things is goin' to help put potatoes on a better foundation. While the readjustin' is goin' on it might work a little hardship fur some growers, but in the long run, the better the product the more the use and the bigger the returns. If I was in congress I'd have a law passed requirin' every adult to eat 10 bushels of spuds a year, and every child five bushels, but Mr. Sweet sez that's too drastick; he sez you got to do it by eddication.

Dr. Sandsten give the growers some good advice about producin' certified seed, but when I was tryin' to make notes to report his speech Josephine comes up and pulls my coat tail and sez:

"Tom, how much longer air you goin' to gad around? You and Isiah come right along now, git in the car; we got to motor back to Salem."

Isiah Holdemback of Arapahoe county was with us and so was my son Rufe and we started back early, not because we was drivin' a Maxwell, but Isiah had to see a man at Castle Rock. Josephine is proud of our car and she allus calls it "motorin," when we go out fur a drive. We had sech a dry season that we couldn't afford a new car, but we got one that wasn't used much—only traveled 21,000

(Turn to Page 20)

If You're a

Real Farmer

I Want to Tell You What My Company Offers You

You men—who are not thoroughly satisfied with either your present land or living conditions—who want to do better farming—have more satisfactory and healthful surroundings for your families—you are the ones I want to talk to. I want to tell you about the celebrated Red Lands Farms, adjoining the city of Grand Junction Colorado.

The Red Lands is the West's ideal irrigated farming project—is backed by unlimited capital—indomitable energy. It is already a "going concern"—on an earning basis. It is cooperative in every way—but by no means a communistic plan. Every man has his own individuality—stands squarely on his own feet. The Red Lands is built on thoroughness—and every man who takes up land may assure himself of exactly the help he most needs.

We will make necessary advances for improvements—provide every landowner with a comfortable home and give you a long-time, deferred-payment contract with a very low rate of interest.

So, if you're an experienced, practical farmer, I want to talk to you about coming to The Red Lands. If you've never had real opportunity, here it is. Deep, rich soil, long growing season, unlimited water and sunshine, big yields and good roads to nearby markets.

All the facts will be yours by return mail if you'll write me tonight and tell me just the conditions under which you're working; and what you'd like in the way of a successful future.

Fred L. Lucas, President

THE RED LANDS COMPANY

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Denver, Colorado

52 Reed Building
Grand Junction, Colorado

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LESSENS the LOAD

Part of the load your team is tugging is the friction caused by the uneven pores and seams of the axle surface. Rub your finger over it—you'll feel the light unevenness.

Lessen this friction with Mica Axle Grease. It's a combination of pure grease stock and powdered mica that keeps horses and hubs in better condition—helps the going by keeping friction down and horse power up.

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Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Wants Patent On Machine

Answer to Subscriber, Colorado:

Write to the United States Patent Office, Washington, D. C., telling them that you wish a patent on machinery and ask them to send you copy of Rules of Practice and other information, so that you can file a formal applicatlon.

Feeding Cottonseed Cake

Answer to E. McG., Eagle County, Colorado:

It is generally considered that it takes a ton of hay to carry a mature cow or a young stocker through the winter in a reasonable condition. It is advisable to feed as much as is necessary, rather than to let the animal lose the flesh it has put on during the summer. Too large gains are not advisable, as any extra fat is llable to be lost again during the early spring months. The best stockmen find it profitable to have stock gain about one-fourth to one-half a pound per day during the winter months. We give below a standard tak en from Armsby's Tables. This is an average taken between the standard for a mature adult animal on bare maintenance and for a young, growing animal on full feed. The reason for this ls that a young range animal requires somewhat more feed than one that is mature and kept under protected conditions.

ARMSBY'S STANDARD

	For Young Animal. Digestible Protein	Mature Beef Animal. Net Energy
Standard	1.0	7.
2 lbs. cottonseed cake	.7	1.87
10 lbs. native hay.....	.46	5.12
	1.16	6.99

It will be seen that 10 pounds of hay with 2 pounds of cottonseed cake would be practically a balanced ration. It probably would be cheaper to feed more hay and only 1 pound of the cake. Cottonseed cake may be fed on the ground once a day. It is not advisable to feed more than 2 pounds per day per animal. —Chas. I. Bray, Colorado Agricultural College.

Brand Should Be Recorded

Am I compelled by law to have my brand registered? 1 do not run my cattle on the range, but bave my own pasture, all fenced. Can my cattle be taken from me if tbey go astray? I am using a brand that bas never been recorded. —Subscriber, Colorado.

The brand law does not force an owner to register his brand but it is better for his own protection that it be recorded. Your cattle cannot be taken from you if you can prove ownership. A recorded brand ls prima facie evidence of ownership in all suits at law, or in criminal proceedings involving ownership of cattle.

Building a Line Fence

Ans. to J. L., Mesa county, Colorado:

Yes, farmers living on adjoining ranches must build and keep in repair a line fence, each one building or paying for one-half of the fence. They do not have to put up a fence if neither of them want it, but if one wants a division fence, the other is obliged by law to build his half of it and keep same in repair. If he refuses, then the other farmer can build the fence and his neighbor on adjoining land can be forced by court action to pay for one-half of it.

Fencing Right of Way Optional

Can a railroad company be forced to fence its right of way, or is the law merely optional?—Stockman, Gilpin county, Colo.

A perusal of the statutes leads to the opinion that a railroad may or may not fence its right of way, as it sees fit. If it does fence the right of way and maintains the fence it is not liable for cattle, horses, asses or mules killed inside the fence. If it does not fence the right of way then the railroad is liable for killing or injuring stock of that description. Sec. 6137 Mills provides that killing of animals by the railroad is prima facie evidence of negligence. I know of no way to compel the railroad to fence if it wishes to assume the responsibility set forth in the statute.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Soldier's Travel Pay

I was at Colorado Springs when called upon to register for the army but sent my questionnaire to Nokomis, Illinois. Was examined at Colorado Springs. 1 was on my homestead when notified to report for the army at Hillsboro, Ill., and while in the army gave the answer "Nokomis, Illinois," as my home and when discharged was paid travel pay from Camp Taylor to place of induction, Hillsboro, Ill. My bomestead near Olney Springs, Colo., is my actual bona fide residence where 1 started from and where 1 returned to. It cost me $70 carfare to and from the army and received 3½ per mile to Hillsboro, $10.50. Am 1 entitled to travel pay from place of discharge to homestead at Olney Springs, Colo., although while in the army I gave the place of Nokomis, Ill., as my home because my mother and other relatives reside there?—L. E. S., Crowley county, Colo.

If you gave your residence as Nokomis, Ill., in the questionnaire and also in the army gave Nokomis as your home, your travel pay naturally was figured from place of induction to place of residence. We doubt whether you would be reimbursed for the outlay in traveling to your actual place of residence at Olney Springs. We would suggest that you write the circumstances to the War Department, Washington, D. C., asking for a correction in the amount allowed.

About the Income Tax

Answer to J. H., El Paso county, Colorado:

Yes, your mother would be obliged to make an income tax return to the United States internal revenue collector giving full particulars about sale of her land. This return on transaction for the year 1919 will be made in January, 1920. The Federal Income Tax Law has been in effect about two years. If no changes are made at the present session of Congress, you will undoubtedly find in your local newspapers during the month of December information concerning the time and place of making returns under this law. If the deed is not turned over until March 1, 1920, we would advise you to find out from the internal revenue officer, who will be found at the postoffice, as to whether the transaction must be recorded as having been completed during 1919.

About Guernseys and Jerseys

Do the Guernseys or the Alderneys and Jerseys rank bigbest in butterfat production? What do the Guernsey and Alderney cattle look like? Are they larger than the Jerseys and any better for commercial production Are they as adaptable to tbe grass country as the Jerseys or Holsteins?—E. E. B., New Mexico.

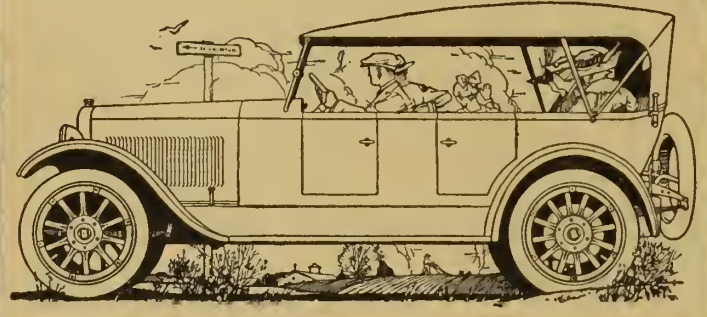
The Jerseys rank hlghest in butterfat production. Guernsey cattle resemble the Jerseys somewhat but are larger and slightly coarser boned with a deeper and more rangy body. Milk from Guernsey cows is noted for its yellow color and high percentage of butterfat. They do not, however, show as high a percentage, usually, as the Jerseys. Both Guernseys and Jerseys were developed ln the Channel Islands ln Great Britain. One of these islands is known as Alderney and the cattle from that lsland are not a separate breed, but are eligible to reglstry in the herd book of the American Guernsey Cattle Club. They are, therefore, practlcally the same as the Guernsey cattle. The Guernseys are just as adaptable to the grass country as Jerseys or Holsteins. Naturally any of the highly developed dairy breeds must be well cared for. They cannot be expected to rustle for their feed and at the same time keep milk production at a maximum. However, if the Holsteins are holding up well in your section, you will find the Guernseys fully equal to them ln taking care of themselves on grass in summer with an ample supply of silage for winter feeding in connection with a ration balanced by grain.

Grazing on Mineral Lands

Answer to J. K., Utah.

Answering your first question: Yes, a stockman can take up under the 640 acre grazing law, land that ls ln the mineral belt. He can use the surface of the land for grazing as long as he

CHANDLER SIX $1795



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Chandler is the most fairly priced fine car in the American market. And the faithful pursuance of our policy to *make* it that and *keep* it that has won for the Chandler Six a place of distinctive leadership.

Sixty thousand Chandler owners testify to the marvels of its motor, to the sturdy strength of its entire chassis, to its comfort, and to the economy of its maintenance.

Several Beautiful Bodies are Mounted on the one Standard Chandler Chassis

7-Passenger Touring Car, $1795 *4-Passenger Roadster, $1795*
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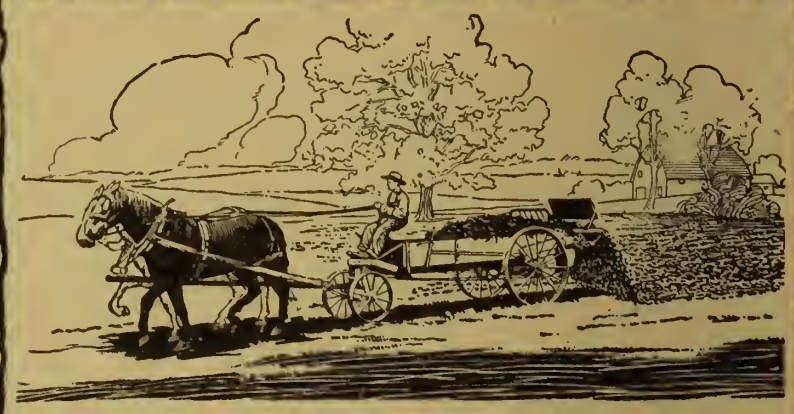

Now is the Time to Buy Your Spreader

A GOOD manure spreader, properly used, will undoubtedly earn its full cost and more on any average farm this year. Besides doing that, it gets you into the habit of fertilizing your land regularly and so building up a soil condition that makes your farm more valuable with each succeeding year.

Everybody expects prices of farm products to be high this year. The market will absorb everything you can raise and pay you well for it. Occasional top dressings of growing crops will increase yields this year, probably more than enough to pay for your spreader, and will also give you even greater assurance of bigger yields next year. Buy your manure spreader now and get busy.

For best results, get one of the light-draft

Corn King — Cloverleaf — 20th Century

spreaders, whichever of the three the dealer sells. All these machines spread beyond the wheel tracks, yet are so narrow they can be driven right into the barn for easy loading. There are three handy sizes, small, medium, and large. Each can be adjusted to do the heaviest spreading ever required, or for the lightest kind of top dressing. The spread is wide enough to dress three rows of corn at once.

You cannot expect land to grow bumper crops on an empty stomach. This year it will pay you well to feed your crops. Buy a Low Corn King, Cloverleaf, or 20th Century spreader now. At harvest time you can charge the full cost off your books and have a spreader that has cost you nothing and that will do good work for years to come. See the local dealer or write us for catalogues.

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does not interfere with the operations of the prospector. The prospector acquires no rights to the grazing on the surface, but he is protected by law against interference or damage to his works. The government reserves the mineral rights in lands under the 640 acre grazing act. In case of a dispute between an entryman and a prospector, appeal should be made to the authorities of the district land office or the Department of the Interior at Washington. Question No. 2: If a mistake has been made in the survey of public lands the matter should be taken up with the U. S. Land Office for correction.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Inflammation of the Udder

Could you please tell me what is wrong with my cow? The cow gives bloody milk. She has a calf one week old which is healthy and in good condition. Before she had the calf her bag looked large so I tried to milk her to see if she had milk and it contained blood at that time instead of milk. She is four years old and has always been well and in good condition. This is her first calf. She has no pain in her bag and there is no swelling. Is her milk fit for household use the condition it is in now?—L. G. G., Custer County, Colo.

There is hemorrhage from the udder and probably caused by infection. Mammitis (garget) is inflammation of the udder and may or may not be caused by infection through the natural opening in the teat. If the irritation is great hemorrhage will result. It is possible to have hemorrhage without inflammation, but we would not expect it to last after two or three milkings. In case of inflammation of the udder the milk is not fit to use and in case of simple hemorrhage there would probably be bacterial changes that would render the milk at least unwholesome. The presumption is that the milk will become normal in a few days. If inflammation develops it should be treated promptly to save the udder. Treatment for these cases has been suggested previously in Western Farm Life.—G. H. G.

Stiffening of the Muscles

We have a cow that is stiff in her neck and hind legs. Her whole backbone seems stiff. She can't reach down to drink or eat anything. Her hind legs are weak and shaky and can't lift them over a small step. She has been milking for one year now and is not with calf yet. The last week she has fallen away to a frame. Will you please advise what to do for her, and what is wrong with her? She has a good appetite, but can't reach down to get food.—J. H., Utah.

The stiffening of the muscles might be due to rheumatism, to tetanus, which is a continuous spasm of muscles (general) due to specific infection, to tetany, which is a stiffening of groups of muscles due to irritation of nerves or nerve centers, to cerebral congestion in some instances, and to blood intoxications. To this should be added strain of muscles and their attachments. Of these, possibly the best guess would be rheumatism. Sound veterinary advice is attainable in Salt Lake City. Treatment in advance of a diagnosis is futile in most cases. Good nursing is on the average of as much importance as intelligent medication and when the latter is empirical, good nursing constitutes the sole reliance for success in almost every instance.—G. H. G.

Ringbone Is Incurable

Answer to Mrs. W. K., Custer county, Colorado:

The condition in horses known as "ringbone" never has, and from the nature of things, never will be cured. The parts can not be restored to a normal condition for the reason that in the inflammatory process incident to the disease, the joint involved is completely obliterated. New bone (exostosis) is thrown out in a circle around the joint to hold the two bones together. This process reminds us of a plumber "wiping a joint." If the ring of bone were to be removed, the two bones with the joint obliterated, would separate and the results would be inevitably disastrous. The diseased process requires several months and finally the two bones have been united, inflammation subsides, lameness largely disappears, and the value of the animal has depreciated fully seventy-five per cent. Venders of "ringbone cures" claim the credit and nature is deprecated. The treatments used as mostly escharotics and one is about as valuable as another, depending upon the manner of application. A blister applied occasionally will hurry the process of ankylosis and is recommended. "Like produces like" and as long as we breed animals with such defects they will appear some of the time in the offspring.—G. H. G.

Was Probably Blackleg

Please give me a good treatment for blackleg or rattlesnake bit. Yesterday one of my two months old calves died and I do not know whether it was blackleg or bitten by a rattlesnake. Will the bite of a rattler kill them? He was feeling fine in the evening and in the morning about 7 o'clock was stretched out on the ground. I did not think it serious, but about 9 o'clock he began getting worse and at 1 o'clock he died. He was stiff and could not stand up and had a lot of trouble breathing. What do you think was the matter?—J. M. G., Las Animas county, Colo.

The symptoms and conditions do not indicate that the calf died from snake bite. Young animals will occasionally die from the bite of a rattle snake, with much swelling in the region of the bite and extreme prostration. Instances like this, however, are exceptional. The presumption is that this calf died from blackleg. There is now no reasonable excuse for losing calves from blackleg. Vaccination by the improved methods will prevent the disease absolutely. Nothing known at this time will cure blackleg save large doses of blackleg serum given at the beginning of the attack. The government blackleg vaccine (attenuated virus) can be secured at the Agricultural College free, but a vaccinating outfit which costs $5.50 will be necessary to administer the same. One outfit will do for a neighborhood and will last for many years. The vaccine, outfit and full directions, can be secured by addressing the Veterinary Division, Agricultural College, Fort Collins. The Kansas Germ-free Blackleg Vaccine (tissue aggressin) is far more reliable than the above but costs from fifteen to thirty cents per dose. It is well worth the money. There are other biologics on the market for immunizing calves against blackleg. In case of emergency the college will take orders for the improved vaccine and have it sent C. O. D. and will assume no further responsibility in the matter. This will be done merely for accommodation in extreme cases. On the other hand (as stated above) the government vaccine can be had at the college for the asking.—G. H. G.

Looks Like Tuberculosis

We have a cow about seven years old, which we purchased about five months ago with her calf, now six months old. There is blood in the milk she gives. Sometimes she milks very hard and sometimes easy. She coughs at times; she is thin and her hair is rough. Sometimes the blood in the milk is very bad and we do not like to use the milk. Can you please tell us what is wrong with her and what we shall do about it? —S. S., Weld county.

The cough combined with the general condition of unthriftiness, and chronic inflammation of the udder, indicates tuberculosis. You should arrange to have her tested and in the meantime discontinue using the milk. It seems that the greater the blood supply to the udder the greater the liability to inflammation. Inflammation seldom persists in a "dry" cow and since the milk is unfit for use it will be better to "dry her up" until she again becomes fresh. If the cow proves to be tuberculous, she should be destroyed and there is a chance for some salvage from the carcass in case the lesions are localized. In case she is not tuberculous there is a strong probability that the inflammation in the udder will subside by the time she again becomes fresh. Again if the cow is tuberculous there is a chance that other animals may have contracted it and the entire herd should be tested. Hogs are especially liable to contract tuberculosis from association with cattle. A veterinarian can be secured to test the herd either from Fort Morgan or Greeley.—G. H. G.

An Idealist

"Do you love me, darling?" she coaxed.

"Sweetheart, I love every hair on your bureau!" he fervently answered. —Gargoyle.

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32x3½	7.00	2.00	36x4½	11.50	3.40
31x4	8.00	2.25	35x5	12.50	3.50
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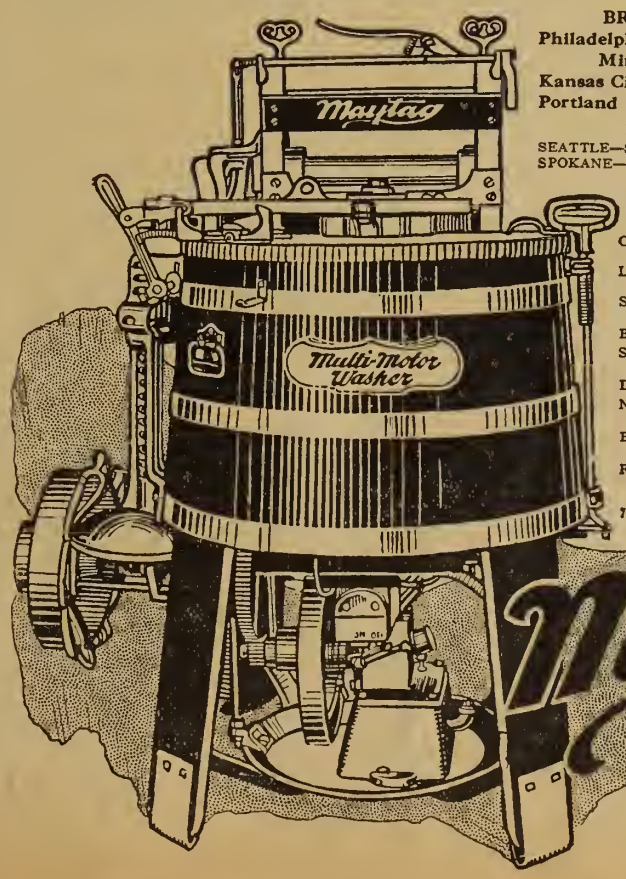

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Maytag

Dairying and Hog Raising

GEO. E. MORTON

Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

The Milking Machine

In communities where the milking machine has been properly installed and the user has received some service from the company installing, they are looked upon as a part of the permanent farm equipment just as the silo, the cream separator or the automobile. Tarrant county, Texas, is a good example of this. Today there are over seventy-five milking machines of one manufacture being used in the county and it is estimated that over three thousand cows are milked daily by these machines. The people of this county have studied milking machines and are as familiar with them as with the binder, automobile and other farm equipment and the consequence is they are giving the best of satisfaction.

Close observation of the results of a good milking machine properly installed leads to the conclusion that it is one of the most important parts of modern dairying. A close check of purchasers of milking machines shows that over one-half of them increase their herd very materially as soon as they have installed their machine. many of them double their herds. In other words, the milking machine is going to place dairying on a quantity production basis. It will do much to replace many of our thousands of dairies of five or six cows during eight months of the year, with thirty and forty cow dairies the year around.

We also find that the good milking machine properly installed results in taking away the dislike and dread of dairying. It removes the drudgery and a great deal of the hard work of milking, and above all, it makes the farmer independent of hired help as far as milking is concerned. When milking machines once become thoroughly established, dairying will be looked upon much more favorably than it is at the present time.

The old theory that milking machines are liable to injure the cow is either based upon the experimental machines appearing on the market ten or fifteen years ago, or upon the results of some of the cheaper machines on the market.

The writer has personally investigated milking machines on four or five hundred farms and been in close touch with several hundred users and he has yet to find the first cow that was injured by the standard milking machine.

With the proper organization of the industry, the milking machine should soon gain the position it deserves. The most important thing at the present time is proper publicity and the proper installation of the machine by distributors.—O. H. Liebers.

Dairy Cow and Price of Hay

Drouth and rumors of drouth in the western states have brought about a feeling among stockmen and dairymen that an unprecedented shortage of alfalfa hay exists for this winter's feeding. Reports of extremely high prices for hay are afloat and in some instances stockmen are becoming alarmed and are talking of selling their herds and holding their hay for the high prices which they are told they may expect this coming winter. In some other instances the hay grower complains that he is at the mercy of the beef and sheep range men in that they are dictating the local price for hay. This may be true and probably will remain so as long as the hay grower depends on some one else to furnish a market for him.

For a number of reasons alfalfa hay is and, no doubt, will continue to be one of the leading crops on irrigated farms of the west. It leads, first, because it is a soil builder, for the future of irrigation farming as well as any other kind of farming is dependent largely upon the up-keep of soil fertility. While alfalfa is building up the soil it is yielding large crops of hay, which as a source of protein for many kinds of livestock is equaled by no other roughage. The crop is easily produced since it does not require reseeding every year nor the cultivation demanded by other crops. Irrigating and harvesting the crop constitute the greatest items in the cost of producing it. Because of these facts alfalfa will remain as one of the most important crops on the irrigated farm, providing the market for it is satisfactory.

But will the market be satisfactory? Supply and demand must govern the price in any event, although there are other factors which the grower can control that very definitely affect the price of any product. For instance, so far as supply and demand are concerned pig iron may be very cheap, but when it is worked up into steel in the form of a hair spring for a watch it becomes very valuable. A similar comparison might be made in the manufacture of alfalfa hay into milk, for without some kind of livestock to consume it hay would become practically worthless.

It is obvious that the kind of livestock which consumes this hay determines its feeding value. Some classes of stock will pay $15 a ton for it, while others can pay $50 for it. This fact is brought to mind by the observations of an agent of the Department of Agriculture who recently visited several localities where much alfalfa hay is grown and found that the beef and sheep men were objecting to the development of the dairy industry there. Evidently these men realized that the development of the dairy industry in alfalfa growing sections meant that they must pay a higher price for the hay for their beef and sheep. At present prices for dairy products many of our dairy cows are returning $40 for every ton of hay they consume. It would seem, then, if the alfalfa grower is anxious to get year in and year out the highest market price for his hay, that he should insure himself of such a market by establishing a good herd of dairy cows.

Last year, a considerable amount of alfalfa hay was shipped to middle western and eastern dairymen from the irrigated sections of the west. This hay brought the grower about $15 a ton while the dairymen who bought it paid $30 to $40 a ton for it. There this hay was manufactured into cheese which was shipped to the west in competition with the home manufactured article. These transactions remind one of the coon trap which "catches 'em comin' and goin'." The western farmer sold his hay at a low price and bought cheese at a high price, besides allowing a freight bill each way. If he had owned a herd

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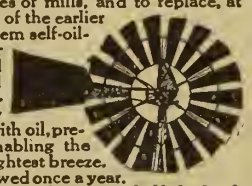

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of cows the hay would have been as valuable to him as it was to the dairyman in the east, but our western farmer preferred to sell pig iron and buy watch springs. What would it mean to you, Mr. Hay Grower, if you could double the price you are now receiving for your hay and at the same time add to the fertility of your farm? Are you going to depend on some one else to feed your hay at their own price, or will you create a market of your own with the help of a few dairy cows and dictate the price of hay?

According to the report of the Bureau of Crop Estimates, dated August 1, 1919, the yield of hay in the United States is about 111 million tons, which is considerably above the five-year average, and 15 million tons more than was produced last year. The coast section of Oregon and Washington which usually depends on the intermountain region for large amounts of hay, has an enormous crop this year. In the southwest, the hay crop is excellent and the third cutting in the intermountain region is in most places above the average. Because of the large crop that is reported, and the fact that approximately 4,000 silos will be filled this fall thus reducing the amount of hay required here, it is not expected that hay will go beyond a reasonable price this winter.

But whatever price outside buyers can offer, we can be sure that the good old dairy cow properly fed and cared for, will pay a much higher price for it. Shall we sell cheap pig iron or expensive watch springs? Shall we sell cheap alfalfa hay or precious butter fat? We have raised the crop to sell. Let us sell it to the fertility builder, the home maker, the highest bidder—the dairy cow!—J. E. DORMAN, Western Dairy Extension, U. S. D. A.

Exports of Dairy Products

Dairy products amounting to the equivalent of 100 pounds of milk from every dairy cow in the United States were exported during the year ending June 30, 1919, according to figures just compiled by the United States Department of Agriculture. The exports include butter, cheese, and condensed milk, but the net exports of those products in terms of whole milk amounted to 2,556,695,746 pounds, or approximately 3 per cent of all the milk produced in the United States.

These figures, the dairy specialists of the department say, indicate the possibilities of developing foreign markets for American dairy products. They are of particular importance, as they show the trend of trade immediately following the war. Probably the greatest interest in an industry is that displayed during the time between actual war and actual peace, when businesses are trying to regain normal trade or acquire an advantage in their special lines. During the fiscal year 1919 the armistice was in operation the greater part of the time only the first four months—July to November—being in the actual war period.

During the year the exports of butter and condensed milk were increased, and the exports of cheese were decreased when compared with 1918. The total butter exports amounted to 33,739,960 pounds for the year. This is the largest amount of butter exported from the United States in recent years and has been exceeded but three times since 1850. The largest amount on record was for the year 1880, when 39 million pounds were exported. The cheese exports for 1919 were only 18,794,853 pounds, which is a decrease of more than 50 per cent when compared with any year from 1915 to 1918, inclusive. The condensed milk exports for 1919 were 728,740,509 pounds. This is an increase over 1918 of 198,990,477 pounds.

Estimating Silo Capacities

The extensive use of silos is responsible for numerous calls for information regarding the capacity of silos and for an estimate of the weight of silage under a variety of conditions. The common method of making such estimates is by the use of tables of silo capacities published by silo manufacturers and by experiment stations. These tables are based directly or indirectly upon a table published by King of Wisconsin in 1893. Recent investigations show that even when these tables are used according to the directions of the originator, the results are too high, but as generally applied the tonnage is often estimated twenty-five per cent too high. The Missouri and Kansas agricultural experiment stations have taken the weights of silage in thirty-two silos, representing four seasons. From these figures it is learned:

1. That the tonnage of silage is usually estimated too high by tables in common use.
2. That the weight of a cubic foot of silage at the time filling is completed varies widely, according to: (a) The depth of the silo; (b) the percentage of water present; (c) the proportion of grain; (d) the thoroughness of packing; (e) the rate of filling; and (f) the diameter of the silo. In silage that has had time to settle, (d) and (e) will be of minor importance as influencing the weight, but all the other causes for variation still exist.
3. That a table used to estimate the capacity of a silo or the weight of silage at the time filling is completed is not adapted to estimating the weight of settled silage.
4. That on account of the many complications influencing the weights of silage it is impossible to give any estimate of weight that is more than an approximation. When silage is bought or sold it is recommended that it be weighed whenever possible rather than to estimate its weight.

If you don't know, ask Western Farm Life Service Bureau.

Hog Cholera Losses Decrease

According to records of the United States Department of Agriculture for the 13 months from April 1, 1918, to April 30, 1919, hog cholera killed 2,815,004 hogs, valued at $62,042,688.16, in the United States. This is the lowest loss by numbers for a similar period in the livestock history of the United States, but on account of the high price of hogs the monetary loss was heavy. For example, during the year ending March 31, 1913, hogs numbering 6,064,470 and worth $58,833,653 died from cholera, while the next year the disease took 6,304,320 hogs worth $67,697,461.

Department experiments show that timeliness in vaccinating hogs against cholera is all important. When exposed hogs were vaccinated, while still apparently healthy, losses amounted to only 4 per cent, but when vaccination was deferred until the animals showed external signs of sickness, losses averaged nearly 29 per cent. This shows that the man who puts off the preventive treatment until his hogs are sick with cholera stands only about one chance in seven of preventing fatal results. It is important, also to maintain hog yards and barns in clean and sanitary condition.

Wool Pool Successful

Members of the wool pool in Minidoka county, Idaho, report through County Agent Grover Burnett the sale of their wool at a blanket price of 50½c, or on a basis of 45c for long, 50c for mixed and 52c for medium and 53c for fine wool. On one carload over $2,700 more was realized than was offered by any other buyers. Through the influence of the bureau the farmers of Minidoka county have realized several thousand dollars more for their wool than would have been given by local buyers. The total sold amounted to $18,207.

I luv a rooster for the kro that is in him, and the spurs that are on him to bak up the kro with."—Josh Billings.

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Give your sons and daughters a thorough business training this winter. Our courses will broaden their general intelligence and give them a good understanding of business.

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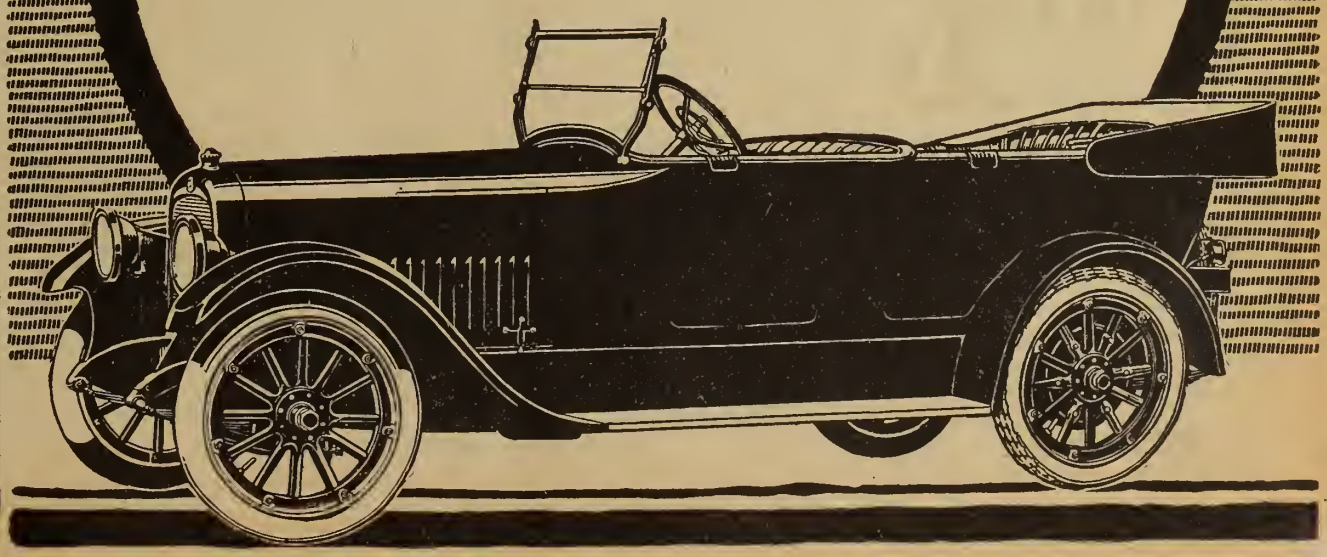

A Splendid Swine Show

That swine production is rapidly becoming one of the principal economic industries of the northern Colorado farmer and that the better pure-bred hog business is commanding prestige was again made visible by the 125 registered Polands and Durocs shown at the Larimer county fair, Loveland, Colorado, August 25-29.

The magnitude and merit of the general swine classes shown were superior to all previous Colorado county swine shows, while the Pig Club members deserve credit for bringing together at Loveland the largest exhibit of registered club pigs ever shown at any fair in Colorado.

It was a big type show throughout, compised of the long, high, smooth, big-bone Polands and Durocs. Judges sought correct type and development rather than weight and fat. The kinds placed up in under year classes should come back in 1920 and be strong contenders for money.

Close competition prevailed in most classes and individual animals winning should be a credit to any state swine show. As a rule, stock shown in regular classes were fairly well fitted, though, however, a few club members sacrificed type and growth for weight and fat.

County Agent D. C. Bascom and County Club Leader W. S. Hill are to be congratulated on bringing out a most wonderful pig club show. The boys' and girls' pig club exhibit was a superior success in every respect and the 66 registered Polands and Durocs shown were indeed a real feature of the fair. Only 9 grade club pigs were shown.

That the club members made breeders and their "dads" feel nervous was apparent when a Junior Poland-China sow ascended to the reserve championship any age, any breed, being second only to a junior yearling sensation Duroc sow owned and shown by Professor G. E. Morton of Colorado Agricultural College. A real task confronted the judge when 36 Poland-China gilts were driven out in the junior sow club class.

Every club member was on the job showing their pigs and a wonderful and enjoyable sight it was to see these 75 junior hog fanciers showing their Woodrows, Kings, Queens, Colonels, Majors, Good E. Nuffs, Sensations, etc.

J. W. Brauer, Duroc-Jersey breeder, Colorado Springs, Colorado, placed the Duroc classes, while J. T. Tingle, Colorado Agricultural College tied the ribbons in the Poland-China classes.

Weaning the Dairy Calf

Work has recently been done at the University of Missouri College of Agriculture to determine the earliest age at which calves can be taken off skimmilk and still continue to make normal gains. The general plan has been to wean one group of calves at five months, another at four months, another at three months, and a fourth group at two months. Both before and after weaning, the calves were weighed and measured every ten days and the weights and measurements compared with normal weights and measurements for the breed.

Success has been attained by weaning both Jersey and Holstein calves at five months, at four months, and at three months, and practically normal gains were secured in almost every case when the calves were taken off a skimmilk ration at the age of sixty days.

The plan followed has been to get the calves to take a good ration of skimmilk with some hay and grain as soon as possible. For the first two weeks after birth a small calf such as a Jersey should receive from 8 to 10 pounds or 4 to 5 quarts of milk daily. This should be fed in two or three feeds a day. A large calf such as a Holstein may be given 10 or 12 pounds daily. When the calf is two weeks old it can be gradually changed from a ration of whole milk to one of skimmilk by substituting an equal amount of skimmilk for each portion of whole milk removed.

The plan of substitution is based on the supposition that the farmer can secure a limited amount of skimmilk. A complete substitution can be secured in a week or ten days. When this substitution has been completed a medium sized calf should be receiving about 12 pounds of milk daily. From this time until two months old a calf should receive from 12 to 15 pounds of skimmilk daily, depending upon the size and condition of the calf. During this period the calf must be taught to eat hay and grain. The calves on experiment were fed liberally by this plan until about 55 to 60 days old at which time they were taking an average of about one pound of grain daily. The amount of skimmilk was then reduced a half and the amount of grain and hay somewhat increased. About a week or ten days later the rest of the skimmilk was withheld provided the calves were doing well. At this time the calves were about 65 to 70 days old and were receiving a ration made up entirely of alfalfa hay and a grain mixture.

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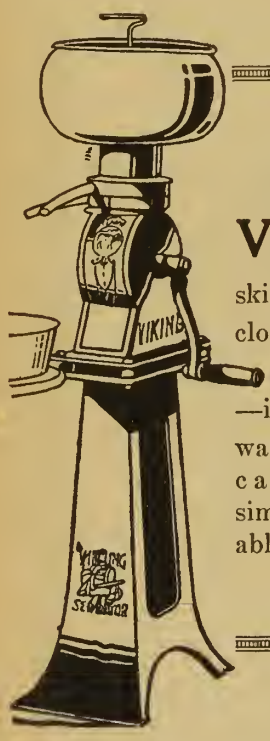

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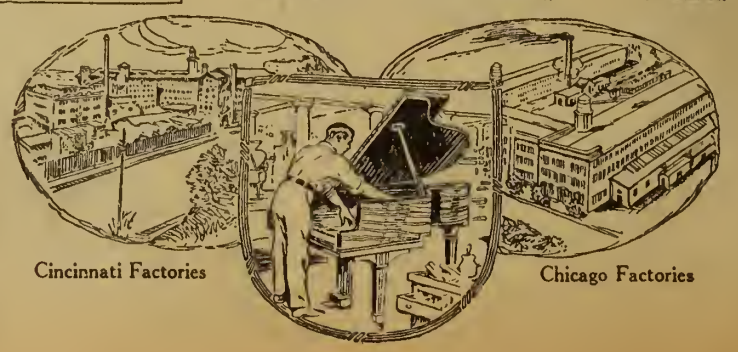

Cincinnati Factories — Chicago Factories

Hotchkiss, Colorado, Fair

H. A. LINDGREN.

The enterprising citizens of Hotchkiss, Colorado, recently staged a most successful fair. The dates were September 9, 10, 11 and 12. This is the first fair held at Hotchkiss in a number of years and the management deserves a great deal of credit for the showing made in all departments. This was recognized this year as the Delta County fair and arrangements are already under way to make it a permanent affair.

Very few fair associations have a more desirable place in which to hold a fair than do the people at Hotchkiss. The grounds are well decorated with trees and a beautiful little park, which affords a most pleasant setting for a picnic dinner and also provides shade for the stock.

The agricultural display was most excellent and shows up well the possibilities in Delta county for the production of farm products. The vegetables were equal to any display possible, as also were the grains and potatoes. This department was under the direct charge of County Agent Yeager of Delta county.

Delta county is noted for its excellent fruit. The crop this year is one of the best in its history. The display of horticultural products at the fair although excellent in quality, was not as large as the county would warrant on account of the rush of the peach season being on, thus preventing the orchardists from attending and bringing in exhibits.

The stock display was one of the finest ever held on the Western slope. There were 135 hogs, 50 dairy cattle, 30 horses and a goodly number of beef animals and sheep on display.

The largest entry from any farm was that of Garnesa farms of Fruita. They had a carload of Duroc-Jersey hogs and one car of Holsteins. This display was seen at several of the Western slope fairs and also at the State fair at Salt Lake City, Utah.

Another very creditable showing was made by A. A. Clements of Paonia, Colorado. Mr. Clements is a new breeder of Duroc-Jersey hogs and Holstein cattle. Mr. Eddeln of Hotchkiss had some excellent Holsteins and Duroc-Jersey hogs. A. F. Chaffee of Hotchkiss was present with a small herd of fine Jerseys and Poland China hogs. W. B. Roe, a new Shorthorn breeder, showed a few from his herd. Charles Mundry of Oak Grove farms of Austin, Colo., showed a string of excellent Percheron horses. Among the other exhibitors were Mr. Evans of Hotchkiss, Duroc-Jerseys; V. A. Phillips of Cedaredge, also Duroc-Jerseys, and Mr. Spore of Hotchkiss. Mr. Ayer of Crawford showed a team of Percheron mares that were a pleasure to see.

There was plenty to entertain the crowd outside of the exhibits in the way of races, wild west features and an aeroplane. The crowd was large each day, considering the fact that peach picking was in full sway in that section.

It is indeed a credit to any county to make the showing that was made at this fair. The exhibits showed the results of careful study and attention to selection of seed stock. The management of the fair is to be congratulated on the success and should continue to hold the fair each year as they are now planning to do. Such events as this do a world of good in the way of creating an interest in community affairs and a pride in the worth of the county.

Arkansas Valley Vies With Iowa In Corn Growing

(Continued from Page 3)

being gathered up by the Libby-McNeill Condensery, by truck which comes after the milk every day.

From here the party drove through Cheraw, on west through some of the rich farming country in the Holbrook district and the next stop was at the farm of Earl Bennett in West Holbrook. Mr. Bennett has an ideal stock farm with large barns and sheds for cattle and sheep and two large hollow tile silos of 250 ton capacity. There is a thousand ton capacity tile silo under construction at the present time. He also has a splendid water system for his stock and a hollow tile storage tank, which distributes the water to the various places on the farm. Mr. Bennet is conducting a variety test of the different kinds of corn.

The next stop was at the American Beet Sugar Company's west ranch. Here we saw a number of interesting things. The first was a demonstration in pastures. Mr. Taylor, the manager, explained that they had gotten the best results from a mixed pasture. Farm buildings, the horses and mules and the hog ranch were inspected.

The company markets in the neighborhood of six thousand hogs each year. They fatten most of their hogs by the self-feeder method, letting the hogs balance their own rations, and they are putting them on the market at seven months weighing over two hundred pounds. Mr. Taylor states that they have found this to be the most economical method of fattening hogs.

The last feature of the trip was a deep plowing demonstration with cable plows. There was a large engine on each end of the field drawing a five bottom plow back and forth through the field by means of a cable and plowing stubble to the depth of fourteen inches.

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The body is a new design. The frame is uniquely staunch. Extra coats of finish give a lasting luster. The new-grade top will stay new. The leather upholstery is filled with interlaced hair, so the cushions keep their shape.

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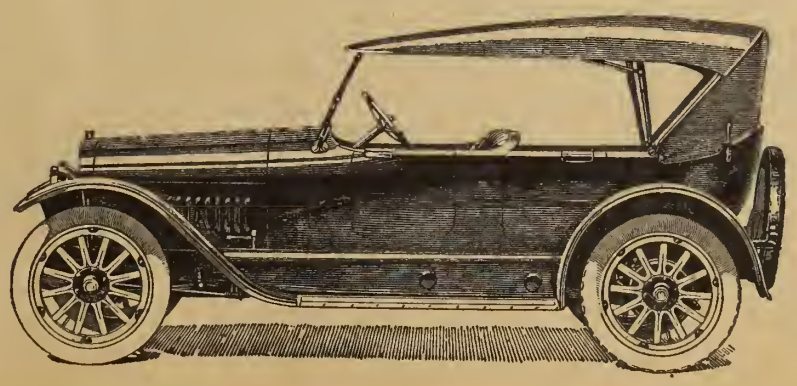

Another Big Fur Year

Last year was a big one for trapping. Trappers, everywhere, reported good profits because the market for pelts was very high. This coming season promises to be a big one, too, and the profits should be just as large as last.

The fur market is subject to the law of supply and demand, and every trapper should remember that the demand for furs all over the country is steadily becoming greater. Last winter was the mildest the country experienced over a very long period of years, and yet furs were never so popular for wear. The style for fur coats for women came in and a tremendous demand was created.

It will be a long time before we have a winter as mild as last and as you know, the colder the weather the more popular are fur garments. The big cities have already come in strong for fur styles during the winter months and now it looks as though the people in the smaller towns and on the farms are going to demand more and more fur garments. For motoring and outdoor life of every kind, fur garments are useful, stylish and economical.

The trapper, seeing the big demand, can't help seeing also that the more pelts he traps and markets properly the bigger his profits are going to be. So it will pay you well to go in for trapping on just as big a scale as possible this year. Make all your preparations early and get everything in order, so that when the season opens, you can devote all your energies to the work of trapping. Careful preparation shows its value in the extra results you are able to get.

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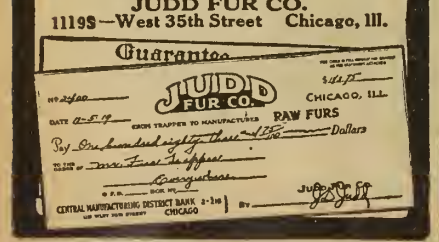

Salt Lake Ram Sale

H. A. LINDGREN

The fourth annual ram sale of the National Wool Growers Association at Salt Lake City recently brought out an unusually good offering of stud rams and a better lot of range rams than at former sales. The sale was under the management of Dr. McClure, secretary of the association. Dwight Lincoln wielded the hammer.

It was estimated that fully 50 per cent of the sheep offered for sale were of the Rambouillet breed and the bidbing was an indication that this breed is leading the others in interest shown at the present time. The offering of Rambouillets afforded each individual fancier an opportunity to select the type and quality he desired. The sale was a grand show of sheep and it is wonderful how the size of the sheep and price for rams sold was $1,600 for a Rambouillet ram consigned by the University of Illinois and purchased by the Butterfield Live Stock Company of Weiser, Idaho. Bullard Brothers of California sold a ram at $1,450. F. S. King Bros. Co. of Laramie, Wyo., sold an excellent yearling, one of the outstanding rams of the sale, at $1,500 to the Qualey Sheep Co., Cokeville, Wyo. Other sales ranged from these prices down to $100 for Rambouillett stud rams and range rams of this breed brought prices ranging from $50 to $125 in pen lots.

The interest in Hampshires was strong and the top price was $800 for a ram lamb imported by Robert Blastok, which was sold to Selway & Gardner Company of Anaconda, Montana. Other prices on stud rams of this breed ranged from $85 to $310. Range rams ranged in price from $25 to $85 in pen lots.

The bidding on the coarse wool sheep was slow. Some excellent offerings of Lincoln and Cotswolds, many of them imported, were sold at little more than cost of importing them. These excellent sheep have done much for the western sheep man in the past, but at the present time there seems to be a lull in interest. The top price for these breeds was $500, while some excellent imported rams sold as low as $80 and $100 per head.

A small consignment of Romneys were sold. There were but a few men present who were interested in this breed, although the prices received for them was very creditable.

Considerable interest was shown in the Crossbreds, although there is still a feeling of caution among the sheep-rams. The Panamas and Corriedales rams. The Panamas and Corridales offered averaked well in price. The Corriedales offered by the government breeding station at DuBois, Idaho, sold around $200 per head. The breeders were much interested in the heavy wool on these breeds.

Dr. A. H. Griffith, Ed. Shin and the writer selected sixteen Rambouillet ewes and a ram for the Colorado State Reformatory. The ewes are yearlings and were bred by W. S. Hansen of Collinston, Utah. The ram selected was bred by Seeley of Mt. Pleasant, Utah.

The ram sale was a grand success and the results from the purchase of good rams will be felt by the entire western country. The country needs more purebred sires in every class of livestock and these sales afford an opportunity for acquiring foundation stock.

There was much less tendency toward the extremely high prices of the two previous sales. The breeders were willing to pay for the good stock, but they feel that the extremely high prices are not the best thing for the industry.

Not a Requisite

"And do you have to be called in the morning?" asked the lady who was about to engage a new girl.

"I don't has to be, mum," replied the applicant, "unless you happens to need me."—Yonkers Statesman.

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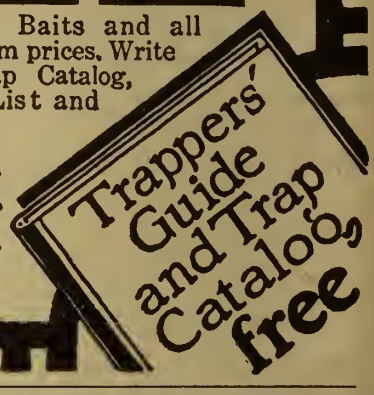

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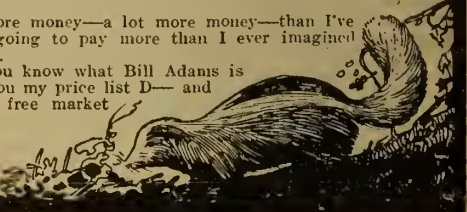
Yours truly, Bill Adams



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The Bighorn County Fair

T. S. PARSONS

The Bighorn County fair, which closed on September 5th, was the best ever held at Basin. Perfect weather, good sports, fine exhibits and big crowds marked the occasion as one long to be remembered. The attendance each of the three days was larger than at any previous fair and the agricultural exhibits were the best seen by the writer, who has attended the Bighorn county fair for the last six years.

Exhibitors are learning how to select and grade their products for exhibition. Quality and uniformity marked the displays rather than size, as is too often the case. This is an off-year for potatoes in the Basin, but some good spuds were shown. The fruit and melons were exceptionally fine and the garden vegetables could not have been better. The sugar beet exhibit was very extensive, the Great Western Sugar Company having offered some attractive prizes. Besides the regular prizes offered by the fair association, many special prizes were offered by the business enterprises of the Basin section.

The agricultural exhibit from the Manderson section deserves special mention. This display consisted not only of fruits and vegetables but was practically complete in the way of sheaf grains and grasses. The exhibit won a large share of the blue ribbons in the various classes. Some of the individual ranch exhibits were also excellent.

The livestock exhibits were not as extensive as the agricultural exhibits but a good showing of pigs and "bum" lambs was made by the boys and girls clubs and some good horses and dairy animals were shown. The aviator received much favorable comment and the entertainment features were up to the average.

The boys and girls clubs of the county were much in evidence with fine garden exhibits, sewing and canning work. The canning demonstrations to determine the champion team to be sent to the State fair attracted much attention and interest.

To Colonel W. H. May of Basin must be given the credit for the success of the Bighorn county fair. He has been untiring in his efforts to put the fair over and he has done it successfully He will be rewarded next year with a new grandstand and exhibition hall. The colonel has made the Bighorn county fair a permanent institution and one of the biggest and best county fairs in the west. His long cherished dream of a "Bighorn Basin" fair, comprising all the counties of the Basin, bids fair to become a reality in the not distant future. T. J. Jones, the efficient president of the fair association, also deserves a large share of credit.

The pageant by the various communities of the county, under the direction of Mrs. Elaine Kinder, county superintendent of schools, was the best thing ever put on in the county. The history of the development of the county was depicted by the children and others, each community showing some important happening of the past.

The annual "Washakie day" held at Worland on September 5th also deserves mention. A big crowd, a barbecue, good sports and fine displays of agricultural products and livestock all combined to make "Washakie day" known all over the northwest. The event is becoming greater every year. Fruits and garden truck were in evidence as never before. It was said by all the citizens that this was the biggest "day" yet. The best of the exhibits were sent to the State fair.

This season has demonstrated that the Bighorn Basin is safe so far as water supply is concerned, even in the dryest year.

Kill 60,000,000 Grasshoppers

As a result of the campaign against grasshoppers in Idaho county, three wheelbarrow loads of dead hoppers were hauled from a Grangeville garden plot, one and one-half by three rods in size. On the E. Fry rancn, a count showed an average of more than 100 hoppers per square foot on a 14-acre corn field, which would mean a total of 60,984,00 hoppers.

Some Features of the Boulder County Fair

(Continued from Page 5)

were found in the public parks in the in the centers of population. Absolutely no opposition was encountered, people very patriotically agreeing to tear our shrubs, although they had been purchased and planted at considerable cost. Ordinarily the plants cost about 20 cents each, but same varieties, such as purple barberry, were found that had cost $2.50 each. These were eradicatel along with the common variety.

Rust spores from the barberry were being carried by west winds from Denver and other cities along the eastern slope across the eastern Colorado plains, infecting the wheat and oats with rust. In a few years the crop damage would have been tremendous. The farmers are exceedingly grateful for the way in which city people co-operated in this campaign and the placard exhibited at Longmont and also at other county fairs, expresses their feeling without reserve.

A grain grading demonstration in charge of Mr. E. A. Hill, Federal Grain Supervisor, at Denver, proved one of the most interesting features of the fair. Mr. Hill carefully explained the methods of applying grades, and was next busy answering questions from farmers who had suffered loss through unfair grading of wheat by country buyers. A campaign of education now being conducted by the Department of Agriculture as a means of acquainting farmers with the practical application of grading rules will do much toward ending discriminatory practices.—A. T. S.

Chickens Go Blind

Please tell me what is wrong with chickens when their eyes turn purple and are blind and blisters form on their combs, feet and legs. Then makes sores. What remedy is good for them?—

For some years we have been troubled with a disease we call "foot and face disease." I believe it is this which is troubling your chicks. During all this time the State Agricultural College has done all it could through its veterinary department to discover the cause and a remedy, but without success. In the early spring numbers, feeling quite certain the disease would reappear, we discussed the matter, telling our readers what had been done, and asking for the experiences of our readers. Nothing new has been discovered by those working on the matter, so we cannot advise you intelligently. This disease has caused great loss to poultry raisers in the West, and we are very sorry not to be able to help in the matter.

The health and comfort of the home depend to a considerable extent upon the heating apparatus, which in importance is second only to that of sanitary plumbing.

Free to Trappers!

Send for this book of supplies—shows baits, smokers, traps, guns—everything you need **at money-saving prices.** Get ready early! Write today to

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INTERNATIONAL FUR EXCHANGE

Free Fur Book shows you how to make this your biggest season. Shows fur-bearing animals in color. Latest and best trapping methods; how to prepare and ship pelts; gives Trapping Laws, etc. **Bargains in traps.** Weekly Market Reports and Shipping Tags sent you **FREE.** Write.

F.C. TAYLOR FUR CO., Int'l Fur Exchange **St. Louis, Mo.**
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OWNERS of Avery and other K-W equipped tractors plow at **less cost** because of the efficiency and reliability of K-W Magnetos.

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The K-W Magneto gives a spark so hot, that instant and complete combustion and full power is assured from every drop of fuel, regardless of how poor the grade. This added power makes deep plowing in hard ground easy, and because leaner mixtures can be fired without loss of power, greater acreage is plowed **at less fuel cost.**

Nine years of service **on tractors** has proven K-W Reliability in every weather and working condition.

You buy a tractor to get greater crops at lower cost. In choosing your tractor make sure its magneto bears the K-W trade mark. Write for list of K-W equipped tractors and illustrated booklet — "Plow This Additional Acreage Without Fuel Cost."

THE TRADE K-W MARK IGNITION Co.
2809 Chester Av. CLEVELAND, OHIO, U.S.A.

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

Men, my brethren, men the workers, ever reaping something new;
That which they have done but earnest of the things that they shall do:
For I dipt into the future, far as human eye could see,
Saw the Vision of the world. and all the wonder that would be;
Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales
Heard the heavens fill with shouting, and there rain'd a ghastly dew
From the nation's airy navies grappling in the central blue;
Far along the world-wide whisper of the south-wind rushing warm,
With the standards of the peoples plunging thru the thunder-storm;
Till the war-drum throbb'd no longer, and the battle-flags were furl'd
In the Parliament of man, the Federation of the world.
There the common sense of most shall hold a fretful realm in awe,
And the kindly earth shall slumber, lapt in universal law.

—Tennyson.

A Model Women's Club

Miss Miriam M. Haynes, state leader in home demonstration work, sends in this account of one very interesting women's club. There are a good many of these clubs and we want to wish them success.

In Boulder county, Colorado, we have one of the most progressive farm women's clubs in the state. The name of this club is the L. L. W.'s, which means, Live, Laugh and Work and they live up to their name in every respect. The club is composed of about thirty farm women who meet regularly once a month at the various farm homes to take up work along home making and community welfare lines. They have an annual Fourth of July "get together" picnic which ends with an old-fashioned community sing.

During the war each member and her family were 100 per cent American and continue to be so. The group was faithful to the last in Red Cross work, having made a record of over three hundred garments, besides many other similar services not recorded. Certain members of the club were foremost in pushing all lines of war work, for example, Salvation Army, War-Saving Stamps, Y. M. C. A. drives and never failed to more than "put across" what they went after.

July 4, 1918, the club entered a float in the annual Fourth of July celebration at Boulder. The title of the float was "Bringing Up Father." There were two floats, the first a wagon representing a farm home sitting room, with the L. L. W.'s in regular meeting. The second float was a hay wagon "rigged up" as a farm home and the husbands doing the "home chores" while wifey attended club. The men were churning, tending babies, sweeping, stirring the soup and lugging in water. These floats took the first prize of $25.00 and the women decided to turn it over to the Y. M. C. A. hut fund. When the men heard this, they put their heads together and planned an ice cream social and cleared $25.00 more, making a total of $50.00 for war work. What group of Colorado farm women possess the spirit and record of the L. L. W.'s? Let us hear from more of them.

A great deal of practical service is rendered outside of the club meetings. Every day between meetings the influence of this group is felt. If a neighbor is sick, some of the members go to "help out" whether it be over the "tub" or at the sewing machine. When a neighbor is called away on a long journey a box lunch is prepared for her; if a member moves away especially to an isolated country a newsy letter goes forth each month to cheer her and her family.

The author knows of no club which has been more enthusiastic in serving others, or more co-operative. It has been a real help and inspiration to know them.

Things Which You Never Saw Canned Before

At every county fair there will be shelves and shelves of wonderful canned material, but at the Kit Carson county fair, there are going to be exhibits of canned goods which it is pretty safe to wager you never saw canned before. The writer has the testimony of an eye witness and it is vouched for by the same that these are not only palatable looking, but they taste good.

Now read Miss Alexander's directions for preparing them and see what you think. She is the same Miss Alexander of Flagler who sent in the recipe for cactus jelly.

Canned Russian Thistle

When Russian thistle are only a few inches long and tender, cut off well above the root, wash and cut in about two inch lengths by laying a quantity on the cutting board. pick out any tough stems, put in cheesecloth or wire basket on false bottom or even a jar lid to keep up above the inch of water in the kettle. Cover tightly and steam 10 to 15 minutes. Cold dip quickly, using hands to separate, so that the cold water will reach all parts, pack solidly in hot jar. If you like meat flavor, add a layer of finely diced pork, or bacon every inch, also should you desire higher seasoning, add some horseradish leaves or mustard leaves or the ground product. On top, add one teaspoon of salt for every quart.

If properly packed, no water will be needed, as its own juice should cover. Test and dip rubber, put on and screw top so that it rubs firmly, but is not a complete seal, set in the boiler with a false bottom and hot water to come one inch over the jar. Process for three hours after it boils violently. Remove and seal at once, cool and set in dark place.

They may be canned without meat, mustard or horseradish, but usually taste better if such seasoning is included.

Canned Prairie Dog

Few people realize that prairie dog is no more dog than we are fish, but are really prairie squirrel and in every way equal to the timber squirrel of the east which are considered very fine. They may be prepared in almost any way, boiled, baked, fried in endless combinations, but the three most practical ways are those just enumerated. For fried, cut in convenient pieces after cleaning, drop in salted water, remove any extra fat and try it out for soap. Salt and if desired, roll in flour and sear till well browned in hot fat. Pack in hot jars, pour any fat left over packed product, seal very nearly tight, place as usual in hot water to cover and on the false bottom. Process two hours at 5,000 altitude. Take out,seal, invert, test, cool and put away. Baked or roasted is done in the same way.

Boiled prairie dog is canned by blanching, cold dipping, packing covering with hot water and processing four hours in the jar, but is usually not as good as fried or roasted.

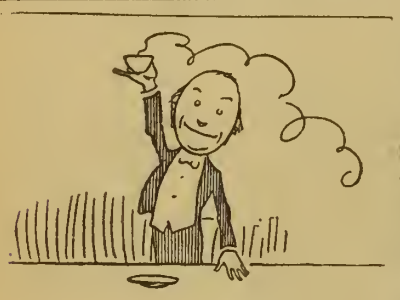
Our Youngest Dairyman

This tiny milkman is the youngest dairy farmer in Utah. Yes, we are safe in saying, the youngest one in the United States. If anyone knows of a more youthful one send in his name and photograph and we will arrange a milking match between the two.

This picture is of Henry S. Barnes, Jr., of Cedarvale Farm, Monticello, Utah. Little Henry's granddad, Mr. C. H. Barnes, is naturally quite proud of the youthful milker, and he sends us the picture which shows that the little chap, only three years of age, knows a thing or two about dairying. He is occupying the correct position in milking and he is keeping bossy occupied with her head in a pail of bran mash, while he extracts the lacteal fluid from her udder. Then, he wears a nice clean pair of overalls, which is good form for a milker. We hope little Henry will grow up to be a prosperous dairy farmer. He is starting on the right track, because dairying is the surest thing in farming. If we were to run out of milk the human race would die out, so the man who produces milk is always sure of a market.

A Youthful Milkman

Why dream of the future when you can grab right hold of the forelock of today and ride anywhere.



A cup of fine rich tea, full of the real tea-flavor, costs less than a cup of common tea—a pound makes so many more cups.

Now this is either so or not so; and you can prove it at our expense.

Get Schilling Tea at your grocer's. Serve it a half-dozen times. If you don't find it's the fine economical tea we say it is, tell your grocer "I want my money back" and then use the rest of the tea.

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3. Body of Charcoal Iron; *resists rust* and lasts 3 times longer than Steel.
4. Flues lined with *Asbestos Board*, ¼ inch thick; prevents loss of heat and saves fuel.
5. Air-tight oven; *all parts riveted* together, assures perfect baking.
6. *Large warming closets;* roomy and convenient, with drop doors.
7. No springs on oven door; it is supported with strong, *durable sliding rack*, and holds any weight placed on it.
8. Unbreakable malleable iron; permits rivet tight joints; *saves fuel* and repair expense.
9. First joint of pipe double weight; pipe collar double strength. Front of flue at top and bottom of oven covered with *indestructible malleable iron.* Strongest where others are weakest.
10. Open end ash pan; like shovel. *removes ashes easily*, and cleanly. Ash cup catches ashes that otherwise fall on floor.
11. Cooking top burnished dark blue, *requires no polish.*
12. *Heavy nickel trimmings;* smooth as glass; stay bright, easy to keep clean

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PATTERN DEPARTMENT

All patterns, 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

2999—Stylish One-Piece Model. This pretty frock could be made of blue velvet with facings of satin or of serge, with trimming of satin. Jersey cloth, duvetyn taffeta, gabardine and velour are also attractive for this style. Cut in sizes 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5⅛ yards of 44-inch material. Dress measures about 2 yards at the foot.

Wast 2973, Skirt 2975—A Serviceable Outfit. Midnight blue charmeuse, embroidered in blue and gray, would be smart for this design. Georgette and serge could be combined, or velvet and satin. The blouse is made from pattern 2973. It is cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. The skirt pattern 2973 is cut in sizes 22, 24, 26, 28, 30

All Patterns, 15 Cents Each

and 34 inches waist measure. Medium size will require 6 yards of 36-inch material. One could have the skirt of broadcloth or serge and the waists of crepe, batiste or silk. The skirt measures 1⅞ yards at the foot with plaits extended.

2998—Practical Dress for Mother's Girl. For this style, checked novelty in brown and green goods was combined with green serge. One could have blue serge and satin or taffeta, or have fronts, collar, cuffs and belt trimmed with braid. The sleeve may be in wrist length, finished with a band cuff, or in elbow length with a shaped cuff. Cut in sizes 6, 8, 10 and 12 years. Size 10 will require 2¾ yards of 44-inch material.

2988—Smart Frock for the Growing Girl. This is a good model for velvet, taffeta, serge, gabardine and linen. The vest portion, collar and cuffs could be of contrasting material. The skirt is joined to an underwaist of lining, overlaid to form a vest over the front. One may have a semi-fitted sleeve, or a sleeve in elbow length, for this dress. It is cut in sizes 8, 10, 12 and 14 years. Size 10 will require 3¼ yards of 44-inch material.

2991—Neat House Dress With Two Styles of Sleeves. Percale, gingham, chambray, lawn, flannelette and drill are good materials for this style. The sleeve may be finished in wrist length with a band cuff, or loose at elbow length. Pattern is cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5⅝ yards of 36-inch material. Width at lower edge is about 2¼ yards.

2994—Practical Combination Garment. This comprises a comfortable corset cover and a dart fitted one-piece underskirt or petticoat. One could use flouncing for both the models, or batiste, nainsook, lawn, dimity, crepe, washable satin, silk and crepe de chine. The ruffle may be omitted. Cut in sizes small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. Size medium requires 3⅜ yards of 36-inch material with ⅜ yard for the ruffle.

2979—Coat for the Little Miss. A good feature of this model is the sleeve portion, which forms part of the front and back. Cheviot, serge, velvet, velveteen, plush, corduroy, velour, tricolette and jersey cloth are nice for this design. The coat fronts may be rolled bigh or low. Cut in sizes 6, 8, 10 and 12 years. Size 10 requires 3½ yards of 44-inch material.

2666—Chic Style for the Young Girl. Here is a splendid model for the growing girl. It has straight lines and comfortable fulness, and the design lends itself well to all kinds of material. One could combine plain suiting with serge or checked or mixtures with contrasting plain fabric. For linen, corduroy and velveteen this is very appropriate. Cut in sizes 8, 10, 12 and 14 years. Size 12 will require 3½ yards of 44-inch material.

Keep Gilts In Condition

Help the gilts now to develop and get in condition for breeding next spring. By early fall, in practically all sections of the country, the gilts farrowed last spring and selected for future breeding work are all weaned and ready to be primed for next season's work.

A brood sow to be conditioned properly should be in such flesh at breeding time that she will gradually increase her weight according to normal and natural development from that period until the date of farrowing. In order to maintain her in desirable condition, she must be supplied with plenty of protein. Whole oats fed in a self-feeder is an excellent nutrient for growing gilts. In addition, the young females should have access to good forage crops such as alfalfa, clover, rape, rye, or any of the other small grains. A small allowance of corn is also advisable. Shorts or middlings can be fed with considerable success. A combination, recommended by specialists of the United States Department of Agriculture, consists of a mixture of shorts or middlings, oats supplied cafeteria style, corn in limited quantities, and succulent pasture ad libitum.

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Fit yourself this winter to take a trained mechanical position in most any city you wish, paying $150 to $400 per month. You can do it easily in a few short weeks. Hundreds of jobs as Tractor Salesmen, Tractor Demonstrators, Tractor Operators, Garage Managers, Chauffeurs, Expert Welders, etc., are open for properly trained young men.

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If you don't want to work for somebody else, we train you to start an Auto, Tractor and Truck Agency and Repair Shop on your own hook. There are good openings anywhere for young men who know the business.

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Our course of instruction will equip you to motorize your own farm, doing your work economically and intelligently with motor-driven machinery. Many farmers send their boys to us for this purpose. **Send for our Free Book today.** (2)

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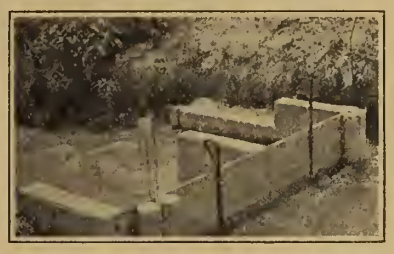

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LIKE THE fabled tortoise that outran the hare, persistent improvement in any service is bound to win—"Good enough" develops speed, but somehow never keeps going. And here you have one of the main reasons why Remington UMC modern guns and ammunition are so popular.

Remington UMC has contributed more improvements to the development of shooting than any other manufacturer. The most recent of them is the wonderful Wetproof process by which shot shells are for the first time made completely waterproof in body, crimp and top wad.

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They will not swell up, scuff, wilt at the crimp and jam. Instead, they will work through your modern Remington UMC autoloading or pump gun as perfectly as if taken direct from the loading machine. And fire just as surely and with the same always superior Remington UMC speed, pattern and penetration.

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THE REMINGTON ARMS UNION METALLIC CARTRIDGE COMPANY, Inc.

Largest Manufacturers of Firearms and Ammunition in the World

WOOLWORTH BUILDING NEW YORK

Comment by Farmer Putnam

(Continued from Page 9)

miles. The man that sold us on it says the engines in them Maxwells 's don't really git warmed up till after they reach the first 20,000 miles and I reckon he's right.

Our'n is a little stiff yet, but she chugged over them 57 miles from Salem to Gleffy's in less'n six hours. We lost a little time goin' over the big hill east of Franktown, where it rains every night, but Hollowtile Hinman caught up with us there in his Maxwell and started up, so we follered him and made it to the top without onct goin' into high.

While we're on the subject I might say that that thar hill is in Douglas county, the commissioners of which is a canny lot. They're keen on fixin' all roads inside the county, but them outlets is carefully guarded with impassable roads, so's to keep their taxpayers at home. When a stranger drops over accidentally into the county he cain't git out ag'in and that's how the population of the county grows.

Thos. Jefferson Putnam.

Wyoming Herefords in Kentucky

Twenty years ago the prediction that a drove of Wyoming-grown bullocks would within two decades carry off chief honors at a Kentucky State fair, passing into the hands of one of the most successful show feeders of the Bluegrass state, to be fitted for next year's fat contest, would have been derided. Nevertheless that is what happened in Louisville last week, when Hereford feeders from the Frank Owen ranch in Wyoming won blue and purple ribbons in a contest that is worth emulation by other state fairs. The cattle were exhibited by Cherrill & Lett of Chicago, James Caldwell of Kentucky purchasing them at $14.10 per cwt. to fatten for the Kentucky State fair exhibit next year.

This event demonstrates the progress made in recent years by cattle breeders in the northwest along improvement lines and in the matter of care. Central Kentucky is a noted breeding ground. In this competition the Wyoming Herefords were not without keen competition from cattle raised locally. Twenty-seven loads participated. In former years cattle feeders in the Ohio valley replenished their pastures from the Cumberlands. Under new conditions they draw from herds on the slopes of the Continental Divide.

Kentucky's feeder cattle contest is a commendable state fair feature. It affords an opportunity for breeders in the trans-Missouri region to enlarge their market, and display their wares, and exercises a stimulating influence on local commercial cattle breeding. The event was of national interest, demonstrating that the prejudice among eastern breeders a few years ago against western cattle has been eradicated by breeding, dehorning and domestication.—Breeders' Gazette

Profit in Poultry

A net return of nearly $300 in two and one-half months from a sideline on the farm is the record made by a Glendale, Ariz., poultry raiser, who is carrying on his operations under the direction of a poultry extension expert of the United States Department of Agriculture. In conection with his general farm work he kept a flock of 210 hens, which produced an average of 10 dozen eggs during the four winter months. During February the eggs brought an average of 55 cents a dozen, or approximately $150, while the feed bill, including the feed for the young chicks, amounted to $40. The following month the flock showed a profit of a little over $100. During the first half of April the gross receipts were $97.50. In April the extension specialist conducted a culling demonstration on this farm and weeded 56 hens from the flock. The culled hens were kept in a separate pen for a week following the demonstration, and made practically no returns in egg yields. This indicates, the specialist says, that the remaining 154 hens probably made the record with which the entire 210 had been credited.—U. S. Department of Agricul. ture.

Dried pressed potato is very efficient in producing rapid gains and a high finish when fed to swine, United States Department of Agriculture investigators have found in a search for a suitable way to dispose of cull potatoes. To give best results they must be fed in combination with feeds rich in protein. such as oil meal, fish meal, and tankage.

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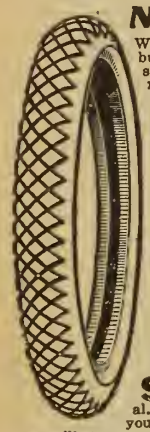

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30x3½	8.85	2.95	33x4½	13.65	4.40
32x3½	9.65	3.25	34x4½	14.85	4.50
31x4	10.75	3.85	35x4½	15.25	4.75
32x4	11.95	3.95	36x4½	15.95	5.00
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34x4	14.65	4.25	37x5	15.95	5.50

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"My hens have never done so well as this year and haven't lost a single chick"—Mrs. Flora Kepple, Walker, Ia. "Simply grand for rabbits"—L. W. Browning, Boone, Ia. "Cannot praise Germozone enough. I use it for chickens, stock and bousebold"—Mrs. Wm Hoeppel, Hugo, Okla. "My bird puppies don't know what distemper is and I never had such good success before with chicks"—Curly Smith, Kennett, Mo.

Germozone is sold by most drug, seed and poultry supply dealers, or mailed postpaid in 25c, 75c and $1.50 packages from Omaha. Book on treatment of diseases free with each package.

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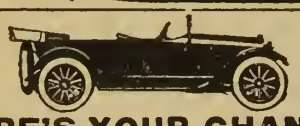

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NEVER was such two-fisted-smokejoy as you puff out of a jimmy pipe or home rolled cigarettes packed with Prince Albert! *That's because P. A. has the quality!*

Your taste apparatus certainly cannot be fooled! So, when you smoke Prince Albert and get a lot of delight *you know* you've got the big first prize on the end of your line!

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No matter what your past luck has been on pipe smokes or makin's cigarettes, you put your confidence in Prince Albert for it certainly makes good every time the clock ticks.

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With the WITTE rig you can go anywhere—earn $15 to $20 a day sawing cord word, poles, ties, rails, posts or slabs. When not sawing you can grind corn, fill silos, operate threshers, do any work within the horse-power of the eugine selected. Sizes 4, 6, 8, 12, 16 and 22 H-P.

ED. H. WITTE, Pres.

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It comes to you complete as shown, Belt, Speed Regulator, Pulley, Saw Table, Saw, Belt Tightener, Steel Seat, Chain Brake and full engine equipment. All you need when you get engine is fuel oil and water. **Write for my latest prices and terms — Cash or Payments.** Any honest man can have a saw rig on my favorable payment plan. I can usually ship the entire outfit (Kerosene or Gasoline) same day order is received. You get it **all at once**—not part from one place and part from another. My new (copyrighted) Book tells all about it—tells you **"How to Judge Engines"** and "How to Make Money Sawing".

Write me today for full particulars.—ED. H. WITTE, Pres.

WITTE ENGINE WORKS 2644 Oakland Ave., Kansas City, Mo.
2644 Empire Building, Pittsburgh, Pa.

Does Cultivation Bring Increase In Rainfall?

(Continued from Page 4)

Some one will ask what causes these low pressure areas? When a disturbance of some sort takes place in the atmosphere it causes waves something like the waves of the ocean, only hundreds and thousands of times larger. As these waves pass over us sometimes we are under the crest of the wave with many miles of air above us. At other times we are under the hollow between the waves with perhaps a mile or so less air above us. The former means high pressure; the latter low pressure. The cold from the outer space comes in between the waves and causes storm conditions in the low pressure areas.

Denver, for instance, is often in a high pressure area while Salt Lake City is in the grip of a blizzard, the center of a low pressure area. In the case of rain or snow it is the same as with dew, only in a more wholesale manner. We have to have the moisture laden atmosphere and then the cold to knock the water out of it.

In summer the waves, in high and low pressure areas, seem to be more erratic, not so massive, but more intense in spots resulting in thunderstorms, hail and tornadoes.

The question before us is: Could anything we could do in the way of settling a country have any effect on any of the big storms which sometimes embrace two continents? No more than the old rainmaker with his stepladder and alarm clock and stick of dynamite who used to filch from the farmers to the tune of thousands of dollars.

Although we know a lot more about the weather than we used to, we have not yet got to the bottom of what causes the storm waves in the first place. The most plausible theory is that they are caused by the gravity pull of the sun, moon and planets, as their position with regard to the earth continually changes. If the moon can cause a high tide lifting the waters of the ocean twenty feet in some places (Panama, for instance), how much easier could it lift our atmosphere and cause waves? Our storm periods often seem for a time to coincide with the phases of the moon, and then some other factor seems to intervene and break the combination, before any definite conclusion can be arrived at.

Another idea is that the heated air from the earth's surface which moves upwards, being lighter than the cold air which displaces it, is sufficient to cause these waves.

Then there is the magnetic theory which attributes everything to magnetism or electricity and claims that the whole universe is linked up with these forces causing the earth to react to sunspot disturbances or any storm condition in any of the heavenly bodies. It is possible that anyone of these may be correct or that the true solution may be found in a combination of all or part of them.

It is our ignorance of the primary causes which underlie the origin of our storm disturbances that makes long range forecasting impossible.

The weather bureau does not attempt it, for they deal in facts, not theories. They receive communications and readings of weather instruments from all over the world by wireless and cable indicating the direction and progress of all storms, which they chart, and knowing the regular routes are able to forecast the arrival and intensity of most of the storms a few days ahead.

When four or five wet years follow one another consecutively, it is enough to make anyone believe that the climate is changing, but on looking over the records, we find that the surplus is always paid back in the next four, five or ten years and the average reduced to what it was before.

We all know the dry year is coming. It is just as certain as death and taxes. Prepare for it. If the farmer follows the best methods he will accumulate more and more moisture in his subsoil every year until he can raise a fair crop even in a dry year.

The principal factors are deep plowing, plowing ahead of time and disking or otherwise mulching the land as soon as the crop is off. Nearly every crop will leave some moisture in the ground. This does not seem much to save, but it counts in the aggregate of several years.

On the writer's Colorado ranch he conserved two feet of moisture and planted an orchard. This was kept perpetually mulched. At the end of six years there was moisture reaching from the surface ten feet down into the subsoil. In his corn and grain land were four to five feet.

With plenty of subsoil moisture the farmer is safe; it is like farming over a water table for the roots of corn and grain will follow down almost any depth after it. At one of the Dry Farming Congresses the roots of winter wheat were exhibited seven feet long and those of corn nine feet.

A Club Boy's Progress

Ira Dunn of Vona, Kit Carson county, sold 46 bushels of corn at $4.10 per bushel which brought him $184.00. He planted 11 bushels and had 9 bushels on hand.

With $150 of the money obtained from the sale of seed corn, Ira bought a registered yearling shorthorn heifer.

There are six boys in Kit Carson county who bought such calves.

The calves were purchased in Nebraska and brought to Yuma by freight. The county club leader, Miss Alexander, the county agent, Mr. Strange, and the farm bureau committee man, Mr. George, drove the calves from Yuma to Vona, taking turns riding and walking.—Boys' and Girls' Club News.

Table Salt for Scouring

How many of your readers know that table salt, used to scour lamp chimneys or other fine glass, will remove burned places or other stains without injury to the glass?

It is also good to scour an electric flat-iron that has by any chance become a trifle rough.—Mrs. R. H. Comstock.

Make Your Tractor Investment Pay Big Dividends

Year-round service—no break-downs and days lost from plowing to threshing—that's the kind of service your tractor should give—will give if it gets proper care.

STANOLIND
Tractor Oil

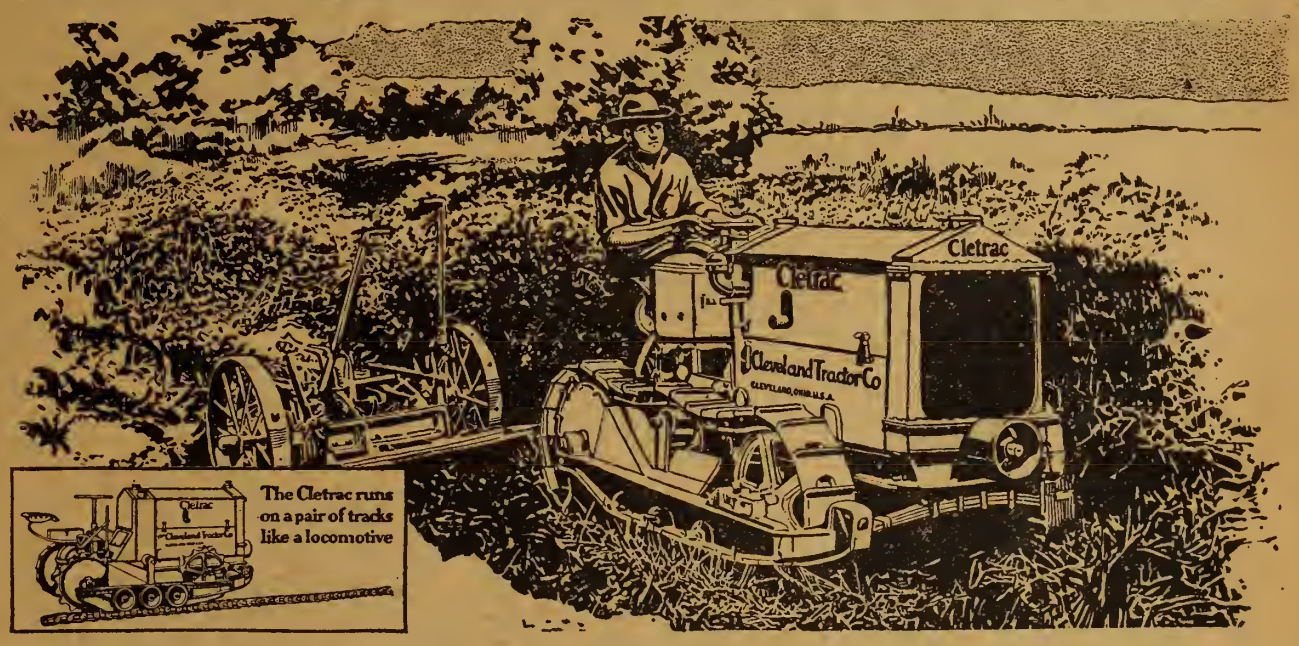
is the oil that the largest tractor manufacturers recommend. It will keep compression right and valves, cylinders and bearings oil-cushioned against wear—even at the high operating heat of tractor engines that work for hours at full load and use kerosene as fuel.

Keep "Stanolind" in the crank-case and you will keep down bills for overhauling and repairs. Join the thousands of satisfied users of this oil.

Buy it from our nearest distributing station or from your dealer.

THE CONTINENTAL OIL CO.
(A Colorado Corporation)
Denver

Salt Lake City, Cheyenne, Albuquerque, Boise, Pueblo, Butte



The Cletrac runs on a pair of tracks like a locomotive

The Tracks Save Power

THE Cletrac Tank-Type Tractor runs on metal tracks like a locomotive. Six wheels, three on each side, carry the entire weight of the machine and run on the endless tracks which are laid down and picked up as the Cletrac goes along.

This distinctive and efficient type of construction enables the Cletrac to go practically anywhere. No matter what the soil conditions, it runs *on its tracks*—nothing stops it.

It doesn't have to expend *extra* energy to push *itself* along. This saves *power*, saves *fuel*, saves *time*.

The power isn't wasted propelling the tractor. It goes into the "pull" on the implement.

And the tracks being broad, *distribute the weight* of the Cletrac as snow shoes distribute a man's weight. Think what that means in the preparation of your seed bed. Think what a tremendous advantage it gives you on hilly ground. Think of the extra power and the lower upkeep under hard conditions. Think of the greater speed and the easier handling.

The Cleveland Tractor Co.
19073 Euclid Avenue Cleveland, Ohio
Largest manufacturers of tank-type tractors in the world

Cletrac
TANK-TYPE TRACTOR
(Formerly known as the "Cleveland Tractor")

See your Cletrac dealer *today*. Early ordering is important. *Write for the illustrated booklet "Selecting Your Tractor".*

Bulletin on Hay Baling

Were it as easy and simple to save hay when it rains as it is to make hay when Old Sol has his blast furnace working to capacity, hay producing and marketing problems would, to a certain extent, be simplified. To put a gauge on the weather man and to regulate the amount of dew, rain, and sunshine served out during the hay-making season, would be the hay farmers' dream of Utopia. Although the hay raiser can not cash in on any such a vision, he can materially improve his hay revenue by more careful market preparation of his cash crop of forage. Uncle Sam wants to help every farmer to make the most of his surplus hay crop, and hence he has just published Farmers' Bulletin 1049 which is replete in helpful hints and practical suggestions on when, why, and how to bale hay and manage baling crews.

Hay is graded according to the way in which it is baled. Bales of uniform size and of neat, attractive appearance bring top prices, other conditions being equal, while ragged, unsightly bales are penalized. In baling hay for market, various practices are in operation; some are followed unconsciously or in order to avoid extra work, while others are followed deliberately with intent to deceive the buyer, which tend to lower the market value of hay in the bale irrespective of its actual quality.

The bulletin describes the various types of hay presses, discusses their adaptability and operation under different conditions, and gives detailed information concerning the management of baling crews. The question of owning a press or hiring the work of baling is rather fully considered, as it is believed that many hay growers who now hire custom balers would do well to give careful consideration to the advantages that may accrue from having a press on the farm.

Presses are divided into three classes, according to the manner in which the bale is made—loose, or box presses, perpetual or continuous presses, and round-bale presses. These machines are operated either by horsepower or by steam, gasoline or kerosene engines. The perpetual press, which is the most popular type in all sections where hay is grown for market, features continuous pressing; that is, hay is fed into the press, a forkful at a time, and the finished bale is discharged from the opposite end of the bale chamber without stopping the press. If the hay is properly fed into the press it will be easy to separate the bale into as many portions for feeding as there are numbers of charges in the bales, which varies from 6 or 8 to 15 or 20. The first box presses were operated by hand, but now they are run by horsepower or by engines. The box press always makes bales having the same or "even" length, a very valuable feature when loading cars. Bales of even length can be made with a perpetual press also, but not as easily as with the box press. A disadvantage of box-pressed hay comes from the difficulty experienced in separating the bale into small portions for feeding, because the hay is generally more or less tangled or matted together.

According to investigations of the United States Department of Agriculture, the cost of baling prairie hay from the windrow, with the power press, amounted to 98 cents a ton, while the cost of baling with a 2-horse press was $1.67. In the alfalfa and Johnson grass belt of the south the cost was 79 cents for baling with the power press from the cock and $1.04 for baling with the horse press.

The prewar price charged by custom balers was from $1.50 to $2 a ton. When the minimum rate was charged the hay grower was sometimes required to furnish enough pitchers to deliver the hay to the feeder. In some instances the hay grower also boarded the crew. Within the last year or two the rate for baling hay has been considerably increased. A charge of from $2.50 to $3.50 a ton is not uncommon in many sections at present. This price may or may not include the cost of the wire and of getting hay to the press.

Ask Western Farm Life Service Bureau.

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS, grandsons Missouri Queen No. 750, famous long distance layer, Missouri Ex Station. W. W. Goodwin, Route No. 2, Canon City, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

ORPINGTONS

WHITE ORPINGTON HENS, PULLETS AND cockerels for sale. Mrs. W. H. Persyn, McClave, Colo.

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

THOROUGHBRED BUFF ORPINGTON AND S. C. White Leghorn Roosters; price, $2.50 each. Mrs. Lizzie Knuth, Westcliffe, Colo.

BUFF LEGHORNS—R. I. REDS—BEST LAYers on earth; fancy cockerels, Mammoth Pekin drakes. I want your market poultry. Champney, 2057 South Broadway, Denver.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

FOR SALE—FARM OF 320 ACRES—FOR particulars write Jason Carter, Cope, Colo.

WANT TO HEAR FROM OWNER OF FARM for sale. Mrs. W. Booth, H. P. Sta., Des Moines, Ia.

HAVE 120 ACRES WELL IMPROVED FARM a bargain if taken at once. For particulars write Peter Hansen, Grand Valley, Colo.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33 St., Chippewa Falls, Wis.

WANTED—TO HEAR FROM OWNER OF good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

$225 PER ACRE BUYS 160-ACRE FARM; free water, artesian well, 6-room brick, on Federal Blvd., one mile from city limits. Terms, one-half down. Owner, Mrs. Patrick, Highland Station, Route 5, Denver, Colo.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine soil; worth $100 per acre in cultivation; on railroad; foreigners must have first naturalization papers; stamps for particulars. Homeseekers Information Bureau, Sacramento, Cal.

IRRIGATED RANCHES AT SMALL COST IN the Arkansas Valley. No other soil in Colorado excels the tracts now available near Fowler. And ranches can be had at present for from $40 to $75 an acre with full water rights. You can figure what the chances for development will be. Reservoir under construction and expected to be completed next spring will water twenty thousand acres. Ranchmen will sell some of present holdings at the low prices to better enable them to handle intensive cultivation under increased water available. Water rights under mutual control of land owners—essentially a ranchman's organization—but company itself has no land to sell. Company will handle all inquiries for ranchmen who have the land. Corn, wheat, alfalfa, beans, forage crops, sorghums now grown by irrigation. Big yields of sugar beets, also melons, can be grown. See the land, or write for information. The Apisapa Consolidated Irrigation Co., H. H. Knowlton, Sec.-Treas. Box 337A, Fowler, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—ONE REGISTERED JERSEY BULL Sure breeder. R. O. Darling, Rt. 1, Sedgwick, Colo.

MONEY TO LOAN ON CATTLE. IF INTERested call or write. F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis Streets, Denver, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis.

WE OFFER 25 REGISTERED HEREFORD heifers which won third prize at the last stock show, Denver. We have besides two good yearling bulls and several this year's bull calves for sale, all best Anxiety breeding. J. O. D. Ranch, Aroya, Colo.

150 HEAD OF PUREBRED HEREFORD BREEDing cows and six registered bulls. About 30 or 40 of them are registered, balance unregistered, but purebred. They are all bred to the best bred registered bulls. The registered cows are aged, but good for several years yet, and a good bunch to start a registered herd. I can deliver these cows November 1st, when calves will be taken from them. There are 140 calves on these cows now, can you beat that for breeders? I save all bull calves for bulls. Address H. Bert Cave, Littleton, Colo.

HOGS

FOR SALE—PIGS, CHEAP, FROM WEANING size up, big type (registered). Write F. L. Toliver, Fort Collins, Colo.

FOR SALE—A FEW BIG TYPE DUROC boars left by the wonderful Orion Cherry King. E. W. Brown, Mitchell, Neb.

FOR SALE—PUREBRED POLAND CHINA male pig and two gilts. F. L. Young, Route 1, Golden, Colo.

250 CHESTER WHITES—FALL AND SPRING boars and gilts, record, weanling pigs, pair not akin, state fair winners. Liberty bonds accepted at face. Earl Bloom, Bridgewater, Iowa.

FOR SALE—REGISTERED BIG TYPE DUROC Jersey hogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

A FEW 3-MONTH-OLD BOARS LEFT, BY Orion Cherry King 15th. Have same age gilts and some very choice gilts sired by Orion Cherry King 15th and bred to a Defender boar. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

HORSES.

REGISTERED JACK 8 YEARS OLD AND ANother registered one; a yearling, good bone, length and color. J. O. D. Ranch, Aroya, Colo.

SHEEP

FOR SALE—9 REGISTERED LINCOLN rams, 7 last spring lambs, the remainder 2 years old. Price $50.00 per head. Write T. M. Deal, County Agent, Fairfield, Ia.

FOR SALE RAMS. NOW IS THE TIME TO speak for a pure blood, Cotswold ram lamb. $35.00 each, one or 50. Lambed in March, ready for service, in September. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo., Phone Eng. 898J.

FOR SALE—400 HEAD PURE BLOOD COTS wold breeding sheep, one to four years. Reason for selling, lady owner and poor health Price $25 per head. An income of $8,500 per year can be made from these sheep. J. B. Snodgrass, Rt. 2, Box 119, Littleton, Colo. Phone Englewood 898J.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

KANRED SEED WHEAT—BIG YIELDER, early maturing, very winter hardy, $2.50 per bushel; cotton sack extra, 60c each. Frank Kirgis, Beloit, Kans.

PURE KANRED SEED WHEAT; DEVELOPED at Kansas experiment station for dry land. Yields 30-50 per cent over Turkey-red. $5.00 per cent. Recleaned, sacked, F. O. B. Pueblo. Emerson Lambuth, Elmore Farm, Goodpasture, Colo.

LUMBER

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

MASON SOLD 18 SPRAYERS AND AUTOwashers one Saturday; profits, $2.50 each. Square deal. Particulars free. Rusler Company, Johnstown, Ohio.

U. S. GOVERNMENT WANTS HUNDREDS railway mail clerks. Commence $90 month. Raise to $150. Fall examinations likely everywhere. Common education sufficient. Sample questions free. Write immediately. Franklin Institute, Dept. K. 172 Rochester, N. Y.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

CENSUS CLERKS; RAILWAY MAIL CLERKS; mail carriers wanted by Government. Thousands men, women needed, $1,100 year, common education sufficient, list positions free. Urgent. Write today. Franklin Institute, Dept. L-171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LARGE ASSORTMENT OF ALL KINDS OF burlap sacks. Western Sack & Burlap Co., 2727 W Colfax, Denver, Colo.

AUTO AND TRACTOR SCHOOLS.

THE DENVER Y. M. C. A. AUTOMOTIVE School guarantees satisfaction in teaching these trades—Automobile repairing; tractor operation and repair; Oxy-acetylene welding; vulcanizing and tire repair; starting, lighting and ignition; machine shop practice. 334 students last year. Tuition fees moderate. Practical work under seven practical instructors. Write today for illustrated booklet. The Y. M. C. A. also conducts splendid preparatory and commercial schools for young men.

GROCERIES & SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. Best beet sugar, hundred, $10.20; 5 lb. can Calumet baking powder, 90c; 3 lb. Baker's bulk Cocoa, $1.00. With every auto casing you buy, we give you a tube free. Best sized binder twine, $23.35 per hundred. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

BEE SUPPLIES AND HONEY

DELICIOUS NEW HONEY, 60 POUND CASE, $10.50. A. A. Lyons, Ft. Collins, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

Live Stock Field Notes

The State Agricultural College at Fort Collins, Colo., announces some good Poland China and Duroc Jersey Boar Pigs for sale. They also have a Holstein Bull which was sired by the son of a 900 pound cow; and also a good Holstein bull. Read their ad in this issue of Western Farm Life.

Dr. F. T. Daly, owner of the famous Lakeside Herd of Duroc Jersey swine at Cambridge, Nebraska, reports the sale of boars to H. V. Brown of Morrill, Neb., Arthur Gandreault, Farnam, Neb., A. R. Ford, Elwood, Neb., Henry Anderson, Eustis, Neb., and John J. Phillips, Goodland, Kas. He still has for sale several outstanding boars by Great Pathfinder, Victory, Diamond Model Supreme and other noted sires.

Mr. Caldwell Martin, owner of the Edgemoor Farm at Littleton, Colo., has just announced the winnings of his herd of Durocs at the State Fair this year. His Duroc winnings included the Grand Champion Boar, Grand Champion Sow, Reserve Champion Sow (over year), First Prize Aged Herd, First Prize Aged Boar, First, Second and Third Prize Aged Sows, First Prize Futurity Boar. With 21 premiums won by his herd this year Mr. Martin has a right to feel proud.

FOR SALE

I can show buyers 600 registered Herefords, also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding stock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

REGISTERED DUROC SPRING PIGS

Fine quality, smooth and well grown
LA BELLE RANCH
Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver

H. G. SQUIBB AURORA, COLO.

YOUNG HOLSTEIN BULLS

Crescent Beauty Segis, Canary Sired by a son of King Segis Pontiac who had 101 A. R. O. daughters, and whose dam produced 37 lbs. of butter in 7 days. This bull's dam produced 18 lbs. butter at 4 years and 7 months. A fine individual—nothing but good blood back of him. Bull Calves With Equally Good Breeding
W. A. PURVIS Johnstown, Colo.

COL. H. C. JENNINGS
Pure-bred Livestock
AUCTIONEER
Also conduct Sales of Real Estate
534 17th St. Denver, Colo. Phone M-6870

Wyoming 4th

L. G. DAVIS HEREFORDS
ANXIETY-BRED

Sires in service:

The great **BEAU CARLOS 2D 352001**, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

Western Holstein Farm
HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 5½ miles southwest of Denver on the Morrison Road.

HIGH CLASS JERSEYS AND DUROCS
The Western Home of the Majesty's

The name "Majesty" in a jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the hour, is a Majesty, and related to many in my herd, and to "Majesty's Feather Lad,' son of the show cow, Majesty's Feather Lass, 712.13 butter.

I have some extra fine young cows and heifers for sale. Have some extra fine bull calves, two out of half sisters to the great "Financial Sensation," the $60,000 bull. One out of Imported Cowslip's Sweet Bread, a R. of M. cow. Also others. These are extra fine calves, and my prices are right.

Two or three November gilts, by a son of Top Sensation. Write me.

A. M. McCLENAHAN, Greeley, Colorado

SPECIAL SALE OF SPRING PIGS
Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

THE HEREFORD CORPORATION OF WYOMING
Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively
Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyo.
406 New Live Stock Exchange Building, Union Stock Yards, Denver, Colo.

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent **JAMES C. ADAMS, Salesman**

FOR SALE

A few good Poland China and Duroc Jersey boar pigs still on hand.

Holstein bull from cow with 576-pound record, sired by son of 900-pound cow.

One Good Shorthorn Bull

DEPARTMENT OF ANIMAL HUSBANDRY

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Were the Leading Winners at

The Colorado State Fair, 1919

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GRAND CHAMPION BOAR
GRAND CHAMPION SOW

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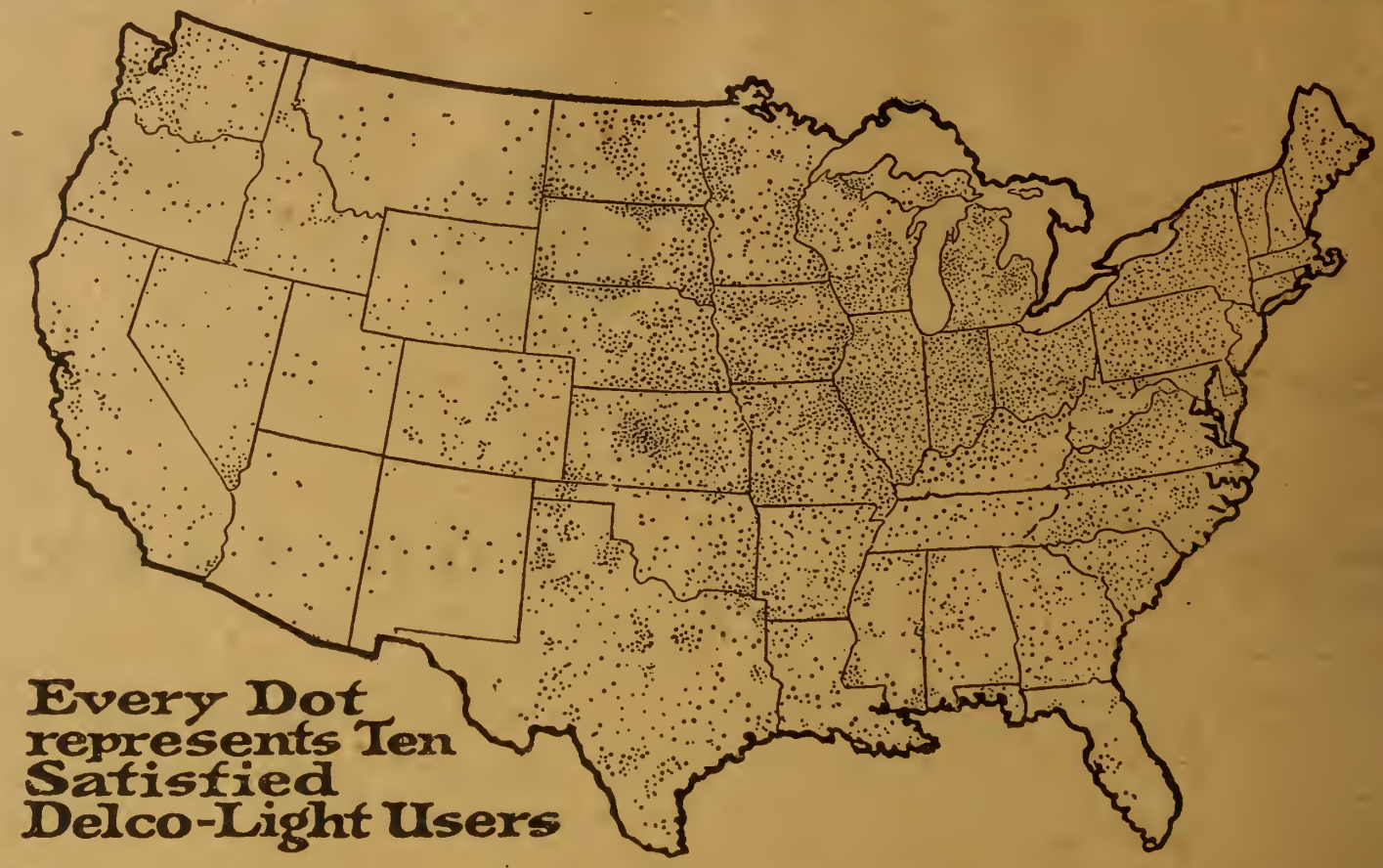

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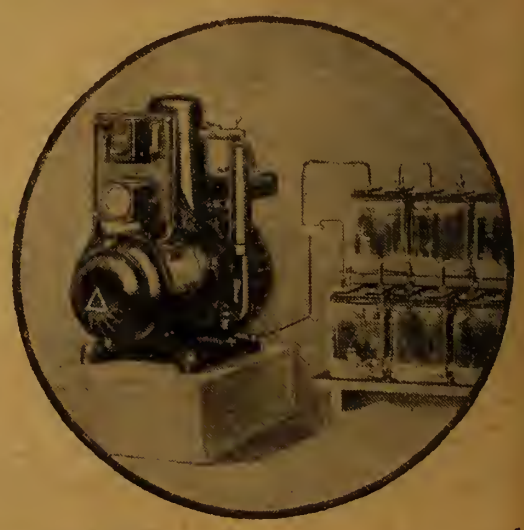

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WESTERN FarmLife

Vol. XXI Denver, Colorado, October 15, 1919 Semi-Monthly

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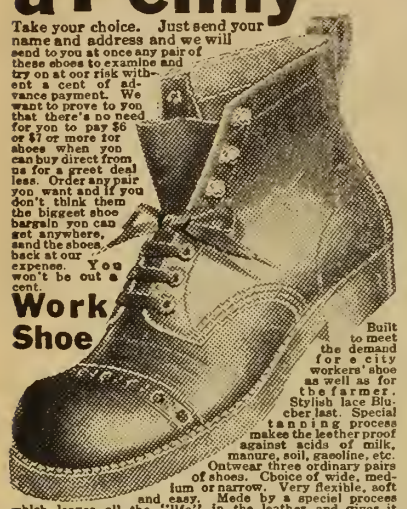

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32x3½	7.00	2.00	36x4½	11.50	3.40
31x4	8.00	2.25	35x5	12.50	3 50
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The Bridger Valley Fair

T. S. PARSONS.

The Bridger Valley Fair and Stock show was held this year at Mt. View in Uinta county, Wyoming, on September 17 and 18. While more of a district fair than a county fair it was better in the number of livestock and quality of the agricultural produce exhibited than many of the county fairs in the state. In fact there was a larger number of cattle, horses and hogs than was shown at the State fair.

The cattle had just been brought in from the range but were in excellent condition. Dr. F. A. Hays, animal husbandman of the experiment station, said the stock was better than any he had seen at county fairs this year. He also expressed surprise at the number and quality of the horses, sheep and hogs shown. The sheep were especially fine.

Very substantial prizes were given for livestock but the one probably the most sought for was the silver loving cup given by the Ogden Commission Co. for the best pen of steers. The trophy was won by Mr. J. H. Newton, of Mt. View, and he had reason to be proud of it. An interesting feature of the fair was a pulling match between the teams that were entered as individuals in the various classes of horses.

One entire room of the school building was filled with the women's work. There was an endless array of fancy work, sewing and weaving on walls, chairs and tables. Other tables were loaded with bread, cakes and canned fruits and vegetables of all kinds. Miss Mary Rokahr, state leader in home demonstration work, was the judge in the women's department, and she had a task. The school exhibit occupied a large hallway in the school building and was one of the best seen in the state. The Lyman, Mt. View, Robertson anl several of the country schools had exhibits. The primary exhibit from Lyman would do credit to any city school.

The agricultural exhibit, which occupied one of the large rooms of the school house, was to the writer the most wonderful part of the fair Grains, grasses and vegetables and, in fact, practically everything that can be grown on a farm or in a garden, was on display, and when one realizes that all this was grown at the altitude of 6,800 to 7,000 feet and in a season such as the present, the wonder is still greater. Very good corn that was practically matured, and cucumbers, tomatoes, squash and other tender vegetables were shown in profusion. But little threshing has been done in the valley, so only a little threshed grains were shown. but the sheaf exhibits of both grains and grasses were very fine. The displays were put up in such good shape and the selections as to quality were so good that judging was a pleasure. In one case a boy competed against his father in the general display and gave him a hard run for premiums.

The sweepstakes for the best display of garden products was won by Frank Addis of Mt. View. The sweepstakes for the best general agricultural display went to George Bradshaw of Lyman. A large silver loving cup was given for this display. A small exhibit of vegetables by the boys and girls clubs also received its share of premiums.

Mt. View is one of the growing towns in the southwestern part of the state. It is about 16 miles from Carter, the nearest railroad shipping point. The town has good stores, and a new bank and large consolidated school building are now in process of erection. This and Lyman are the leading towns of the valley and are the center of a fine agricultural section.

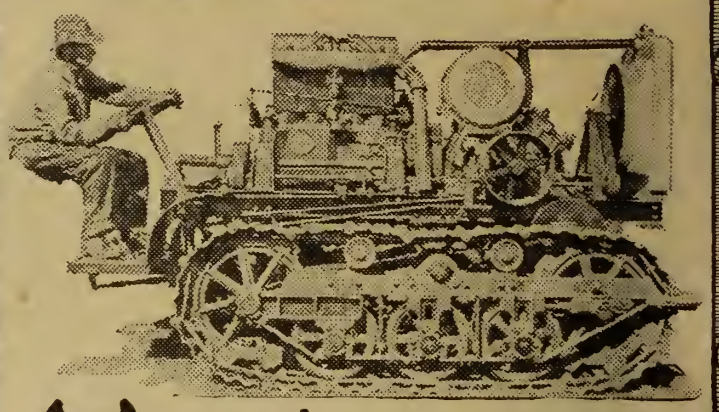
The Bridger Valley fair has been held at Lyman and at Mt. View in alternate years. The fair has been good but will not be complete until it has a permanent location. With permanent grounds and buildings, it will become in a few years one of the best fairs in the state.

Easy

First Farmer—How do you find your new hired man, Ezry?

Second Farmer—I look in the shade of the tree nearest his work.—Buffalo Express.

Monarch



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There is only one way to get proper traction on a tractor—and that is the MONARCH way—by means of the endless MONARCH tread. It grips the ground with an unfailing creep to which hills, grades and loads are no obstacle.

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There is no secret to MONARCH success. The cause is self-evident as soon as you look at a MONARCH Tractor. It is built to perform—to give *traction* and it looks the part. It has a combination of mechanical features all designed to give that brand of continuous, reliable service that makes tractor farming an economy.

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16-9 H. P.—The right size tractor for the average farm. Small enough to be handy for such work as orchard cultivation, powerfull enough to pull from two to three bottoms.

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Makes the cleaning of skillets and pans as easy as washing a dish—no more scraping and scratching with a knife—makes the most disagreeable part of kitchen work the easiest.

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WESTERN FARM LIFE

A Western Magazine for Western Farmers and Stockmen

Comprising Ranch and Range, Farmers Life and Fruit Journal, Trans-Mo. Farmer and Ranchman

Largest Circulation of Any Farm Magazine in the West

Volume XXI | DENVER, COLORADO, OCTOBER 15, 1919 | Number 20

Fine Showing of Stock and Crops at State Fair

CATTLE, HOGS, SHEEP, HORSES FROM WEST'S BEST HERDS THERE

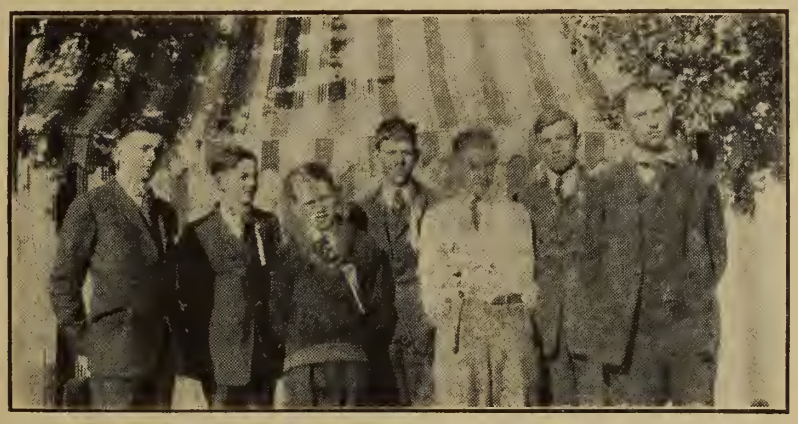
ALVIN T. STEINEL

COLORADO State fair awards now mean something to the breeder of the mountain and plains territory. Strong competition was provided in all livestock classes at this year's fair, held the latter part of September at Pueblo. Agricultural and horticultural displays were well up to the fine standard set in 1918, but livestock showed a great increase in all departments, in number of herds represented and in the quality of individual exhibits. This was particularly true in the swine division, where great advances over previous years were indicated. In 1918 the whole show was composed of Duroc Jerseys, with one herd of Berkshires and one of Poland Chinas. This year the Durocs still held the boards by a great majority, but there were several herds of Polands, and these were of outstanding merit, as well some Berkshires and a pair of sapphire or blue hogs, developed by a Massachusetts breeder in the last few years. This pair was exhibited by John Harbert of Manzanola, Colo.

These hogs are being bred for color and they attracted attention for that reason and not because of any quality that would make them preferable to the established breeds. Their bristles are really of a bluish tinge and they were admired as freaks of the swine family.

The dairy division has been growing each year and there was only one breed missing, and that is the Jerseys. Just why the Jersey breeders of the eastern slope are so conspicuous by their absence from the state and many of the county fairs is puzzling the writer, who knows of so many good herds that might have been at Pueblo. A few of our Jersey breeders, notably our good friend McClenahan, who breeds the Majesty strain at Greeley, are usually at the National Western show in Denver. Others on the western slope, especially the Grand Junction herds, find the trip over the range too hard, and reserve their herds for western slope and Utah shows and fairs. But there are many others around Denver and Pueblo and in the northern Colorado and Arkansas valley condensery districts, who own stock that can be shown with credit in any competition, who might bring about a wider dissemination of good Jersey blood if they appeared annually at the state fair.

The Holstein breeders were there with both feet, hide, hair, horns and tail. In addition to providing lively competition there was also a Holstein sale scheduled for Thursday of fair week. Mrs. A. M. R. Crooks dispersed her registered herd, except the herd sire and four cows, which were kept back for supplying her ranch with milk and cream. She conducts a fishing resort on the Gunnison river, and needs a few good producers to supply her summer tourist table. She is now out of the Holstein breeding game. The sale was not as lively as expected, as cow buyers were few, the audience being composed principally of breeders who had brought stock to the fair. Col. H. E. Buchanan of Denver, who cried the sale, put in a good day's work disposing of about thirty-five head. No sensational prices were paid, the best cows going for $300 to $400, which is not big money for producers with a good pedigree.



Wining Team in Stock Judging Contest at State Fair. Reading from left to right: J. T. Tingle, State Pig Club leader; Harvey A. Jones, Fort Collins; William McCutcheon, LaPorte; Frank Rodgers, Wellington; John Jensen, Berthoud; Myrle Stockon, Fort Collins; W. S. Hill, Larimer County Club leader.

The herds represented in the Holstein division included Bellplain farm (Fred Jensen), who had the grand champion cow, Woodcroft Empress Josephine 120539; it was her second time as grand champion of the state fair; Amity Canal Model Dairy farm herd from Holly; Ben F. Simpson's Denver herd; the Western Holstein herd of Hall Brothers; Spencer Penrose's Columbine herd of Colorado Springs, which included the grand champion bull; Woodcroft Farm herd, Pueblo, in which are included some of the leaders of the breed; Cruse & Son's Mount Morrison herd; Blue Ribbon Farm Holsteins of Pueblo and L. C. Donley's Avoca Lodge herd.

In Guernseys the competition was restricted to two herds with the honors about equal, the contenders being F. C. Kay of Pueblo and W. O. Bohart of Bozeman, Montana. The latter also brought a herd of Brown Swiss cattle, the first that have been exhibited at any Colorado State fair.

The Milking Shorthorns were represented by only one herd, that of Wyldmere farm, Littleton, in which are included some straight Bates cattle that took the eye of breeders.

W. S. Moscrip of Lake Elmo, Minn., gave excellent satisfaction as judge in the dairy classes.

The beef Shorthorns, for some reason were not represented, but the Hereford men were there with some of their best, the exhibitors including the Hereford Corporation of Wyoming, W. N. W. Blayney of Denver with his famous string of the great Wyoming's progeny; L. C. Grant of Avondale, with his herd of Upland Hereford; J. D. Canary of Denver, with the get of Repeater 63d; George W. Baker of Littleton, with some of Rolling Acres whitefaces and the Glendale Stock Farm herd of Polled Herefords, from Aspen, which rank among the best polled whitefaces in America. It was a good Hereford show; not so very big but choice in the type of indivduals and families represented, and showing a tendency on the part of breeders to make the state fair worth while. Let us hope that the Shorthorn men will come along next fall with a representation worthy of that breed.

There was a small but strong showing of sheep, the herds included being the Wyoming Corriedale Sheep company, Thomas King with Colorado Cotswolds and Gilmoreland Shropshires from Fredonia, Kansas, the latter showing some imported Shrops that pleased both sheepmen and farmers.

Kit Carson County Canning Club, Winners of First Prize in State Contest. Reading from Left to Right—Miss Amelia Alexander, Club Leader, Vivian Worley, Elaine Hendrioks, Bertha Boger

One of the most interesting and successful features of the state fair was the encampment of the boys' and girls' agricultural clubs. About 250 young people were housed in the tents at one time during the three days devoted to this work, which was in charge of Miss Maude Sheridan, state club leader, assisted by Miss Eunice Kennedy and others of the Agricultural college staff. Winners in various club activities were sent by their respective counties to Pueblo as a reward for excellence in the growing of crops or livestock, or in some line of home economics work.

Mr. Wyatt Boger, a member of the State Board of Fair Commissioners gave his personal supervision to the club encampment and saw to it that the young people were given a chance to inspect every department of the fair, including the grandstand events as well as exhibits. President Wilson's visit to the state fair proved an added attraction for the boys and girls from the rural districts, who otherwise would not have been privileged to get a glimpse of the nation's chief executive. Another thing that appealed to the boys and girls was the thrilling exhibition given every day by the aviators, the balloon ascension with parachute drops and other hair-raising stunts.

There are two sides to the story. Not only were the young people there to see things but they came to show what they had produced, as well as to provide an entertaining pageant for the benefit of state fair spectators. This pageant was the chief feature of the grandstand program on the second day of the fair. There was a splendid exhibit in the swine division made by members of the pig clubs and one of the youthful exhibitors, William McCutcheon of Larimer county, had the distinction of winning in the Duroc Junior Gilt class over all exhibitors, including some of the state's best breeders.

One of the educational and practical features of the encampment was the stock judging contest in which forty young people participated—thirty-nine boys and one girl. Holstein dairy cattle, Hereford beef cattle and Duroc Jersey and Poland China hogs were judged by these young people. The winning team in all classes was from Larimer county, the score being 1,525 points. Otero county was second with 1,503 points, Saguache third with 1,470 points and Pueblo county received honorable mention with 1,421 points. The Larimer county team was composed of Myrle Stockon, Fort Collins; John Jensen of Berthoud; Frank Rodgers, R. F. D. 1, Wellington; William McCutcheon, LaPorte, and Harvey A. Jones, R. F. D. 1, Fort Collins. These young men were trained under the leadership of Mr. W. S. Hill, county club leader, and D. C. Bascom, the county agent of Larimer county. Mr. Hill accompanied them to the state fair.

In announcing awards made in the stock judging competition Mr. J. T. Tingle of the U. S. Bureau of Animal Industry, who has been in charge of pig club work during the last two years, gave some interesting incidents

(Turn to Page 14)

Dairy Breeding Experiment is Started in Idaho

TO COMPARE INBREEDING, LINE BREEDING AND CROSS BREEDING

WHEN two young bull aristocrats started out on a journey to their new home in Idaho recently, an experiment which will interest cattle breeders was started under way. These two bulls, both of which have enviable family trees, were sent to the University of Idaho—not to learn but to teach—and the subject they will demonstrate is "The Best Method of Fixing and Insuring Uniform Transmission of High Production in Dairy Cattle."

The shipping of these two bulls, one a Holstein and one a Jersey, was the first step in carrying out a co-operative

Daughter of Hillside Torono, Who Heads the Government's Experimental Jersey Herd. This Cow Is the Dam of the Bull to Be Used in the Idaho Experiments

experiment, undertaken by the Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, and the Department of Dairying, University of Idaho. The object is not to improve the high producing dairy animals already in existence, but to determine a method of breeding that will produce the better animals in larger numbers. When this method is determined and put to practical use, as it undoubtedly will be, it will result in a great advance to the dairy industry. It is the average production—the production of the rank and file—that counts, and this experiment is aimed at raising that average, rather than producing a few record breaking cows.

The experiment to be carried out at the University of Idaho is a part of a general plan for extensive breeding experiments, outlined by R. R. Graves, of the Federal Department's Dairy Division. Other experiments similar to the Idaho project will be carried out directly with the herds of the Dairy Division and co-operatively with herds of State experiment stations and individual breeders. These experiments will fill a long felt need for a series of carefully planned tests, involving a large enough number of animals, and extending over a sufficient length of time to warrant accurate and definite conclusions as to the best method of breeding. While the need for this work has long been recognized, the cost of the work and organization required to handle it successfully has prevented private individuals from trying it.

A Unique Experiment

In the Idaho experiment the following methods of breeding will be compared: In-breeding vs. out-breeding, and line-breeding vs. out-breeding. As Holsteins and Jerseys predominate in the University herds, the Holsteins will be used in the in-breeding and the Jerseys in the line-breeding work. No cross-breeding experiments will be attempted with these herds, but as this type of work is included in the general plan, it will be carried on with the herds of some other station or breeder.

According to the rather unique agreement with the University of Idaho, the Dairy Division will furnish the bulls used in the experiment, and the University will furnish the cows. The experiments will be carried out with the animals in the University herds, and not less than 12 females are to be used as the foundation herd in each experiment. The females and their progeny are to remain the property of the University, while the bulls will remain under the ownership of the Bureau of Animal Industry. The University has agreed to stand the expense of feeding and caring for the bulls, and will retain all females produced in the herd until they have completed one lactation period so that accurate records will be had on the milk production, butterfat test, and date of calving for all daughters of each sire.

Why Results Will Be Valuable

The results of the experiments should furnish excellent data for determining the relative value of in-breeding, line-breeding, and cross-breeding, since the same foundation animals will be the basis of both the in-bred and the out-bred herds. This will make the in-bred animals comparable, generation by generation, with the out-bred animals. In like manner, the same foundation animals will be the basis of the line-bred and cross-bred herds making the line-bred animals comparable with the cross-bred animals.

The Jersey bull sent the University of Idaho is out of a daughter of Hillside Torono, a proved bull recently purchased to head the experimental herd owned by the Government at New Iberia, La. Hillside Torono has three daughters with annual records of over 500 pounds of fat on two milkings daily and a number of good records in the making. Hillside Torono is sired by Pogis 99th of Hood Farm and out of Lass 57th of Hood Farm, the daughter of Hood Farm Torono. The dam of the bull was not tested this year but has been milking 35 to 37 pounds of 5.5 per cent milk a day—two milkings—with first calf. She will be tested next year. The sire of the bull is Hillside Emperor, a grandson of Hood Farm Torono and Pogis 99th of Hood Farm, so that he traces to those two sires on both his sire and his dam side.

In order to bring out the facts in regard to the breeding of these two bulls sent to Idaho it is obvious that the names of their various ancestors together with their records will have to be mentioned from time to time. In doing so it is not to be assumed that the Dairy Division endorses these animals as being necessarily the best animals of their respective breeds and it is not expected that these remarks will be used for such a purpose.

In-Bred Holstein Bull

The breeding of the Holstein bull is unique in that he is so closely in-bred. His sire and his dam carry 87.5 per cent same blood. The sire is a son of Friend Hengerveld De Kol Butter Boy, the sire of Banostine Belle De Kol, 1058 pounds fat; High-lawn Hartog De Kol, 998 pounds fat; Daisy Grace De

Dam of the Holstein Bull to Be Used in Idaho Experiments

Kol, 962 pounds fat; Spotted Ann's Daughter, 871 pounds fat. The dam is also a daughter of this same sire. The sire of the bull is out of a daughter of Pontiac Aaggie Korndyke, four daughters over 900 pounds fat, as is also the dam of the bull, while the great granddam on both the sire and the dam's side are by Friend Hengerveld De Kol Butter Boy. The bull going to Idaho traces to this latter sire four times, twice on the sire's side and twice on the dam's side, and traces twice to Pontiac Aaggie Korndyke, once on the sire's side and once on the dam's side.

On account of the length of time required to complete such an experiment, results will not be known for a long time, but when the work is finally completed the conclusions arrived at should be of real value.

Legumes and Cereals are Tested as Silage Crops

MISSOURI EXPERIMENTS OF INTEREST TO WESTERN FARMERS

THAT leguminous crops and cereals can be ensiled so that they will make a satisfactory and palatable feed is brought out in a bulletin just issued by the Missouri Agricultural Experiment Station, under the title "Legumes, Sudan Grass and Cereal Crops for Silage." The author is Dr. C. H. Eckles, head of the dairy department, under whose supervision tests have been made covering a period of four years. The bulletin calls attention to the generally expressed opinion among agricultural writers and experimenters that legumes are not well suited for silage, as well as to the exceptions, citing among these the tests reported by Prof. R. W. Clark, now of Colorado Agricultural College, who carried on work for three years at Montana and found clover to give good results when ensiled. The point brought out in the bulletin is that past failures in making silage from leguminous crops have been due, largely, to the fact that the crop was put in before being allowed to cure in the field at least five to six hours, thus reducing the moisture content.

One of the most interesting results for Colorado and neighboring states is the report on sweet clover which though not a part of the college test, tells of a seventy acre crop that was ensiled and fed to cattle in a fattening ration with entire satisfaction. This may interest farmers in the irrigated sections where large crops of sweet clover grow wild on wet lands. If this crop can be cut with the mower at the right stage and put into the silo it means a saving of many tons of feed now going to waste.

Following are extracts from the bulletin showing results with the various crops:

Field Peas and Oats

The results of the six experiments in preserving field peas and oats in the silo show clearly that an excellent quality of silage may be secured from this crop. When the results are studied in connection with those from trials with other crops reported, there is no doubt as to the conditions necessary for making a good quality of silage. Other than the usual precautions necessary for making silage of any crop, such as expelling the air by cutting the material into short lengths and by thorough tramping, it is necessary with peas and oats, as with legume crops alone, to make sure that the water content is not too high. The best means of controlling this feature is to allow the crop to reach the proper stage of maturity, when the water content will naturally be such as to insure the proper preservation. The proper stage is when the oats are in the late dough stage or showing first signs of turning yellow. The pea pods should be showing indications of approaching maturity by a slight yellowness of the pods. At this stage the crop will contain between 30 and 40 per cent of dry matter, which is the condition necessary for making a good quality of silage. If it is desirable to put the crop into the silo before it reaches the proper stage of maturity, good silage may be made by reducing the water content by allowing the cut crop to lie in the field for a few hours. A crop cut when the peas are in bloom and the oats in blossom will have only about 20 per cent of dry matter. This may be increased to between 30 and 40 per cent by exposure for five to six hours in the sun, or until the plants appear wilted but not dry. * * *

Soybean Silage

The results of the three tests show that the quality of soybean silage may vary from a condition making it almost worthless for feeding to one in which it is an excellent feed and quite palatable. The experiments reported, when considered in connection with those from other legumes, show that the factor which determines the quality of the silage for these crops is primarily the amount of water present. Soybeans containing between 30 and 40 per cent of dry matter when put into the silo kept well, showing a loss of feeding value of no more than for corn, and made a silage palatable for livestock. When possible, it is best to allow the crop to reach the proper stage of maturity before cutting, but if this is not practicable on account of the danger of frost the same end may be reached by cutting the green crop and allowing it to lie in the field until wilted. This requires an exposure of from five to eight hours in the sunshine. If the material becomes too dry before it is possible to get it into the silo, water may be used. * * *

Silage from Cowpeas

It is possible to make silage of good quality from cowpeas alone if it seems desirable. However, if put into a silo in a very succulent condition, which accompanies immaturity of the plant, the quality of the silage will be too inferior for use. The same principle should be observed as in putting any legume into the silo. The crop should be allowed to reach the proper stage of maturity if practicable. If not, the excessive amount of water should be removed by allowing the cut material to dry for a time in the field. The best plan, however, when feasible, is to mix the cowpeas with the corn as it goes into the silo. Where very succulent green peas are to be used it is well to allow the corn to stand until a stage is reached that would ordinarily require the addition of some water, since the high water content of the peas will add a sufficient amount to preserve the mixture in a good condition. * * *

Alfalfa Is Satisfactory

The experiments reported show clearly that under proper conditions entirely satisfactory silage may be made from alfalfa and the loss in constituents, either total dry matter or protein, when in the silo is even less than for corn. On the other hand, when conditions are not properly controlled the resulting silage is decidedly inferior in quality to a point where it is almost worthless for feed on account of its strong odor and taste of decomposition. Under these conditions the loss in feeding value in the silo may be as high as 20 to 25 per cent, or three to four times the loss in corn silage.

The important factor which determines the keeping quality of alfalfa silage is the water content. For the best results, alfalfa should contain nearly 40 per cent of dry matter when put into the silo. The limits for good results seem to be between 30 and 50 per cent of dry matter, or from 50 to 70 per cent of water. During a season of normal rainfall alfalfa will, as a rule, contain from 20 to 25 per cent of dry matter when in the stage usually cut for hay. During a period of abnormally low rainfall the dry-matter content may be as high as 40 per cent. In order that the plants may continue to grow and produce a good crop for the next cutting, it is necessary to cut the crop before it is sufficiently mature and to have the proper amount of dry matter to make good silage. For this reason, except when the crop is unusually dry and firm as a result of a deficiency of rainfall, it is advisable to allow the alfalfa to lie in the field a few hours after mowing in order to eliminate some of the excess moisture. The proper stage at which to put alfalfa into the silo is when it is wilted but still not dry. In this condition the leaves show the most effect of the drying, the stems are green and pliable, not dry and brittle. If the material gets too dry before filling is complete, no hesitancy need be felt about adding water.

It is doubtful if water is ever needed when alfalfa is put into a silo without drying in the field. Alfalfa may be put into the silo with good results after having been rained on while curing for hay. If the alfalfa was cured, or nearly so, at the time rained on, it may be put into the silo at once after the rain ceases and under these conditions will have about the necessary amount of water to insure good preserving qualities. * * *

Ensiling Sweet Clover

The use of sweet clover as a forage crop has increased greatly within recent years and with this increased use has come a desire on the part of some to preserve the crop in the silo. Very few references concerning sweet-clover silage are found in agricultural papers and the subject has not as yet received the attention of experiment stations.

The trials of legumes for silage re-

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H. R. H. the Rider

ROMANTIC ADVENTURES OF A PRINCE, A MAID AND A HIGHWAYMAN

By EDGAR RICE BURROUGHS—Author of Tarzan of the Apes and Other Tarzan Tales

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I WON'T"

The king tugged upon one end of his gray mustache and frowned upon the speaker.

"I won't," repeated Princess Mary, stamping a royal foot in most plebian anger. "I won't marry a Carlovian. All my life I have been taught to hate Karlova, its ruling house and its people; and now just because your stupid old Stroebel wishes it, you tell me that I must marry one of them."

Stroebel, who was standing upon the opposite side of the wide table at which the king sat, smiled indulgently. He loved the Princess Mary—every one loved her—and he knew that she loved him.

In such a tiny kingdom as Margoth the royal family is not so very far from the people. Instead of being but symbols of power and authority, they are human beings, with familiar attributes which render them very cordially beloved or very cordially hated, precisely as they merit.

And Stroebel, already growing gray in the service of his king, was closer to the ruling house than was any other subject. If Stroebel loved the Princess Mary you may rest assured that she deserved it, for grim old Stroebel was not given to loving.

"Your highness must understand," said he, "that while your happiness is close to the hearts of us all, the welfare of Margoth is paramount to all other considerations. Some means must be found to dissipate the ancient enmity which has so long existed between the kingdoms of Margoth and Karlova, that they may combine against the common enemy which threatens them. Both Baron Kantchi and I are agreed that nothing could more satisfactorily produce the desired result than an alliance between the royal houses of Margoth and Karlova."

"And so you and the ambassador from Karlova have decided that I shall be the hollow horned ruminant!" exclaimed the girl disgustedly.

"The what, Mary?" asked the king.

"The goat!" snapped the princess.

The king's frown deepened, but in the eyes of Prince Stroebel there was an unmistakable twinkle.

"I fail to grasp the allusion," said the king, icily; "but I assume that, like your democratic independence, one must need have had an American education to appreciate it. Stroebel!" and the king banged the table top with his clenched fist as he turned upon his prime minister, "it was your importunity which persuaded us against our better judgment to sanction an American education for the Princess Mary. I hope you are satisfied."

Her royal highness, the Princess Mary, turned a solemn little face toward Prince Stroebel, and—winked. Then she wheeled toward the king, and taking a quick little step in his direction, threw herself into his lap, put her arms about his neck and kissed him.

"Dear old dad," she whispered softly, "don't be cross, please don't; and please, please, please don't make me marry a hideous old Karlovian!"

Through his frown a slow smile touched the lips of the king; but his eyes were sad.

"It is hard to refuse you anything, my child," he said; "but as Prince Stroebel has said, the welfare of Margoth must be first in the hearts of us all. If there are sacrifices to be made, we, to whom God has entrusted the happiness of the people, must be the first to make them. Your childhood has passed, Mary, and now you must be prepared to assume the burdens, yes, and even the sorrows, which your birth entails. Though it fill us with grief, we must face the necessity of such an alliance as Prince Stroebel is negotiating."

"But dad," protested the girl, "their faces are a perfect jungle of whiskers; they have bulbous noses and little, pig eyes. Oh, dad, I could never marry a Karlovian prince. I'd almost rather be an old maid."

"How do you know that the crown prince of Karlova is so ill-favored?" asked the king. "You have never seen him, or the king, his father."

"I know—Carlotta used to tell me about them," replied the girl. "They were always the ogres in the stories she told me at bedtime, and Carlotta knows—Carlotta knows everything. They eat little girls," and the Princess Mary laughed, gaily though she shuddered a bit, too.

"Carlotta is a dear old fraud," said the king. "She is of the old regime Times have changed. Now we must love our enemies, or the great ogre will eat them, and us, as well. But, my dear, I will give you this ray of hope—if, when he visits us, Prince Boris of Karlova proves to resemble, even remotely, the ogres of your old nurse's bedtime stories, he shall not eat my little girl—no, not if the refusal costs me my throne!"

"He is a gentleman," said Stroebel. "I have it upon the best authority that he is both affable and well favored."

"He is a Karlovian," cried the Princess Mary, "and I would as lief wed with the devil. When is he coming?"

"Within the month," replied Stroebel.

It was an angry and much-perturbed little princess who sought her own apartments when the interview was concluded, and confided to her white-haired nurse the horror and misery that was in her heart.

"I will not!" she cried for the fortieth time. "I will not marry a Karlovian!"

Not much more than forty-five minutes from Broadway lies the pretentious estate of Abner J. Bass. In one corner, hidden from view by hedges and shrubs, is an old-fashioned garden—the especial and particular delight of Miss Gwendolyn Bass, only child and sole heir to the Bass millions.

Buried still further from sight at the far side of the old-fashioned garden is a rustic seat, upon which, during a certain lovely afternoon of a June day, a young man sought to hide two dainty little hands within the strong and generous grasp of his own

"Gwen," he was saying, "I wish to thunder you were the gardener's daughter, without any incalculable millions looming between us—your father'll never be able to see me as a prospective son-in-law, even with the aid of a magnifying glass."

"Oh," cried the girl, in mock chagrin; "of course, if you prefer the gardener's daughter, there is one; but I rather think she prefers the chauffeur. And as to the millions—well, they're mighty nice to have in the family—and you needn't worry about father. He's for any one I'm for. It's mother you've to persuade—as a loomer mother has the millions beat a city block. You might see mother, Hemmy; but I'm afraid it won't do a bit of good—mother has ideas all her own."

"And if mother refuses?" queried the young man.

The girl raised her shapely shoulders and threw her hands outward, palms up. "If I were a star reporter on a great metropolitan daily," she said, "I should, I think, be more resourceful than your helpless inquiry indicated you to be."

"I suppose that you'd run off with the girl?" he said, laughing.

"That is precisely what I should do," replied Miss Gwendolyn Bass.

"Well, so shall I," he cried.

"With the gardener's daughter, I presume?" asked an acid voice behind them.

The two turned surprised faces in the direction of the speaker. Mr. Hemmington Main rose, rather red of face, and bowed low.

"Mrs. Bass, I'm—I'm might sorry," he stammered, "that you chanced to overhear our joking remarks. It was my intention to come to you and Mr. Bass and ask your daughter's hand in a perfectly regular manner. I love—"

The older woman stopped him with uplifted hand. "It is useless, Mr. Main," she said, coldly. "I have other—higher ambitions for my only child. Good afternoon, Mr. Main," and she extended her hand to lay it upon the arm of her daughter. "Come, Gwendolyn!"

It was ten days later that Mr. Hemmington Main received in his morning's mail a letter superscribed in the scrawly and beloved back-hand with which he was so familiar—a letter which, after several pages of far greater interest to Mr. Main than to us, ended with: "And so mother is dragging me off to Europe, ostensibly to forget you, but, actually, I am positive, to barter me for a title with a red neck and soiled linen. Father is as mad as I; but helpless. He is for you—horse, foot and artillery—just as I knew he would be. Go and see him—you can weep on one another's shoulders, and in the mean time, Hemmy, take it from me, I'll never, never, never, never, marry anybody but you."

And so it was within that very day Mr. Hemmington Main was ushered into the private office of Abner J. Bass, where the older man greeted his visitor with the kindly smile and the warm hand-clasp which had been such important factors in the upbuilding of the Bass millions.

"I know why you have called, my boy," he said, without waiting for Mr. Main to explain his mission. "If you hadn't come I should have sent for you—I need your help. Mrs. Bass is, naturally, ambitious for the future of Gwendolyn—so am I; but, unfortunately, in this instance we are not agreed as to what constitutes the elements of a desirable future for our daughter. I could not get away at this time to accompany them abroad—not that I could have accomplished anything had I gone, for Mrs. Bass is, as you know, a very strong character—but I feel that you might accomplish a great deal were you on the spot. Will you go?"

Mr. Hemmington Main was quite taken off his feet by the suddenness of this unexpected proposition—or, it would have been closer to the truth to have said that he was almost taken off his feet, for Mr. Main was never quite taken off them in any emergency. And now he was on the point of jumping at this splendid suggestion, when there rose before his mind's eye a sordid vision—the same old, squalid specter that had clung so tenaciously to his coat-tails and held him into the rut of hard labor since the completion of his college days—Hon. Poverty, with his empty stomach and frayed trousers.

Abner J. Bass noticed the younger man's hesitation, and guessed its cause.

"You won't have to worry about the financial end of the undertaking," he said, "I'll see to that."

"But I couldn't go that way, sir," expostulated Mr. Main. "Can't you see that I couldn't do it?"

"No, I can't see anything of the sort," replied Mr. Bass. "If my money is going to be used to buy a

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WHAT KIND OF A STORY DO YOU LIKE? SO DO WE.

If you were passing along a lonely road at night and a highwayman poked a gun in your face and demanded "Hands up!" what would you do? Probably stick them up as high as you ever reached in your life. If you were looking at a moving picture play and a robber of the bold, bad, daring kind came cantering along on a horse and he met a prince in disguise, and the prince, on being told to put up his hands did the most natural thing in the world, obeying the robber, why you would lose interest in that play right then and there. It is so with any story, whether we see it on the screen, or read it in a book; we must have the unusual to make it interesting, and still it must be natural enough to require no strain on the imagination, lively enough to make us wish to find out how it is coming out, clean enough for every member of the family to read, romantic enough to please the women folks—and most of the men for we all have a streak of romance whether we admit it or not; humorous enough to give us an occasional chuckle, and it must end well.

If we had written a letter to Edgar Rice Burroughs giving him the above "plans and specifications" he could not have turned out anything more nearly complete in the way of a short novel than he did when he wrote "H. R. H., The Rider." The opening chapters are printed in this issue. The story starts off with all steam up and we get right down to the heart of a plot involving royalty in an out of the way corner of Europe, banditry and the picturesque and highly exciting chase of a young American newspaperman after an American heiress who loves him, but who is destined, if mother's plans do not miscarry, to become the bride of a princeling. When this combination gets mixed up in the dark forests of the kingdom of Margoth, take our word for it, there is something doing every minute! You remember the story of "Tarzan of the Apes" by Mr. Burroughs? Well this is not like it except in the thrills. The Tarzan stories made us all shudder; "H. R. H., The Rider" keeps us on the keen edge of excitement but stops short of making us see ghosts in the night. If you don't care for "continued stories" don't read this one, for once started you'll have to finish it.

Filming Vocational Agriculture

COLORADO RURAL SCHOOLS IN THE MOVIES

DURING the past month an inspection trip and moving pictures of vocational agriculture coming under the Smith-Hughes act were made in Colorado. Practically all phases of agriculture as taught in these schools were filmed and exceptionally good results were obtained.

The filming was begun at Greeley, Monday morning, September 15th, and practically the entire day was consumed in filming the agricultural activities of this school. The work was done by the Hoefler-Schuler Photo Company of Denver under the direction of Ralph Crosman of the Agricultural College.

Greeley Smith-Hughes High School Classes Judging Hereford Cattle on the S. L. W. Ranch at Kersey

After visiting the high school in the morning, the party started for the country where a large number of projects were filmed. There were twenty-five automobiles of visitors on this trip, for it was to be an inspection trip of agriculture in these schools as well as taking pictures. Among the visitors were representatives of the State Board of Agriculture, of the Agricultural college, Farmers Union and of other organizations and educational institutions, besides a large number of business men and citizens of Greeley.

Pictures were taken showing the agricultural class judging purebred horses, Jersey, Guernsey and Hereford cattle, sheep, Duroc Jersey and Poland China hogs. These were all within a short distance of Greeley. In some cases the stock used is the actual property of the student and in several instances has been the cause of putting a better grade of livestock on the father's farm. In one instance in particular a boy had some difficulty in securing his father's permission to invest less than $100.00 in a purebred calf. However, with the assistance of the agricultural teacher, he was able to convince his father, and he was permitted to invest the money for the animal. Today he has a calf for which he has been offered $700.00. Besides this one he has several others, and the result is the father is selling off all his grade beef stock, and replacing them with purebred Herefords. In the project work a boy's field of beans was filmed in which twenty-five or thirty children were picking the beans. They had been at work most of the afternoon and the picture was taken just at quitting time.

The party left in the evening for Fort Morgan, where the work was to be continued the second day. They were entertained in the evening by the Commercial club. The following morning the business men and citizens of Fort Morgan made up an enthusiastic party who inspected the vocational work in the local school. On this trip pictures of various livestock judging demonstrations were taken besides class demonstrations and individual projects. One project inspected was that of a boy, 15 years of age, who grew 55 acres of corn. He did all the work himself and it was estimated to yield 45 bushels per acre. This corn received no irrigation. Another was a canning project in which a girl had an exhibit of canned products, in which she did all the work.

In the evening the party left for Sterling where the third day's work was to be done. That evening the sophomore girls of the Logan county high school served a banquet to the visitors and school representatives of Logan county. After the banquet, a meeting in the high school auditorium was held where the moving picture of the Sargent Consolidated school in the San Luis Valley was shown. Addresses were also made by Dr. Lory, of the Agricultural College, and Ex-Governor Ammons, of Denver. A community "sing" was held in the auditorium under the direction of Miss Starr, music supervisor in the public schools.

The next morning pictures of the activities of the school in an agricultural way were filmed. This consisted of shop work in which the boys are doing wood work on forge, cement and building projects. A tractor demonstration was put on which is an important event each year in the Sterling schools, it being staged and operated entirely by students. Fitting harness to a horse, showing a town boy getting farm experience and other practical activities were filmed. A project of 160 acres of wheat was filmed, showing the boy actually sowing his wheat. This "boy" is 22 years old and comes in to the Logan county high school to get the agricultural information offered through the vocational course.

In this county vocational agriculture is proving very popular, many students coming from other counties and some from out of the state to take advantage of the opportunities offered by this splendidly equipped and well managed school.

This film, when finished, will be used by the Agricultural college, Smith-Hughes schools and schools contemplating the introduction of such a course, to stimulate interest and show what can be and is being done in well established agricultural departments in high schools.

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Lampas in Horses

Answer to A. M. D., Pueblo county, Colorado:

Lampas is a swelling of the mucous membrane covering the top of the mouth. It is caused by some irritation of the mouth and is more troublesome at teething time, after which it will disappear. Remove the cause when possible. In very bad cases a few pricks with a suture needle, then bathing the mouth in alum water, will be helpful. If the mouth is pricked the horse must be fed on soft food for a time. Burning lampas is cruel and injurious and should never be tolerated.

Regarding your fence question: The homestead laws do not require fencing of the homestead lands, nor do state lands have to be fenced unless the owner of adjoining lands desires to fence. In that case the law provides as follows: "Where the lands of two persons adjoin and both persons shall occupy the land, either for pasture or farm purposes, it shall be the duty of each party to build one-half of a line fence, such fence to be a legal fence, etc." The law further provides that where one party shall have already erected a legal fence upon the line and the other party wishes to occupy the land adjoining, he must pay the party owning said fence one-half of its cash value. This applies whether the land is homestead, or state land, or deeded land.

Increasing Wheat Yield

The largest yield of wheat on record in the United States Department of Agriculture is 117 bushels per acre on eighteen acres in the state of Washington. The next largest is 108 bushels on ten acres in the state of Idaho. These high records would have little significance except for the importance of the wheat crop and the gradually decreasing surplus wheat lands of the United States; also the increasing popularity and the growing needs of larger and larger crops of wheat and other grains. This great country of ours can never grow maximum crops on all the lands, but plans can be laid for larger yields per acre.

If every acre had done as well in 1919 as our best acres did, we would have more wheat in the United States than the whole world could use. The average yield per acre in this country is only 15.5 bushels, or less than a third of our good yields. The world's total wheat crop is a little over four billion bushels. If we produced in the United States sixty bushels per acre on the 71,000,000 acres planted for the present crop, we would have sufficient wheat to supply the world. But this is not necessary. Other countries can and do raise wheat and perhaps more cheaply than we do.

This leads us to the question of cost to produce. The Minnesota Experiment Station found that it required twelve and a third hours of human labor and thirty hours of horse labor to produce an acre of wheat. These figures were secured in an investigation carried out in 1909-1912, under the direction of Thomas Cooper. Since the cost was based on hours of labor rather than measured in dollars and cents, it holds good today, and to translate it into dollars and cents, one needs only to multiply the hours by the price of labor at a given time.

If the yield was twelve and a third bushels per acre, each bushel would require one hour of human labor and two and a half hours of horse labor. If the yield had been twenty-four and two-thirds bushels, the cost would have been reduced half per bushel except the very small additional time required for harvest and threshing.

The higher yields are always secured at greatly reduced cost per bushel. The future wheat growers of America must keep constantly in mind methods of increasing the yield and thereby reducing the cost to grow. * * *

One way to reduce cost of wheat production is to select seed wheat successfully, and gradually eliminate all poor and low-yielding plants. My own observations prove to me that at least one-third of the plants in any field are failures—that is, they are not paying the expense of tilling the soil in which they grow. They get the plant food elements from the soil and fail to give the proper return. Science is helping to eliminate this terrible loss by making more of the plants pay—by making more of them yield full, plump heads—and there is sufficient proof that this can be done.

A second principle to observe in the successful growing of wheat and reducing the cost of production is the proper rotation of crops, whereby cover crops can be plowed under one year in two, or two years in three. Each section of the country has its own crop rotation system, but the plan must always provide for a substantial production of organic matter to be returned to the soil. Rotation helps also to keep the land free from disease, and doubly insures higher yields.

A third point for consideration is the proper balancing for plant foods in the soil, so that the plants may draw upon this source for constant diet. In all the European countries and in much of our own country, much study and thought have been given to the application of plant foods to soils for the purpose of lowering the cost of production. Belgium has perhaps been most successful along this line, and just prior to the war reported the highest yield per acre of wheat of any country in the world, also the lowest cost per bushel to produce. With a wonderful system of tillage, Belgium applies more plant food per acre to her wheat lands than any other country on the globe. This we believe worth serious consideration, in view of the fact that the 10,825,000 tons of straw alone harvested in Kansas in 1919 showed a total of 100,000 tons of potash, to say nothing of the phosphorus, nitrogen and lime.

Wheat is essentially human food. Most of the other grain is fed to livestock, but it is not so with wheat. Not more than 20 per cent of our wheat crop is fed to livestock, while more than 90 per cent of the corn is used in that way, about 95 per cent of our oats, 80 per cent of the barley, and the other small grain crops in proportion, are fed to livestock.

Why is this true? Because wheat tastes better; not because it is particularly better for us. but because we like it better for food. The other grains we eat then in the form of meat, while we take wheat as our bread to go with the meat, and it is well to keep in mind that 70 per cent of the grain crops goes into meat before it is ready for human food, while the other 20 per cent is eaten directly.

The greater part of our farm labor, then, is spent in growing and preparing food for our animal friends, and herein lies the secret of success in farming. Only in this way we are able to keep most of the fertility of the land and sell off a minimum. The animal manures contain our large grain crops, slightly reduced, but with much of the soil-building qualities retained and some of them even improved. This is one of the reasons why wheat farmers should also be livestock farmers.—Dr. R. J. H. De Loach, Director Armour Farm Bureau, in address at the Wichita National Wheat Show.

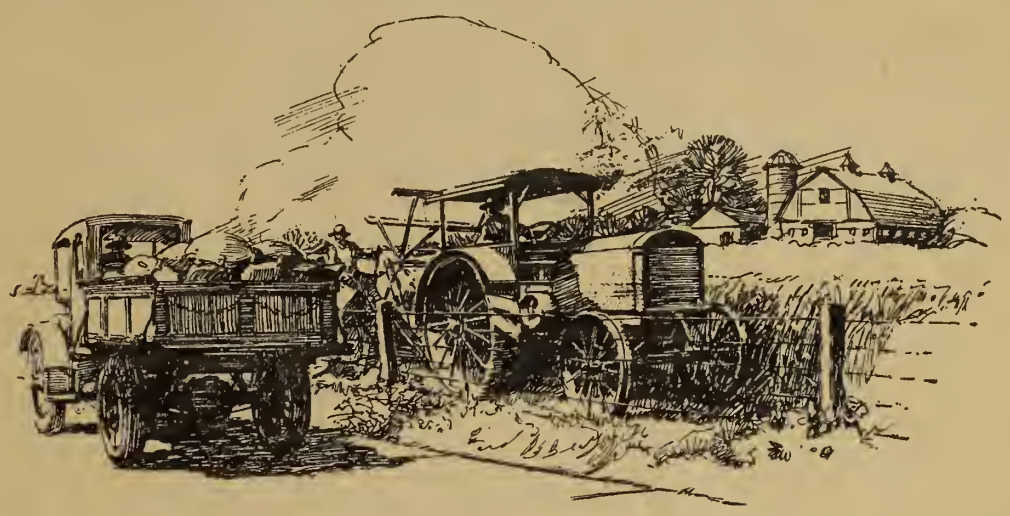
Co-operative Peach Marketing

Washington County, Utah, farm bureau members grouped together to market their peach crop this year. The crop was marketed through one of the wholesale fruit commission merchants of Salt Lake City. The shippers shipped 90 per cent of their marketable peaches and netted from 3 cents to 8 cents a pound, the average price being 4 cents net, while the portion sold other years never brought over 1 cent net. The crates of peaches were shipped to Salt Lake City, being delivered to the railroad by auto truck with regular daily connections.

The county agent visited each shipper at his orchard and gave demonstrations in wrapping and packing. To keep things moving and to see that no inferior fruit was crated a visit was made to each orchard each day. By use of the telephone the agent kept in touch with the market in Salt Lake City in order to know the condition of fruit on arrival at the market. The auto trucks were lined up so that the fruit was kept moving without delay. Eight thousand crates for packing were ordered co-operatively, a saving of 10 cents on each crate being made, or a total of $800.

Tut! Tut!

"Oh! be not hasty, friend," I cried,
"Think twice o'er all you utter."
"I'm bound to do so," he replied,
"Because I stut-tut-tutter!"
—Cartoons Magazine.



How machinery has made it possible to produce food cheaper

We have just threshed one of the largest wheat crops in our history. Ever stop to think how impossible it would have been to grow those 915,000,000 bushels without modern, back-saving machinery?

The tractor never tires. A binder does the work of a hundred scythes.

Machinery has made economical, labor-saving agriculture possible.

The American farmer has found that he can do twice as much work with it—and do it cheaper. Every farm has several hundred dollars' worth of equipment on it.

It is the same way with the packer.

From knife and saw methods his equipment has grown until it takes many buildings to hold all his meat dressing machinery.

The packer, too, has multiplied his capacity. His modern equipment—like the farmer's—gives him ability to dress many more cattle and do it cheaper.

The difference between live stock and dressed meat prices has been narrowed. Swift & Company's profit—a fraction of a cent per pound from *all sources*—is too small to have any effect on live stock or meat prices.

All of which shows that big scale machinery pays—both on the farm and in the packing plant.

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Preparing For The Census

Fifteen million copies of the farm schedule have been ordered printed by the Bureau of the Census for use in gathering the agricultural statistics of the Nation for the Fourteenth Decennial Census. To facilitate the work of taking the census and promote accuracy, large numbers of schedules will be distributed in advance of the enumerator's visit in order that the farmer may become familiar with the questions and be prepared to furnish promptly the required data regarding acreage, tenure, values, livestock, and crops.

The Bureau anticipates that the coming census will show an increase of approximately one million farms since 1910 when the number of farms enumerated was 6,361,502, valued at more than 40 billions of dollars.

The enumeration will begin on January 2, 1920, and it is planned to complete the gathering of both population and agricultural figures by February 1.

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Cleanliness Above Godliness

Half the stock doesn't know whether its owner is a pious man or not. They are not affected by his religious professions. But if he is not clean they know and show it.

I was astonished in looking through the veterinary section of a horse book to find how many diseases arose from filthy quarters.

But the poultry book was equally plainspoken about the same thing.

Cowbarns are generally better kept. Milk and premises inspection has worked wonders. Even now in rural communities there are people who find it hard to sell their butter and milk because their customers judge from their appearance that they are "none too clean."

Have you ever looked into a neglected horse-barn in winter? No, I am not going to describe either the muss or the odor. But what a contrast between it and a clean, well-ventilated, well-lighted barn! In the latter you can't conceive of a sick horse. In the former you can't picture a healthy one.

Cleanliness is largely a personal matter, but it is also a matter of equipment and convenient arrangements for cleaning.

I know a man who built a poultry house with the inner roosting compartment inaccessible by wheelbarrow. If it is almost impossible to get at a thing to clean it, if it is difficult and inconvenient, then it is almost certain to be neglected.

The droppings board has done more for the health and happiness of laying hens than any other device. If a man can wheel his barrow under the edge and scrape it off in a few seconds, he is less likely to allow the filth to accumulate than if it was an unhandy and dreaded chore.

A similar service has been done for the cow-barn and horse-stable by the litter carrier—easily to load, easy to move, easy to dump. Why be dirty when it is EASY to be clean.

On farms where such devices are not installed every care should be taken that there is a down-hill grade to the manure pile, that the wheelbarrow is sound, well oiled, and not too clumsy. At least do everything possible to make cleanliness easier. It is human nature to be lazy and therefore dirty.

Forestall human nature by arranging for cleanliness at the least possible effort.

Clean quarters make healthy stock. Filth and disease are inseparable.—Gordon Kent, Pinecliffe, Colo.

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The Sugar Situation

That the beet sugar refiners are not responsible for the failure of the government to meet the present sugar emergency is apparent from the fact that as early as last July, at a conference held in New York, a resolution was adopted and forwarded to the proper authorities urging continuation of the Sugar Equalization board. Again on September 26th, after the West was placed on a ration basis and consumers found themselves, in the midst of the canning season without sufficient sugar, the beet men met at Chicago for a final appeal to the government to help out in a situation that has brought the sugar market into a chaotic condition. Up to the present time this appeal has gone unheeded and it may be too late now for any effective action.

Purchase by the government of the Cuban crop and equitable distribution of this supply in the American markets, would have saved the situation. Instead it appears that this opportunity has been passed up and that the Cuban crop will go on the open market facing a world's shortage of sugar, which will force prices to unheard of figures.

The consumer, when informed, will probably place the blame where it belongs, namely, on the failure of the government to act in a situation of national concern. Pressure was brought to bear from the cane producers of Louisiana to prevent what they called "interference with the law of supply and demand." That may be the secret of the disinclination at Washington to continue the Sugar Equalization board. The can producers may reap a temperorary advantage in famine prices, but the abnormal conditions created are bad for the industry. The trouble with sugar seems to be not that the commodity has been hoarded, but that we do not produce enough. This is the one ray of encouragement to the beet districts of the west and it should lead to greater development of productive beet territory.

As a matter of record we are herewith presenting the formal action taken by the United States Sugar Manufacturer's Association at Chicago in September. This association is composed of domestic beet sugar producers only. The committee charged with delivering the appeal to the U. S. Sugar Equalization board was composed of Horace Havemeyer, New York; W. L. Petrikin, Denver; C. W. Nibley, Salt Lake City; H. A. Douglas, Detroit; Henry H. Rolapp, Denver; Francis K. Carey, Baltimore.

The governmental control of the price and distribution of sugar during the war stabilized the domestic sugar industry, prevented abnormally high and fluctuating prices, eliminated speculation, secured an equitable distribution of sugar throughout the country, minimized local sugar famines, and saved American consumers many millions of dollars.

Because of the present world shortage of sugar, the beet sugar industry of the United States views with grave concern the entire relinquishment of government control of sugar during the existing emergency, the abandonment of which control, it is feared, will create chaotic market conditions, inflated prices and unequal distribution. Owing to the inadequate supply of sugar throughout the world and the increased cost of production, the price of the coming crop of sugar must inevitably be higher.

Believing that, notwithstanding the relief that may result from the forthcoming domestic beet sugar crop, the governmental purchase of the coming Cuban crop of sugar is the only means of preventing an extreme shortage of sugar in this country except at exhorbitant prices, we, therefore, unanimously ratify the action of our delegates to the domestic sugar producers conference held in New York City on July 16, 1919. In adopting and presenting to the United States Sugar Equalization board, and through it to the president of the United States, the following resolution:

RESOLVED, That in view of the prospective continuation of scarcity of sugar supplies, this conference recommends that the U. S. Sugar Equalization board be continued in power with authority to purchase the 1920 Cuban crop, making proper provision for the protection of domestic sugar and for fixing a fair price to the ultimate consumer, and that a committee be appointed to consider and report.

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Offers $1,000,000 For a Bull

I want to buy a bull. I want to ask the whole world to find one, and therefore must come to The Gazette. I am in no condition mentally to write. I feel criminally guilty to think how I gave away men's cattle for many years. No wonder that so many of them were dissatisfied. I owe them a debt. I want to pay it before I die. If I do, I must hurry. I have therefore concluded to go into the breeding business again. I choose the Shorthorn because I know Shorthorns are the surest in the long run. I want to raise a couple of dozen head and sell them, and pay my old friends the hundreds of thousands of dollars which I justly owe them. My first purchase must be a bull, a roan or white. If he suits me in pedigree and in individuality, I will pay $1,000,000 for him. If you have one to sell address me at Lincoln. I am getting old and must act quickly.

No, I am not drunk, but awfully dizzy, caused by reading the reports of the public cattle sales—$106,000 for a twelve-month-old Holstein bull; $125,000 for a matured bull; $36,000 for Enlate. How well I remember at the Geary sale in Des Moines I sold Charles Escher, Sr., an Angus bull, for $500. It seemed more than $50,000 of our 50-cent dollars does now. Three minutes after I knocked him down he was paid for. Charles Escher, Sr., had set his hen; his son has watched the nest, the chickens are hatched, one sold for $36,000 and the brood for nearly $400,000! McCray did the same thing in Indiana. Oklahoma bids fair to eclipse them all.

We are afloat without a compass? No, we are just entering a new world's era. The nations of the earth have gone into partnership. America, by the common consent of all, is marching at the head. The whole world is our market, and they must have our goods. We are long on everything they want; the rest of the world is short. It will take many, many years to restore the equilibrium, and until then we can expect for everything prices the like of which we have never before known. Mr. Farmer, are you armed for the conflict? Have you nerve and brain enough to march in the front rank, or are you a pessimistic straggler? I would rather die at the front than march in the rear and win.—F. M. Woods, Lancaster Co., Neb., in The Breeder's Gazette.

Renewing Leather Goods

The general run of traveler seems to think the only remedy for a shabby bag is a new one. But owing to the present high cost of leather that is an expensive remedy. In most cases it is also an unnecessary expense, for generally a small can of leather renewer, easily and quickly applied by any one, will make the old bag look as good as new. The can of renewer costs only a small fraction of what a new bag would cost. The best leather renewers are pyroxylin solutions (the same substance, in fact, used to dress the leather when new). They are waterproof, tough, elastic. They are not likely to crack or peel until the leather base itself gives way. They are obtainable in a brilliant black finish. Give the old bag a chance, relieve the strain on the leather market—and incidentally the strain on your pocketbook.

Profit Checks for Grangers

The members of the Colorado State Grange have just received their first commission checks from the Bon I. Look Stores of Denver, with which the Grange is affiliated as selling agent.

The Grange announces that as the plan has been successful in reducing the high cost of living for Colorado members, it has been extended to other states, and Grange members everywhere are now entitled to participate.

For those members who find it inconvenient to call at the Grange store to make their purchases a complete mail order department has been established. Members can make their purchases by mail with the assurance that their orders will be filled promptly and efficiently and in a manner which will be entirely satisfactory to them. A modern up-to-date system has been installed to see that mail orders receive first attention, and the many Grange members who have been taking advantage of this service have been well pleased not only for the time saved but because of the substantial savings on their purchases and the high quality of merchandise that was delivered to them.

Complete price lists explaining the plan have been prepared and will be mailed to Grange members every two weeks upon request. These price lists are mailed free to Grangers and any member wishing to avail himself of this worth-while service can do so by simply writing to Mr. Otis Scruggs, care the Colorado State Grange, Denver, Colorado, and asking to have his name placed on the regular mailing list.

The Branding Iron

William Ambrose, a 15-year-old boy, south of Fort Morgan, has grown a 55-acre field of corn this year that is yielding better than forty bushels to the acre. This crop has been handled entirely by the boy and it has not been irrigated.

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There are now more than 700 students at the Colorado Agricultural college. These figures do not indicate the pupils in the School of Agriculture which does not open until the 7th of October, and which will probably swell the number to eleven or twelve hundred.

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The War department has sent approximately 100 men disabled in the war to the agricultural college at Fort Collins for training in agriculture and livestock production. Ten of these men are taking the regular college courses. The others are given special instruction in the School of Agriculture. The government is paying all expenses.

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The Colorado Agricultural college at Fort Collins is out of debt for the first time in many years. When the reorganization occurred ten years ago the institution owed a large amount of money for land and current expenses. Through the management of President Lory and the board of agriculture the institution has made a wonderful growth and is now free of debt.

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Effective immediately, the United States Department of Agriculture will handle all wheat appeals from licensed inspectors' grades on intrastate as well as interstate transactions. Formerly, under the grain standards act, wheat was required to be shipped or delivered for shipment across state lines before an appeal could be taken to the government. The new arrangement has been made by the secretary at the urgent request of Julius H. Barnes, United States wheat director, and is effective under authority and during the continuation of the food control act, the wheat guaranty act, and the executive order of May 14, 1919.

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There are now twenty-six farm bureaus in as many counties of Colorado with 5,200 members. Among their activities the present year was the destruction of prairie dogs. In many sections of the state this pest has already been eradicated. In other portions the work is progressing well and probably in a short time damage to crops and grass will be prevented. Another praiseworthy work by the bureaus is the organization of co-operative shipping associations. Sixteen of these are now in successful operation and others are soon to be organized. Through these associations small shippers are able to reach the markets on an equal footing with large shippers.

Comment by Farmer Putnam

OUR MISSOURI FRIEND WRITES ESPECIALLY FOR THE BOY'S AND GIRL'S CLUBS IN THIS ISSUE

FOLKS, they ain't no use in talkin', them youngsters that belongs to the Boy's and Girl's clubs has got us beat when it comes to farmin'. I was down to the State fair in Pueblo and I seen lots of interestin' sights but nuthin' done me more good then watchin' them young people of Miss Sheridan's family enjoyin' theirselves and entertainin' the grown-ups. It ain't often that I sez anything nice about the ladies—in the paper, because my remarks is liable to be misconscrewed by Josephine. She was objectin' to my bein' complimentary to the ladies one time and I sez: "What makes you think that way? Air you jealous?"

"Land alive," she sez, "Jealous! You old fossil, who'd be jealous of you and what fur? You're looks? Air you thinkin' that I'd be afraid some fine lady would fall in love with that sweet clover on your chin? Don't you worry, I ain't jealous, nobody with hoss sense would look at you twict onless it was to laugh at you ag'in. No, what I'm fearin' is that you'll mistake the kind wurds of a lady and say somethin' fresh and git put in jail fur it and disgrace the family. Sakes alive Tom, don't git the notion that anybody's goin' to git stuck on a pock-marked, bewhiskered, red necked, slab sided, old Missourian like you."

That kind-a relieved my mind and seein' that Josephine warn't jealous I now feel free to say somethin' nice about the ladies that I met at the State fair, among which was Miss Sheridan, the Actin' State Club Leader.

Some people just lives to git rich, some lives to spend money, some wants high office and honor and a few lives to serve their fellowmen, and Miss Sheridan is one of them few and far betweeners. She is devotin' her life to organizin' Boy's and Girl's clubs and it gives her joy when she kin git over 200 of 'em together like she done at the State fair. Well, she asked me to come and eat with 'em one evenin' and as is my usual custom, I done so. Well, when the grub was all gone she asked me to git up and show myself to the young people and I done so. Gee it made me feel good to hear 'em stomp their feet and clap their hands.

"Speech, speech," they yelled, just like I was the President, So Miss Sheridan sez:

"Farmer Putnam, you better say some remarks; try to talk sense."

(You'd a thought it was Josephine a talkin'.) Well I couldn't make no speech, the time bein' limited, but the follerin' is what I would-a said if I'd a been a orator.

"My young feller citizens and citizenesses. It fills me with pleasure this evenin'—pleasure bein' about the only thing we kin fill up on now in this dry state and nation—to address you. Words fail when I try to express my appreciation of this here tremenjous ovation. You air just crossin' the threshold of life. With one foot on the clouds, a flyin' on the imagination of fairy tales, the other poised ready fur the kick-off in life's battle for bread and oleo, one hand on the rudder of your canoe, the other a guidin' the plow handles along the furrow of time, your shoulders to the wheel of progress, your eyes fixed on the fiery goal of ambition, one ear to the ground to ketch the throbbing of the marching hordes of humanity in the rush fur gain, the other attuned to the music of the spheres, your lips drinking a draft at the Fountain of Youth, your noses sniffin' the perfumes of Arcady, with heads erect and muscles strainin' you'll go forward to VIC-TO-REE or BUST!"

I wonder what you young folks would a done to me if I'd a made you a speech like that? I bet Billy McCutcheon would a throwed a biscuit at me, wouldn't you Bill? You-all didn't know I could make a speech; well it's easy. I could sling words together like that all day if I'd a mind to. But that ain't what we want. The time fur words is past and gone. We need deeds and what I'm a goin' to say to you young folks is that what you're a-doin' in raisin' pigs, calves, or corn, or spuds, or cannin', or sewin' or other work is the thing that counts in this world. You air judged by what you do, not by what you say—unless you say too much! No don't git no false notion in your heads about this club work. It ain't all in the hands. You got to have the "know how" before you git the "do it." Improve your minds, cultivate the weeds outen the garden of your souls. If you boys got a habit of usin' ugly words stop it. Bad words is like Russian thistles. Every thistle bears a hundred thousand seed. Every bad word or ugly thing you say about some other boy or girl bears a hundred thousand seeds. The winds of gossip takes 'em up and scatters 'em up and down the road and somebody suffers because you said a unkind word, or done a ugly deed. The best man the world ever seen learned to do things with his hands. He was a carpenter. His father had a little shop in a town called Nazareth and the young man learned to saw wood, and while he was workin' with his hands his head was busy thinkin'. Nuthin' but good thoughts come to him and from them came the good deeds he done. We cain't all be like him, but what I'm arguin' is that the boy or girl which sets out to benefit his fellow men is goin' to reap a crop of the golden grain of friendship, good will and peace.

They ain't no extry charge fur this sermon, but I feel like we all need to stop our foolishness in these here times and git a little closter together. This old world cain't improve onlessen we do and some of us old graybeards is so sot in our ways that there ain't but little hope of reform, so it's up to you young folks to make the world a better place to live in. I'm a tellin' you because I know and it's the simple little rule of constant kindness that works wonders in our lives.

Now I want you all to stand up. Move over a little Freckles, don't stand so clost to that tall gal from Kit Carson county! Now everybody join in and let's give nine long and loud "rahs" fur Miss Sheridan!

And before I furgit it—I want you boys and girls to write to me. I seldom hear from the old folks; they're too solemn to appreciate my foolishness, but you young people air fun lovin' and happy and I'd like to hear from all of you that seen me at Pueblo—and others too—and see if we cain't git up some nice articles from your letters. Write to me in care of Western Farm Life. I'm in from the ranch twict a week to git the mail and bring in some butter to Mr. Edmiston's, and he'll save the mail till I come. Youv'e all been nice and quiet while I talked to you and thankin' you one and all fur your kind attention, I beg to remain,

Yours truly,

Thos. Jefferson Putnam.

Monument To First Plowman

Exercises of an unusual nature were held at a recent picnic of the Cascade County, Mont., farm bureau. It was the dedication of a monument to commemorate Robert Vaughn, who, in 1868, plowed the first furrow in the county. The monument, which is made of cobblestones and is about 6 feet high, contains a brass plate inscribed: "The first plowing in Cascade County was done by Robert Vaughn in 1868, in whose memory this monument was erected in 1919 by the farm bureau."

Ask Western Farm Life Service Bureau.

Mayer HONORBILT SHOES

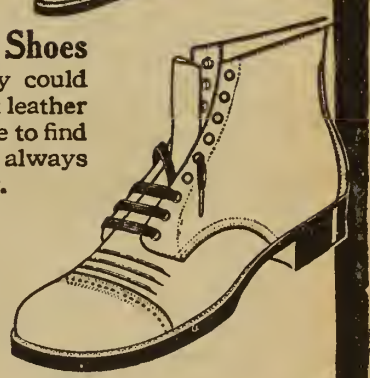
MILWAUKEE Mayer TRADE-MARK CUSTOM MADE HONORBILT

For the Whole Family

DRESS up shoes for everybody, work shoes, school shoes for the children and easy restful house shoes. *Honorbilt* Shoes contain the same good quality leathers they did 38 years ago; they are *built on honor*. The name *Honorbilt* stands for a heaping measure of service. Wear a pair and prove it for yourself.

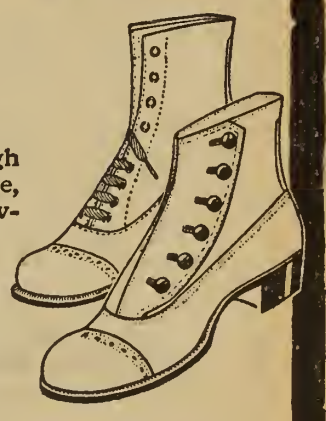
Men's and Women's Fine Shoes

The fine shoes are all that anybody could ask for in style and you get choicest leather plus genuine comfort. You are sure to find the particular shape you want and always the latest styles, and a wide variety.



Work Shoes

Honorbilt Work Shoe leather is double tanned to resist the alkali in the soil, as well as barnyard juices. They are soft and easy on the feet yet long wearing and will not get hard when wet. Honorbilt Work Shoes will give double the wear of ordinary shoes.



Children's Shoes

Sturdy, well-built shoes that stand rough treatment—the kind boys and girls like, and their parents, too. Shaped for growing feet. The quality is there—*they wear like iron.*

No matter who in your family needs a pair of shoes next, see your dealer who handles the Mayer Honorbilt line. Look for the name *Honorbilt* on the soles.

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

MICA AXLE GREASE

To Keep Friction Down and Horse Power Up

—there's nothing to beat Mica Axle Grease as an axle lubricant.

Made of the finest grease stock and powdered mica, it fills up the tiny pores and seams in the axle, polishes the spindles, gives that hard, bright coating that helps pulling power. Try it out for proof.

THE CONTINENTAL OIL CO.
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"H. R. H. The Rider"

(Continued from Page 5)

husband for Gwendolyn, I am going to see that it buys a husband she wants; and if you love her half as much as she deserves you won't let pride stand in the way of her happiness. Don't be foolish, Main; we've got to work together, each giving what he has to give—you, youth, vigor and resourcefulness; I, financial backing," and without waiting for a reply the older man wheeled about to his desk, opened a check book and filled in a blank check.

"Here," he said, extending the bit of paper toward Hemmington Main, "take this for preliminary expenses, and then draw on me for as much more as you may need, when you need it—I'll make the necessary arrangements through our London office. Now run along, and get busy."

CHAPTER II

Prince Boris of Karlova

Prince Boris of Karlova stood at attention in the presence of his august sire. The latter was large and red of neck, bullet headed and heavy jowled. He hammered his desk with a huge fist, the while he roared his denunciation in stentorian tones.

"You are better fitted for a court jester than a crown prince!" he shouted. "Your escapades are the gossip of the capital. Scullery maids and hostlers know you better than do the nobility of the unhappy kindom which some day will be forced to acknowledge you its king. You are a disgrace to the royal blood of the house of Kargovitch. You—you—you—"

"Otherwise," interrupted the crown prince, "I a meverything which your majesty could desire."

The face of King Constans of Karlova turned from red to purple, he half rose from his chair and beat upon the desk with two fists instead of one.

"Enough of your impudence!" he cried. "You are under arrest, sir! Go to your quarters, and remain there—indefinitely."

"Yes, sire," replied Prince Boris; "but I suggest that you place a guard over me as I have not given you my parole. Confinement is irksome to me—I shall escape, if I can, and then there is no telling but that I may marry a scullery maid and infuse into the veins of the Kargovitches a few ounces of red blood."

"Your marriage already is arranged," roared the king. "It was upon that subject I wished to speak with you—your impudence drove it from my mind. You will wed the Princess Mary of Margoth—if she will have you, and you will remain under arrest until Baron Kantchi has arranged the time of your visit to the court of Margoth."

The young man took a step toward his father.

"But, your majesty," he exclaimed, "I do not wish to marry yet—and above all others I do not wish to marry a Margoth princess who has a scrawny neck and the temper of a termagant."

"It is immaterial whether she has any neck or any temper," replied the king. "You are going to marry her, and I trust that she will be able to accomplish what I have failed to—the awkening in you of a realization of the obligations of your exalted birth."

"I hope so," said the crown prince aloud; but what he thought is not recordable.

The king touched a bell upon his desk, and an instant later an o cer of the guard entered the apartment and bowed low before his sovereign.

"You will conduct Prince Boris to his quarters," said Constans. "He is under arrest. Place a guard over him, as he has refused us his parole."

The officer bowed again, and backed from the presence, followed by the crown prince.

In silence the two traversed the corridors of the palace until they came to the apartments of Prince Boris. A soldier, already on guard there, saluted as the two passed within, and a moment later the officer emerged and transmitted to the sentry the orders of the king.

Within the apartment Boris glanced at his watch. A smile touched his lips. "An hour," he murmured; "I can barely make it."

He approached the door and opened it. The sentry saluted, stiff and rigid. The crown prince examined the man's features—he did not recognize them. The man was a recruit in the palace guard. Boris sighed. A veteran might have been easier to handle, for the veterans all loved the crown prince.

"My man," said Boris, "if you will cast your eyes in the other direction for a moment you will not see me escape—and what people don't see, you know, won't ever do them any harm."

The sentry wheeled about and faced the crown prince, barring the doorway with his rifle.

"I am sorry, your highness," he said respectfully; "but I cannot do it—I cannot violate the oth I took when I was sworn into the king's service."

"uite right," exclaimed Boris. "I am glad to hear you say that—it goes to prove that you are a loyal fellow. I saw that you were new in the service and I wished to test you—you did well to refuse."

He turned to re-enter the room, but as he was about to close the door after him he paused and cast a quik glance over his shoulder at the sentry.

"You have never before stood guard before my apartment?" he asked.

"Never, your highness," replied the soldier.

"And your sergeant told you nothing about my nightmares?" continued the prince.

"Nothing, your highness."

"He should have," commented Boris. "He should have instructed you that I am subject to nightmares, and that when you hear me moaning or crying out in my sleep you should come in at once and awaken me."

"But your highness' valet sleeps in the adjoining apartment," suggested the soldier; "he will awaken you."

"He sleeps like a dead man," replied Boris. "Nothing awakens him. If you hear me, come in at once and awaken me— do you understand?"

"Yes, your highness," and the soldier saluted again.

"Good night," said the prince, "and lose no time when you hear me—I usually have them early in the night, when I first fall asleep."

"Good night, your highness," replied the sentry. "I will come if I hear you."

For a few moments Prince Boris moved about his apartment, talking in low tones to his valet; but he did not remove his clothes. Presently he dismissed the man, turned out his lights and clambered into bed with all his clothes on. A broad smile illumined his countenance, and it was with difficulty that he repressed a chuckle.

Beyond the door the sentry stood in statuesque rigidity in the corridor. The great clock at the far end of the passageway ticked out the second. Slowly the minutes passed. Silence reigned in this part of the palace, though it was still early in the evening.

Presently the sentry cocked an attentive ear—instantly alert. For an unmistakable moan had issued from the apartment of the crown prince. It was immediately followed by a smothered wail. The sentry wheeled, turned the knog and entered the apartment. As he crossed quickly toward the bed where Prince Boris lay his back was toward the doorway leading into the adjoining apartment where the prince's valet was supposed to be sleeping like a dead man, and so the sentry did not see the dark-robed figure which glided into the bedchamber of the prince and followed him to the royal bedside.

Another moan came from the tossing figure upon the bed. The sentry leaned over and shook the sleeper by the shoulder, and as he did so the bed clothes rose suddenly and enveloped his head, a pair of strong arms encircled his neck about the bed clothes and another pair of arms seized him from behind.

A moment later he lay bound and gagged upon the bed recently occupied by Prince Boris of Karlova. A dark-robed figure filided silently from the apartment and the crown prince touched a button which flooded the room with light. The sentry looked up into the smiling face of his captor.

"Awfully sorry, my man," said Prince Boris; "but I have a very important engagement for this evening—see you later. Hope you find my bed comfortable, and whatever you do, don't have a nightmare, for my man is a very heavy sleperjust like a dead man, you know," and Boris of Karlova slipped a light cloak over his shoulders and passed out into the corridor before his apartment.

Ten minutes later a solitary horseman rode slowly through the dark streets of the capital and out of the city by the long unguarded west gate. Once in the country he put spurs to his mount and rode at a sharp trot along the wide, gray pike.

CHAPTER III

"The Rider"

Karlova is a mountainous little kingdom. Sovgrad, its capital city, lies in a fertile little hollow surrounded by many hills through which the old Roman road winds in an easterly direction toward the frontier and Margoth. Just beyond the shoulder of the first of the low foot-hills a dirt road diverges northward from the main highway, and passing beneath overhanging trees wriggles to and fro through a grim and forbidding forest. Five or six miles above the Roman road it skirts a royal hunting preserve, the favorite abode of Prince Boris. Scarce a quarter of a mile within the wood and a hundred yards back from the dirt road lies an

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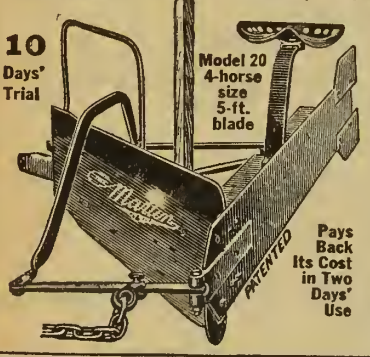

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It makes it possible for the "wife" to have her electric washer, electric iron, vacuum cleaner, electric fan, etc., and to operate the cream separator, churn, pump, etc.. just by attaching the cord to any electric light socket. Cushman Power, as well as Cushman Light, is always ready for instant use.

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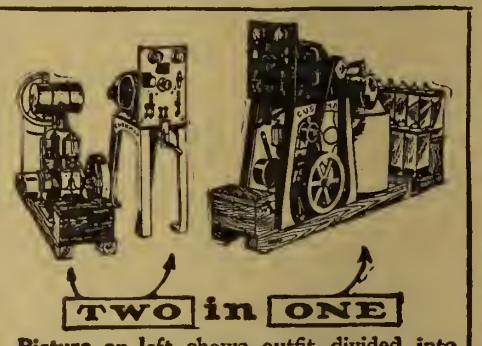
It does more because it gives you Light, Lamp-Socket Power and Portable Engine Power in one plant.

It does more because there is less vibration with a belted outfit like the Cushman, and consequently fewer adjustments, fewer repairs and less service.

It does more because the same engine—the 4 H. P. Cushman All-Purpose Engine—may be used for work all over the farm, or be attached to binder, potato digger, corn binder or other machines.

It does more because other machinery may be run from clutch pulley of engine at the same time the batteries are being charged by belt over flywheel.

If you have a Cushman 4 H. P. engine, you already have the power for a Cushman Electric Plant.



Picture on left shows outfit divided into power plant and light plant.

Picture on right shows complete unit plant for electric light service.

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old inn—a place of none-too-savory reputation, where questionable charcaters from the city of Sovgrad were reputed to meet and concoct their deviltries against the majesty of the law.

Here, too, were wont to foregather a little coterie of another class—a half-dozen young sprigs of the ancient nobility of Karlova, lured by the spirit of romance and adventure to this haunt of the lower world, and enticed by the cookery of the innkeeper's wife and the vintages of the blackcellars to numerous repetitions of their original excursion, until now they had become reguiar patrons of the estabiishment.

Tonight three of them sat at a round table in a tiny alcove, sipping their wine and venturing various explanations of the lateness of one whose empty chair broke the circle at the little board.

There was Aiexander Palensk, whose father is prime minister of Karlova, and Nicholas Gregovitch, the son of General Demitrius Gregovitch, minister of war. The third, Ivan Kantchi, is the oldest son of the Karlovian ambassador of Margoth, and ali three are officers in the Black guard—the crack regiment of the Kariovian army.

The fourth member of the party—he whose chair stiil remained vacant—was riding at a rapid trot along the Roman road as Ivan Kantchi asked, for the fortieth time: "What could have delayed him? Why the devil don't he come?"

"Calm thyself, iittie one," admonished Alexander Palensk, with an affectionate smile at the giant Ivan, whose six-foot-six had won him the loving diminutive; "our brother is doubtless afraid to ride after dark. The wood is gloomy, and, as is weil known, infested by goblins. Chances are that he turned back before quitting the Roman road and has fled home to his nurse's arms."

"Screaming in terror," added Nicholas Gregovitch, whereupon all three fell to laughing; but beneath his levity Ivan Kantchi was stili worried.

"You know," he said, after a moment's silence, "that the Rider is reputed as having been seen in this neighborhood quite recentiy. There have been no less than three highway robberies on the Roman road within the month, and ali perpetrated by a ione horseman who answers the description of the fellow who has worked the southern provinces for the past three or four years. I think I shall ride toward the city and have a iook for our friend."

"Oh, sit down, little one," cried Alexander, "and let us finish this bottle in peace—if he has not come by then we will ail ride forth and rescue him from the clutches of the Roder or the goblins. whichever has abducted our tender little playmate."

Ivan dropped back into his chair. "It is unfortunate," he said, "that prime ministers couldn't bequeath a little more brain power to their offspring."

"Gesundheit!" cried Alexander, raising his giass and grinning good-naturedly at his friend.

Where the dirt road leaves the Roman road just within the foot-hills a horseman reined his mount to the left and entered the dark and gloomy precincts of the wood. He rode slowly, letting his beast pick its own way, since he couid scarce see his own hand before his face. Gradually his eyes became accustomed to the darkness, but yet a waik was the only gait possibie along the black and winding road.

He had covered perhaps half the distance between the Roman road and the inn,when a figure loomed suddenly ahead of him—a tall man upon a large horse—biocking the way. Even in the dark the rider could see the glint of refiected light upon the barrei of a long revolver which was leveled straigth at his breast.

"Hoid up you hands!" whispered the stranger.

The rider did as he was bid. The other slid from his saddie and approached him. Deft fingers felt over his person in search of weapons, of which the rider carried none.

"Dismount!" commanded the stranger.

The victim lowered his hands to the pommel of his saddle.

"Who the devil are you?" he asked. "Is it that I have the honor of addressing the Rider?" The tone was mocking.

"Get down, or you'll get hurt," replied the highwayman surlily. "I am the Rider, and if you know anything of me you must know that I don't put up with any trifling."

Through the darkness the rider grinned down upon the man who held is bridie rein and covered him with a revoiver.

"'The Rider,'" he repeated. "A name to conjure with!"

"Get down, you fool!" growled the highwayman.

"'The Rider!'" continued the horseman, ignoring the other's command. "How envious my friends will be when I tell them that I have indeed been waylaid by that notorius, nay, let me say, famous gentleman of the road. But will they believe me? They will think me but an idie boaster—unless I take token of the adventure."

"Enough, idiot!" cried the Rider, reieasing the bridie rein and stepping forward to seize the horseman and rag him from his saddie. "Do you think that I have all night and the next day to trifle with a second groom or a grocer's clerk, who doubties won't yield the price of a bottle of stale beer?"

He seized his victim's arm roughly to unhorse him, and at the same instant the latter lunged forward upon the bandit, carrying him heaviiy to the ground, flat upon his back. Long, powerful fingers closed upon the Rider's pistoi wrist, while, with his right hand, the horseman found the other's throat.

Futilely the brigand kicked, struggled and struck. His right hand was numbing in the steel grip that held him vise-like—his revoiver was useless. The fingers at his throat were shutting off his breath, so that to his first anger and chagrin was now added a real terror for his life.

"No," said the man upon his chest, "they never will believe me, unless I take with me some token of this deiightful meeting—and what evidence more conciusive than the person of the Rider himself! Ah, just the thing, my dear fellow! You shall accompany me! In the fiesh and blood, and by the word of your own mouth shall you attest to the truth of the fact that I was waylaid, in the dead of night, upon a lonely road by none other, and none less than the redoubtable and uncapturable Rider!"

As he finished speaking he tightened his grip upon the Rider's wrist until the unhappy man thought that the bones must splinter beneath those steel fingers. At the same time the pressure at his throat was lessened.

"Lay aside your weapon, my friend," admonished the cheerful voice above him; "lay it aside lest you harm yourself with so dangerous a plaything."

The revolver slipped from the relaxing fingers of the bandit.

"Thank you," said the voice.

The hand left the Rider's throat, and feit over his person for other weapons. Finding none, it reached out and gathered in the revolver which the Rider had just relinquished, then the weight was removed from the bandit's chest as the other rose and stood beside him.

"Come, get up!" cried the victor. "My, but you are a siothful fellow!"

The Rider scrambied to his feet and faced his conqueror.

"Who the devil are you?" he cried.

"I might be a hostler," replied the other; "but a grocer's clerk—never! ow that I have a revolver, I could borrow your mask and set up in business as a brigand, eh? What sort of highwayman do you think I'd make, my friend?"

The Rider mumbled an uninteiligible reply. His pride had been sorely lacerated and he was in no very good humor.

"Come on, Sunshine," cried his captor, "let us mount and seek my friends," and he motioned the Rider toward the latter's horse which stood where the banlit had left it in the middle of the road.

Here the captor removed a second revoiver from a saddle holster, slipped it inside his shirt, and swung into his own saddle as the Rider mounted.

"Where are you going to take me?" asked the crestfallen brigand.

"To the inn of that oid rogue, Peter, where my friends are waiting me these two hours."

A smile curved the lips of the Rider. Peter's Inn! More than one of the Rider's friends would be there, too.

"And there you will vouch for my story — eh, Sunshine? — that I was stopped upon the highroad by none other than the great Rider."

As the two rode on in the direction of the inn the Rider's captor kept up a good-natured raillery at the expense of the bandit, whiie the latter, stili aggrieved, answered only in monosyllables when a question was put to him and bided his time against their arrival at the place where he was sure he should find enough of his foliowers to insure escape, as well as punishment for their presumptuous hostler who had dared to turn the tables upon the terror of the high**ways.**

(Turn to Page 17)

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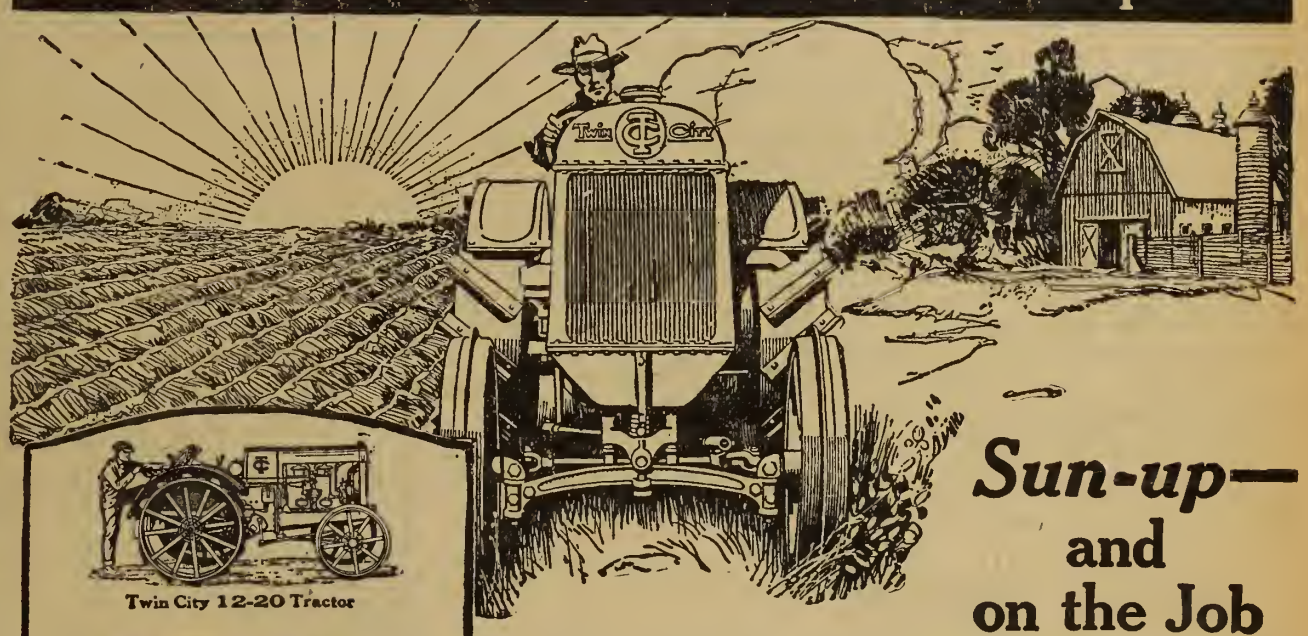

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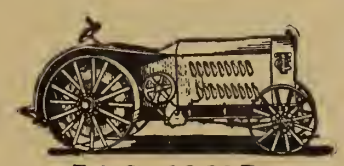

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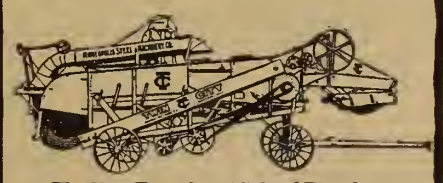

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Free advice on the commercial or technical features of dairy farming and hog production. Please address your letters to DAIRY DEPARTMENT, WESTERN FARM LIFE, DENVER, COLO.

Waterloo, Iowa, Sept. 26, 1919.
Dear Editor:—

Iowa is at present experiencing a very steady and sure growth in the dairy business. Evidences of this are seen particularly in the northern portions of the state where fine Holstein, Jersey and Guernsey herds are to be seen in ever increasing numbers. In the vicinity of Independence, Waterloo, and Cedar Falls the farmers are going strong to dairying. Iowa's total dairy production in 1918 amounted to over 26 million dollars in value.

One man at Independence said that if it wasn't for his herd of Holsteins he could not begin to make interest on his investment at the present price of Iowa lands Lands are exchanging hands in this locality at $185.00 (the lowest I heard of) up to $275.00 per acre.

And how are silos taking in here? Better than ever. There are a few abandoned silos in this section, but very few, and one usually finds that the abandoned ones are the poor class of wood stave silos which gave trouble from the start. Plenty of evidence is seen of the favorableness of silos and silage from the many farmers who are putting up a second or third silo this summer.

The Dairy Cattle Congress at Waterloo from September 22 to 28 is a revelation in dairy cattle production and improvement. All dairy breeds were strongly represented with Holsteins slightly in the lead as to numbers and Jerseys a close second. In one class there were competitors from New York, Montana, Kentucky, Texas, and Iowa. After seeing the wonderful herds and individuals here represented one could not help but be convinced that dairying means permanent agriculture.

The International Belgian Horse Show is held in connection with the dairy show and after looking over the 300 or more entries one is convinced that the good draft horse has not been relegated to the discard because of the advent of tractors. Some wonderful horses were shown here. They combined the extreme weight and size of the Belgian with exceptionally good action. The famuos stallion Farceur was on exhibition by C. G. Good and Sons of Iowa. They had a string of wonderful progeny from this horse.

In Exhibition Hall and on the main avenue were exhibits of all kinds of farm machinery, labor saving devices for both farm and home. Canada had a very creditable display of farm products, featuring wheat, and South Dakota also had a large and worthy farm products display.

Exhibits of special interest were the statues of a man, boy and cow in a group molded and made from butter; the cheese making demonstrations by the dairy department of the Agricultural College from Ames; Van Pelt's "Cow that got a chance" showing a common cow which by proper feeding methods increased her milk flow and butter production in one year nearly 50% and made a good profit for her owner; and the value of a cow testing association was clearly demonstrated by a herd of eight cows which were there on the ground for the entire week, and showed by piles of milk cans and tubs of butter the comparative production of milk and butter in 1917, the first year in the association, and 1918, the second year after using improved feeding methods and weeding out a few "boarder" cows.—Earle G. Reed, Agricultural Agent C. B. & Q. and C. & S. Railways.

About "Bone Dry" Silage

In a recent issue of the Country Gentleman there appeared an article entitled "Bone-Dry Silage," which has caused a number of farmers to inquire of the experiment station for cultures of lactic acid bacteria. In order to clear up some of the misleading statements contained in the above mentioned article, the following statements are given:

No doubt the gentiemen from Utah secured an excellent silage by using mature corn and inoculating with lactic acid bacteria. They would have secured excellent results without the inoculation, for investigators have shown that mature corn properly siloed produces a silage which contains an enormous number of these same lactic acid bacteria. They are everywhere present and, because of their rapid development, account for the preponderance of lactic acid found in every silage that has been properly siloed. Their food is the solubie sugar and, possibiy, some starch, and whether the material is inoculated with a culture of lactic acid bacteria, or whether the spontaneous inoculation is allowed to take place, **there is always a certain loss of sugar and starch,** because, from these substances, lactic acid is formed.

The article, "Bone-Dry Silage" would lead the reader to suppose that every iota of food value is saved by this so-called new method, for they state, "The starch and sugar were all there, as intact as when the corn had been put up. We were holding the full feed values of the material just the same as if it had been fed in the field, instead of letting two-thirds of it get away in the shape of alcohol, which has no food value whatever." Now, **the sugar and starch were not all there,** for some had been changed into lactic acid by their method just the same as in the ordinary process of silage making.

As to the "two-thirds of the food value getting away in the form of alcohol," the writer need not say that this as absurd. In many tests for alcohol in silage, made by the writer, and from data furnished by others, the highest per cent of alcohol found was .4 of 1 per cent on the wet basis. The writer is dealing with good normal silage and not with abnormal. The statement, "The silage under the new process was worth fully 50 per cent more in food value than any corn silage they had ever fed," may be true in their case, but the original silage made by them must have been very poor. Certainly experimental data collected on two silages, one inoculated and one prepared without inoculating, put up under identical conditions would not show this radical difference in actual food value.

If the usual conditions of preparing corn for silage are followed, it is useless to inoculate with lactic acid bacteria, for they are already present, and will develop into the predominating organism.

The farmer is urged to follow the findings secured in government and state experimental stations and not

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In Washington at the Walla Walla Farm Power Show, Patriot Trucks were the only rear-driven trucks that went over the hills in the plowed ground under capacity loads.
In Kansas three Patriot Trucks made a demonstration run under load for 350 miles over the muddiest roads of the season, in two days, without a truck having to be pulled out a single time, and over 200 miles of the trip was made in a steady downpour, the truck sinking hub deep in many of the roads.
In California the first load of wheat hauled to market this year was hauled on a 2½-ton Patriot Truck, hauling eight loads a day four miles and carrying 4½ tons of wheat each trip.
BUILT for Country Roads for Farm Loads
In Texas Patriot Trucks are making a wonderful reputation for all-purpose hauling under all conditions—in the oil fields of North Texas, the lumber districts of Eastern Texas, and the live stock and farm sections of West Texas.
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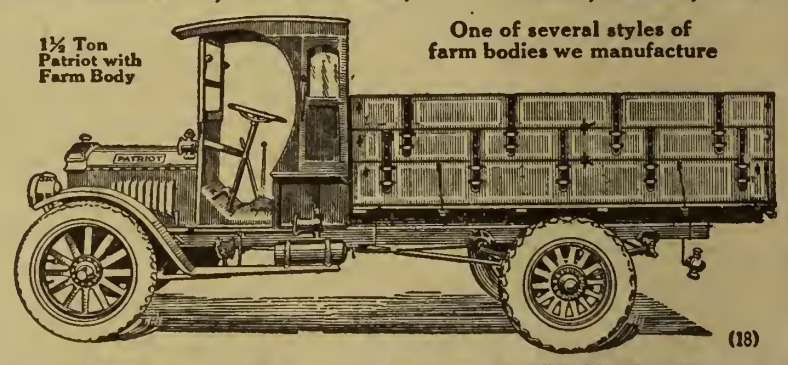
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Pratts Animal Regulator
AMERICA'S original and guaranteed stock tonic and conditioner. It sharpens the appetite. It improves the digestion. It regulates the bowels. It makes rich, red blood. It makes the stock more thrifty and vigorous—and more profits for you—every time.
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adopt methods written by popular writers who are doubtless less familiar with the subjects than specialists.

In silage making the only precautions necessary to follow are these: **air tight silos, corn in the right state of maturity, the proper amount of moisture, and carefulness in filling.**—Idaho University News Letter.

The Jersey Scores Again

The great three day contest at the California State fair was concluded on Saturday, September 6th, at 8 p. m. There were entries in all three classes from all the different dairy breeds. The testing was done under the auspices of the University of California.

In the two year old class there were five entries. Luma's Lola, a Jersey, of the "Keep On" herd, won first. She also won first prize the day before, in the show ring.

In the three year old class, Brilliant Jersey Queen won first in production, after having won the grand championship of the fair in the show ring. She thus combined the superior show qualities with production and is the first cow in the history of the state to win both these honors.

In the aged cow class were entered six Holsteins and three Jerseys. St. Mawes' Susy Olga, a Jersey, won first, making three straight firsts, one in each class, going to the Jerseys. Susy Olga won first over all breeds and over the best Holstein cow, that was milking 98 lbs. of milk per day, by a margin of .75 lbs. of butterfat. She produced 3.17 lbs. of fat in one day during the test, and she had been milking six months when the test began.—Jersey Bulletin.

Legumes and Cereals Tested as Silage Crops

(Continued from Page 4)

ported in this bulletin do not include any with sweet clover. A test on a large scale, however, has been made on a farm near the Experiment Station, in which seventy acres of sweet clover were preserved in silos with excellent results. This crop, which yielded about ten tons to the acre, was cut when in the first bloom. Most of it was allowed to lie in the field until some water had evaporated before it was put into the silo. The silage, which was well preserved, proved to be very palatable for fattening cattle and was fed with entire satisfaction. A sample of typical silage taken from this source contained 35 per cent of dry matter. No hesitancy need be felt in preserving sweet clover in the silo if so desired. The same precautions should be taken concerning the dry-matter content as suggested for other legumes.

If cut while at the first indications of bloom, or before, the green forage should be allowed to lie from three to six hours in the sun to reduce the water content. If the crop is more mature no drying will be necessary. If, through the maturity of the plant or over-drying, the material becomes too dry, water may be added freely without any detrimental effects. • • •

Sudan Grass Silage

From the experimental results corroborating the reports from the Oklahoma station it is clear that no difficulties need be looked for in making silage of excellent quality from Sudan grass. The sugar content is sufficient to insure a suitable fermentation at any stage of growth. For this reason no special attention to the dry-matter content is necessary as is the case with the legumes. • • • In total dry matter Sudan-grass silage will vary, as is the case with silage from other crops, with the stage of maturity of the plant. On the average, the dry-matter content and the food nutrients will be about 10 per cent less than for corn silage. • • •

Wheat Also Tried

The use of wheat for silage is more general than is usually realized outside of the regions concerned. The chief use of this cereal for silage is in the Pacific Coast states, especially Washington and Oregon. The reason for using wheat or other cereals rather than corn is on account of the better yield in those localities. According to Price the following crops have been used for silage with success in Washington: wheat, oats, oats and peas, wheat and vetch, rye and vetch, rye, clover and alfalfa. It is the common practice in using the cereals to put them into the silo when in a soft dough stage. One test was made of wheat for silage.

Experiment 20 (1917): An experimental silo was filled June 18 from a good crop of winter wheat in the dough stage. The material was cut in the usual manner by a silage cutter. No difficulty was experienced in preserving the wheat silage and no mold was found in the silage when removed. It was of a greenish color, odor sour, taste sharp acid, but not unpalatable. It was eaten readily. The dry-matter content when put in was 24 per cent and the loss in dry matter was 4.47 per cent. • • •

Rye Not Satisfactory

The results of the three trials showed that it is possible to preserve rye readily in the silo. However, the quality of the silage is not entirely satisfactory, not because it is not properly preserved, but on account of the general unpalatability of rye forage in any form.

Rye is readily grazed by stock up to the time it begins to head, but from this point it is eaten very sparingly, either as a soiling crop, when cured into hay, or when put into the silo.

When rye is to be used as a forage it is generally best to graze it while small. After it once heads out, the silo is the best means of preserving it, but the quality is only fair at the best. In food value the rye silage is somewhat below corn silage. • • •

It is not the purpose of this bulletin to set forth the conditions under which cereals should be used for silage, but rather the conditions necessary to make such silage, and the character of the silage made. No tests were made of oats and the one trial of wheat is necessarily too limited to allow for safe conclusions as to the results. • • • On these grounds it appears safe to say that when the market conditions and feed supply justify the use of cereal crops for silage no difficulty need be expected in so using them. The loss of feeding value in the silo will be no more than for corn. No fear need be felt on account of the old idea that hollow-stemmed plants will not keep in the silo. It is necessary, however, to see that the silage is well tramped and that it contains sufficient water.

Dairy Herd on Shares

Can you give me any information about terms a renter could make with an owner who wishes to leave eight or ten milk cows on the place? What would be a fair way to fix the rent?—A. B., Wyoming.

The following share systems are described in the U. S. Department of Agriculture Bulletin No. 650, "Lease contracts used in renting farms on shares." Where ordinary cows are rented to farmers the usual method is to divide the increase equally, the farmer getting all the milk. The calves are divided at six months of age. In Wisconsin, where purebred dairy cattle are handled, leases are made for long terms (five years), the farmer furnishing feed, care, shelter, veterinary fees and all general expenses. The owner pays taxes and insurance. Bull calves are sold as convenient, and the proceeds divided equally. Returns from sales of heifers go two-thirds to the owner and one-third to the farmer. At the termination of the contract, after enough animals have been set aside to equal the original herd furnished by the owner, the remainder is divided at the rate of two-thirds to the owner and one-third to the farmer. On dairy farms, where landlord and tenants share equally, the landlord furnishes half the cows and receives half the sales of milk and cream. Where the landlord furnishes all the cows the renter must replace all losses in the herd.—Charles I. Bray, Colorado Agricultural College.

The farm bureau of San Juan County, N. Mex., induced a fruit exchange to send a representative into the fruit district to estimate the crop and make a general offer. This representative offered either to buy apples at $1 a box, or orchard run.

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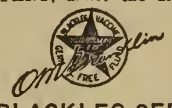
This seal  on every bottle

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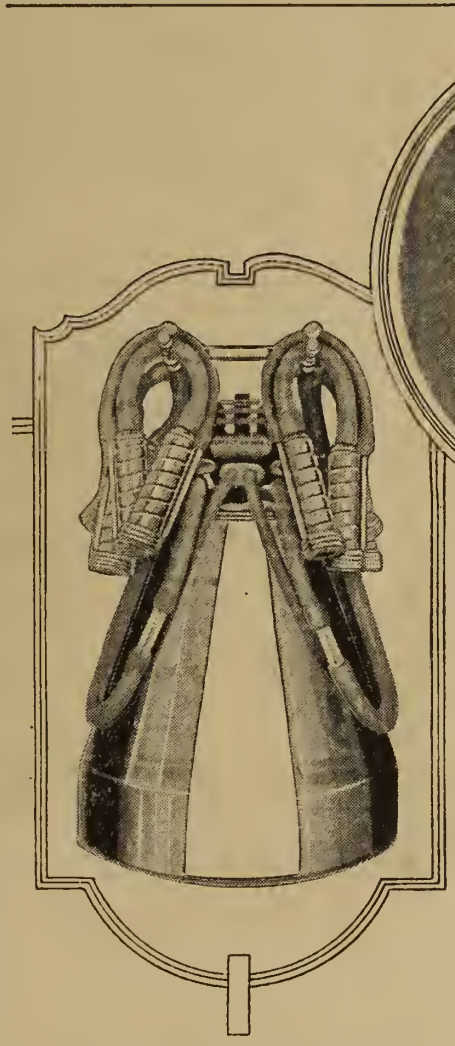

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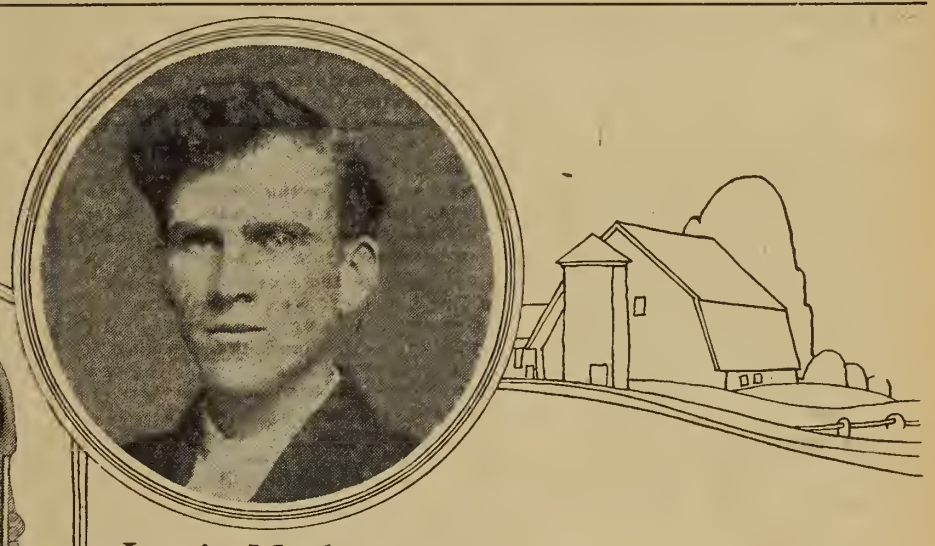

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PERFECTION MILKER

Fine Showing of Stock and Crops at State Fair

(Continued from Page 3)

concerning the practical phases of this work. He told of the experience of Herbert Sandstead of Sterling, Colorado, who paid $75.00 for a gilt from the well-known El Paso herd of J. W. Brauer. This gilt farrowed eight pigs and the young man sold seven of them for $436. He has the sow and one pig left and has refused $125 for the sow.

"Herbert stand up," said Miss Sheridan, when Mr. Tingle had concluded his brief recital of the young man's record. Herbert stood up and was given nine rousing "rahs" by his fellow club members from all over the state. Mr. Tingle added that Herbert's sow was at the fair and was made reserve champion in her class.

The next story he told was of Leroy Smith of Logan county, who bought a registered Poland China gilt for $25 and sold $325 worth of pigs from her and still has one pig left.

In the Poland China judging Albert Morris of Huerfano county was first, Charles Colvin, Saguache county, second, and Ralph Akin, Logan county, third.

In Durocs, William McCutcheon, Fort Collins, was first; Ransom Yoder, Rocky Ford, second; Gerald Lacy, Pueblo county, third.

In Holsteins, Burnice Smith of Center was first; Albert Miller, Fowler, second; William Shelden, Steamboat Springs, third.

In Herefords John Morris of Huerfano county was first; Clarence Guthrie, Pueblo county, second; Fred Brewer, Manzanola, third.

Mr. Tingle stated that the very best work in any class was that done in Herefords, which indicated that the young men were thoroughly familiar with the popular beef breed.

The highest total score made by any one judge was credited to Charles Colvin of Saguache county, whose records were as follows: Poland Chinas, 97 points; Durocs, 92 points; Herefords, 60 points; Holsteins, 80 points.

In the canning club contest Kit Carson county team was first, Saguache county second, El Paso county third and Larimer county fourth. This award was difficult to decide as the teams were so evenly matched, each giving a splendid and almost faultless demonstration in the art of canning and preserving. The first prize winners were trained by Miss Amelia Alexander of Flagler, whose team was composed of Bertha Boger, Vivian Worley and Elaine Hendricks. Miss Alexander uses her Ford car for canning demonstration purposes.

Attached to the side of the car is a folding cabinet which contains the necessary canning equipment. By dropping the lid and then raising it on a supporting leg, a table is provided, around which the members of the team are grouped when they give a demonstration for the benefit of housewives.

The second prize winners, who gave the Kit Carson team a hard pull, were, as stated, from Saguache county and comprised Lela Buckley, Thelma Sutley and Alice Gardner. This team was in charge of Mrs. H. V. McCullah of Center, who had trained the young ladies thoroughly in every branch of preserving fruits and vegetables.

State Reformatory Exhibit

Purebred livestock and general agriculture are two lines of business on which the Colorado State reformatory has embarked in an effort to serve the people not only as an institution for the reclamation of law-breakers, but in the development of farming at high altitudes. The reformatory is located at Buena Vista (altitude 8,000 feet). This is near the limit of crop production line, yet stock farming, in all that the term implies, is being carried on profitably there. Warden M. P. Capp made his first showing of the institution's work at the state fair. The exhibit was housed in a separate tent and it included livestock and crops of exceptional merit. A herd of Hereford heifers averaging 17 months, caught the eye of many a farmer who looked longingly at the smooth beef type displayed by this even bunch of long yearlings.

"Where did you get them?" was a frequent question that the warden was called upon to answer. In reply he pointed to a placard which told spectators that they were from the famous herd of Jesse Engel & Son, Sheridan, Missouri. From this herd, also, is the young bull Beau Blanchard 86, the future herd header for the Buena Vista farms, now 11 months old and bought by Warden Capp for $2,000. This bull is easily worth $5,000 today, judged by values that are common in cornbelt Hereford circles, where he hails from. The warden spent $15,000 for blueblooded stock—Hereford beef cattle, Percheron horses, hogs and sheep, as foundation stock. Not a cent of this comes out of the pockets of taxpayers. It is part of the money taken in from the farms worked by reformatory inmates.

During the present season five farms were leased and worked by the institution, the crops handled including 65 acres of wheat, 275 acres of field peas, 242 acres of oats and 350 acres of hay.

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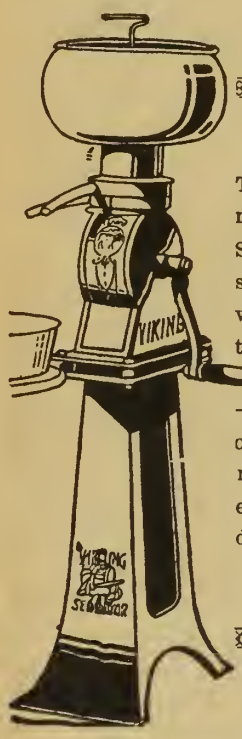

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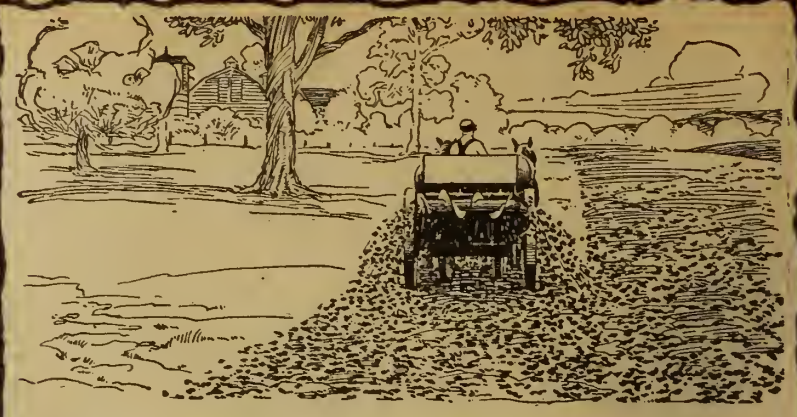

Story of Two Corn Fields

IN 1916 two 40-acre fields of corn grew side by side in Illinois. On one an International spreader had been used consistently for three years. The other had seen no manure for seven years.

That was the only difference between those two fields. One produced a matured crop running just over 80 bushels to the acre, the other averaged barely 30 bushels of soft corn. If both crops sold at the same bushel price, the fertilized field produced $2,000 more than the unfertilized one.

Was that spreader worth $500? Yes, because just scattering manure on a field will not accomplish the same results. That field of 80-bushel corn was properly fertilized by a man who knows his business. He feeds his crops a balanced ration. This cannot be done without a good, wide-spreading manure spreader. It is being done by these spreaders:

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The grain yield will be about 20,000 bushels. These crops are used in stock feeding operations and the surplus is sold on the open market. Part of the land worked is owned by the state and the balance is leased from private owners, all of it being located at from two to five miles from the reformatory. The inmates are given credit under the merit system for faithful work on the farms, besides the benefit to health and morals from useful outdoor occupation.

Swine Show Comment

Edgemoor Farm, Littleton, made a fine record with a herd of Duroc Jersey hogs, receiving a total of 21 premiums, as follows: Senior and grand champion boar; senior and grand champion sow; reserve champion sow (over 1 year); first prize aged herd; first prize aged boar; first, second and third prize, aged sows; second prize under year herd; second prize, state futurity litter; first prize, state futurity boar pig.

Other exhibitors won a total of seven first prizes on Durocs of Edgemoor Farm breeding.

Many of the winners in the under year and under six months classes were sired by Cherry Chief of Edgemoor ,the grand champion boar shown by Edgemoor Farm at the state fair in 1918. One of the sows in the first prize aged herd this year produced the second prize futurity litter, and three other prize-winners at the same show.

The winnings of Edgemoor Farm Durocs this year duplicated the record of the same herd at the state fair in 1918, when it carried off both grand championships and the first prize aged herd. The grand champion boar exhibited this year was bred by the Colorado Agricultural College and has a remarkable show record, being a first prize winner three times and also having one reserve championship, one senior championship and one Grand championship to his credit.

C. F. Burke's Blue Ribbon Durocs. the herd that put the Arkansas valley on the map in registered breeding stock, had the following list of winnings to its credit: First on senior sow pig; junior champion sow; first on aged herd bred by exhibitor; third on aged boar; second on junior yearling boar; third on senior sow pig; second on junior yearling sow; fourth on aged herd; fourth on young herd; fourth on young herd bred by exhibitor; second on get of sire; sixth in futurity litter; first in special class sow over six months.

J. W. Brauer of Colorado Springs was on hand with a fine lot of the progeny of I Am A Pathfinder, the 1919 grand Champion at the National Western Stock Show, subsequently sold to a cornbelt breeder by Mr. Brauer for $3,000, which is the highest price ever paid for any Colorado-owned pig. With Pathfinder's Orion, Mr. Brauer took the junior championship on boar. He defeated 49 contenders in two classes in the futurity.

State Fair Notes

To Fremont county went the sweepstakes in fruit, with Delta second. There has been a close contest between these two counties in the past and this year the Fremont fruit growers, blessed with a good crop and applying better methods in the production and handling of their fruit each season, scored against the Western Slope county, which has long been famous for its horticultural products. Delta took second gracefully, but vowing to come back with an unbeatable exhibit next year. Fremont county was also first on fruit in District No. 4, comprising Fremont, Pueblo, Otero, Custer, Costilla, Conejos, Rio Grande, Alamosa, Saguache, Lake, Chaffee, Crowley, Archuleta, La Plata and Montezuma counties.

Crowley county claims that its soil will produce double. In proof of this broad assertion the county exhibit from Crowley at the state fair included some fine specimens of vegetable twins, among them a double watermelon, a freak hitherto unknown at any Colorado fair. There were twin squashes, twin plums and twin canteloupes. A box containing double onions, a double potato, double cucumber, double ears of popcorn and other freaks was lost by the express company in shipment to Pueblo. This was the freak feature of Crowley county's otherwise normal exhibit of farm and garden products that included a unique showing by a 12-year-old boy—Thornton H. Thomas, Jr., from a dry land homestead ten miles north of Sugar City. This youthful farmer exhibited a good sample of nearly every staple vegetable and field crop grown in any part of Colorado, all produced without irrigation.

A moving picture show was a feature of the Colorado Agricultural College exhibit. This was in charge of Ralph L. Crosman, editor of publications, who is venturing into motion pictures for educational purposes and making a success of it. He directed the filming of the Sargent school, which has been shown publicly and privately to many hundreds during the past summer in Colorado and Kansas and was witnessed by many hundreds during the state fair. The college is entering a field that has unlimited possibilities, not only from a publicity standpoint but as a part of the educational facilities of the college. This institution has an opportunity to be among the first of the agricultural colleges to teach by means of moving pictures.

The Department of Horticulture of the agricultural college taught a lesson in fruit packing by a very effective display which showed the wrong and right way. The imperfect and unprofitable pack was shown alongside the perfect and profitable, so that any fruit grower might see the value of doing it right.

Wynnewood ranch, Overland park, near Denver, was among the new exhibitors in Poland Chinas, and Mr. C. E. Gordon, in charge of the hogs on that ranch, was well pleased with his winnings, which included two reserve championships, besides several blue ribbons.

The Twenty-first General assembly made no mistake in providing a perpetual tax levy in support of the Colorado State fair. The only criticism

(Turn to Page 21)

Definitions of Breeding

The following definitions have been adopted by the United States Department of Agriculture for use in the "Better Sires"—Better Stock" campaign which it will conduct in co-operation with the various states, beginning October 1:

Purebred: A purebred animal is one of pure breeding representing a definite, recognized breed and both of whose parents were purebred animals of the same breed. To be considered purebred, live stock must be either registered, eligible to registration, or (in the absence of public registry for that class) have such lineage that its pure breeding can be definitely proved. To be of good type and quality, the animal must be healthy, vigorous, and a creditable specimen of its breed.

Thoroughbred: The term "thoroughbred" applies accurately only to the breed of running horses eligible to registration in the General Stud Book of England, the American Stud Book, or affiliated Stud Books for thoroughbred horses in other countries.

Standardbred: Applied to horses, this term refers to a distinct breed of American light horses, which includes both trotters and pacers which are eligible to registration in the American Trotting Register. Applied to poultry, the term includes all birds bred to conform to the standards of form, color, markings, weight, etc., for the various breeds under the standard of perfection of the American Poultry Association.

Scrub: A scrub is an animal of mixed or unknown breeding without definite type or markings. Such terms as native, mongrel, razorback, dunghill, piney woods, cayuse, broncho, and mustang are somewhat synonymous with "scrub," although many of the animals described by these terms have a certain fixity of type even though they present no evidence of systematic improved breeding.

Crossbred: This term applies to the progeny of purebred parents of different breeds, but of the same species.

Grade: A grade is the offspring resulting from mating a purebred with a scrub, or from mating animals not purebred, but having close purebred ancestors. The offspring of a purebred and a grade is also a grade, but through progressive improvement becomes a high grade.

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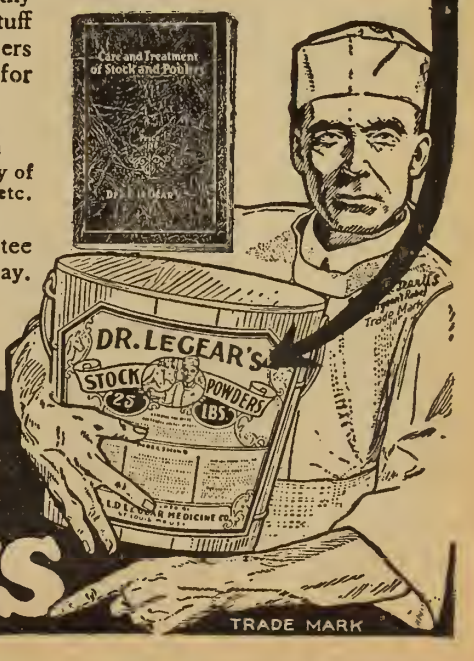

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World's Greatest Fur Sale

The largest fur auction ever held in either this country or in Europe, reaching to over $15,000,000, took place in September, at St. Louis, at the auction rooms of the International Fur exchange. There were 600 buyers in attendance, a large number of them representing European houses, and the number of pelts presented for sale amounted to the very large total of 13,000,000.

The skins offered are by no means all native pelts; they represent every clime and every part of the world that contains fur-hearing animals. They also include varied values from the most rare Russian sables and ermine to the humble chipmunk and domesticated cat. A canvas covered box from Siberia, only two feet long by two high and perhaps a foot wide, was insured for $90,000, so choice were the sables it contained.

With the exception of the Australian and New Zealand rabbits, which number about ten to the pound, all sales were made by the pelt. It would be impossible that so great a number of skins should change hands during the ten days of the sale if it were not for a system of most accurate grading. Pelts are graded in five classes and are catalogued as I, II, III, IV or V. Both the trappers and shippers who send furs to the St. Louis market and the foreign and American buyers who go there for the skins that are to appear later as luxurious garments, or fashionable adjuncts to cloth suits and coats, have absolute confidence in the graders and their system.

The enormous and regular shipments of furs going to St. Louis is sustained by a fair and standardized system of grading, for on this grading depends the prices that the trappers receive for the raw skins. It is also the method of determining the prices offered by the dealer who must judge the value of the skins from the sample drawn from each lot. It is on this basis of mutual confidence that this great sale which in 1916 amounted to $1,300,000 has now increased nearly twelvefold.

As in previous years, the sale opened with the presentation of the Alaskan seals and foxes owned by the United States government. The Alaskan seal skins are now dressed, dyed and machined in St. Louis instead of being sent to London for this process as was formerly the case. The government killing is still small; only 9,055 were taken this year, which fact makes these beautiful skins very precious. However, the prospects are that the growing size and improved condition of the Alaskan seal herds under government supervision will allow of a much larger supply of these pelts the coming year. The record price paid for the Alaskan seal pelts was $115.00 each. These government-owned furs are only sold at the St. Louis sales.

One of the features of the auction was the increase in prices paid for all native skins, including muskrat.

Beaver, opossum, skunk, lynx all brought unprecedented prices. The high grade foxes, such as the Alaskan blue fox, reached a figure that showed an advance of from 100 to 135 per cent.

Prices obtained for rare pelts included a single Russian sable at $1,200, and a lot of ninety sold at an average of $500 each. These, of course, are exceptional valuations, such as those put on rare jewels.

Whorled Milkweed Poison

There are still a number of individuals who maintain that the whorled milkweed is not poisonous to any class of stock. There is a still larger number who say that the milkweed is poisonous to sheep, but has no ill effects on cattle or horses. These statements of the non-poisoning properties of this plant are based upon what at first seems to be perfectly good evidence. One of the most common forms that this evidence takes is "I have pastured my cattle in an orchard or a pasture for two or three years and have never had any trouble." The statement is absolutely true. The writer has seen dozens of such pastures, but the truth of the statement does not prove the milkweed to be non-poisonous because invariably an investigation of these pastures shows that the milkweed is not eaten off, but that while the grass may be grazed close to the ground, the milkweed grows up unmolested and goes to seed. Furthermore, the milkweed continues to get thicker and the grass thinner in such pastures, and some time there will be so much milkweed and so little grass that a hungry cow or horse will eat enough of the milkweed and the owner will have to buy another to replace the one lost.

It was in just such a pasture as this on Rogers Mesa that 44 head of steers were lost. This pasture had had cows in it all summer. They didn't eat milkweed, hence the milkweed was not poisonous (?), but when a large bunch of hungry steers was brought from the range and turned into the pasture, they ate milkweed, 44 head died, and the milkweed was poisonous.

Just the other day the writer heard of a man who had an old horse who had served his time and he thought that feeding him milkweed would be an easy and humane way of putting him out of his misery. The horse did not want to die, so he refused to eat the milkweed. The owner slipped one over on him and mixed ground milkweed with oats. He increased the dose until the horse was taking a handful of the groundup milkweed. This had no effect on the horse and the owner decided that the milkweed was not poisonous.

It must be borne in mind that the poison is not in a very concentrated condition in most poisonous plants. For instance it requires 30 pounds of Larkspur for a 1000 pound animal to cause death. Feeding experiments at the experiment station have shown that it requires 1-5 to 1-2 pound of milkweed at one feed to kill a 100 pound sheep. The amount to kill is usually about in proportion to weight. That is if one-half pound will kill a 100 pound animal it will require 5 pounds to kill a 1000 pound animal. Different classes of stock of course vary in their susceptibility to a given poison, that is horses might be more susceptible to a poison than sheep, in which case it would require less than 5 pounds to kill a horse if one-half pound killed the sheep.

Feeding experiments at Utah have shown that a cow requires a little more milkweed in proportion to weight than a sheep. This means that it would require at least a little over 2 pounds to kill a 1000 pound cow. Field experience indicates that horses are a little more liable to milkweed poisoning than cows, because where horses and cows are fed the same hay containing milkweed, the horses usually show the first symptoms. About 2 pounds should be somewhere near a dose for horses. This is for partially cured milkweed.

Now to get back to the handful fed in the oats. A handful of ground, dry milkweed weighs one ounce. If partially cured not over a quarter of a pound, therefore the handful of milkweed fed to the horse would be about 1-8 of the amount necessary to kill. The above "experiment" then does not prove that the milkweed is not poisonous as sufficient amounts of the weed were not used.

These two facts, namely (1) that stock do not like milkweed and (2) that it requires a considerable amount at one time to cause death are responsible for the fact that noticeable losses from this plant did not occur until the milkweed was present in large amounts, and also for the belief that milkweed is not poisonous.—W. L. May, Deputy State Entomologist.

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On account of the scarcity of co there will probably be a large amou of wood used as fuel this winter. U all the waste timber, dead and dyi trees for this purpose and be sure conserve the ashes for garden fert izer. They are rich in plant food, pa ticularly potash.

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"H. R. H. The Rider"

(Continued from Page 11)

CHAPTER IV

At Peter's Inn

At the inn, Alexander, Nicholas and Ivan had finished their wine, and were preparing to take their departure in search of their missing friend. A dozen or more rough and unkempt fellows were drinking in the open barroom, and mine host, Peter, together with trig, off table tops, removing empty mugs and glasses, and replacing them with filled ones.

In the smoke begrimed kitchen adjoining little Bakla, was bustling about wiping ing the bar Peter's frowzy frau broiled with her steaks before a glowing grill. From the pipe between her toothless gums to the dirt upon her bare feet she was all athrob with the ecstacy of a true artist, for tonight she was preparing a dinner for the fine young gentleman from the capital, who could appreciate such culinary achievements as hers. The swine she ordinarily cooked for knew nothing of the divine exquisiteness of the food she served them, yet, being a true artist who labors first for the love of art, Peter's frau cooked as well for them as for the more appreciative, though with scarce the same enthusiasm.

Upon her artistic reveries now broke Bakla, with a rude interruption. The gentlemen were leaving. They had sent word that they would return when they had located their missing friend. Tillie threw up her hands in horror. The dinner would be spoiled! In fifteen minutes it would be ready to serve. She rushed toward the doorway leading into the barroom. She would explain. She would entreat the fine, young gentlemen to eat first and seek their friend later.

Bakla trotted in the wake of her mistress. She, too, was perturbed; but not on account of the spoiled dinner. Bakla shared the uneasiness of the departing guests over the unaccountable tardiness of the missing friend—the tall, black-haired, gray-eyed young man who smiled much and spoke always in a soft and kindly voice. He had been coming here to Peter's Inn for many months, and though she did not know who he might be she was convinced that he was a very fine gentleman with a great deal of money and a large and generous heart Many were the sighs that Bakla had heaved to the heroic figure of this guest of guests.

As Tillie and Bakla rushed into the barroom the three young gentlemen were just slipping on their military capes as they crossed the sanded floor toward the doorway at the opposite side of the room.

At the same moment the door swung open and a tall figure, booted and spurred, filled the doorway. The upper half of his face was hidden beneath a black mask. The three departing guests halted in the middle of the floor, and three hands flew to the hilts of three swords. The man at the doorway stepped within, disclosing another, equally as tall, directly behind him. At the sight of the latter, Ivan gave voice to an exclamation of relief.

"Dimmie!" he cried. "It's Dimmie! Where have you been? We were just setting out to look for you, and who the devil have you with you?"

Dimmie stepped into the room and bowed low to his friends and the assembled guests, servants and hosts of Peter's Inn.

"Permit me," he said, "to present my very good friend, the Rider!"

A chorus of exclamations greeted the introduction. The roughs rose from their tables and pressed forward, as d.d the three guardsmen, Peter, Tillie and Bakla.

"The Rider!" exclaimed Bakla, clasping her little hands together in an ecstasy of thrills.

"He held me up on the road, Alexander," cried Dimmie. "I knew you would never believe me unless I brought proof, and so I persuaded my good friend to come along with me and assure you that it is indeed true that I have been waylaid by no less a person than the much-talked-of-Rider. Eh, Sunshine, is it not true?" and the speaker turned toward his captive.

A surly-looking fellow who had been sitting alone at the far table now shouldered his way through the crowd about the two newcomers. His evil, little eyes scanned the faces of them both, and it is a matter open to dispute as to which of the figures caused him the greater astonishment.

The Rider saw him and hung his head. Then he looked up, caught the other's eye, and surreptitiously touched the empty holster at his hip. The other raised his eyebrows in mingled surprise and understanding.

Ivan was also examining the two men. He noted that he of the mask was unarmed, while Dimmie carried a long, evil-looking revolver half hidden behind him. Suddenly he burst into a loud laugh.

Alexander and Nicholas looked at him in surprise. The Rider glanced quickly over the faces of the assembled guests. Fully half were men of his own stamp with whom he was familiar in the vice haunts of the city; but only one, he of the small and evil eyes, knew that their city crony and the Rider were one and the same.

Suddenly the bandit snatched the mask from his face, revealing a countenance wherein intelligence and bestiality were oddly combined. The forehead was high and broad, the ears well set, but a trifle too small, the chin and mouth sensitive without weakness. The man's nose and eyes were the least prepossessing of his features. The former was slightly bulbous, while the latter were small and close-set.

At sight of the Rider's face a number of the rougher guests gave vent to expressions of astonished recognition, and exclamations of "The Wolf!" fell from the lips of several.

"Yes," said the Rider, "I am the Wolf, your old friend and comrade. Will you see me dragged off to prison by a handful of dandies—me, who ceuld send the half of you to the halter if I chose?"

"That we'll not," growled one of the drinkers. "Come, comrades, pluck these fine chickens and throw them out to the dogs. We do not want them here. Peter's place belongs to us. What business have they here? Come!" and he stepped truculently forward toward him whom Ivan had addressed as Dimmie.

Tillie, a large grilling fork in one huge red hand, ran screaming toward the speaker.

"Pig!" he cried; "what would you do? Chase away the only guests who have brains enough to know what they are putting into their stomachs and purses long enough to pay for what they eat and drink, and I'll have the rotten heart of you!"

But the man was already beside Dimmie. One pawlike hand was clutching for the young man's shoulder. Alexander, Nicholas and Ivan sprang forward with cries of mingled rage and horrified warning. The Rider, seeing his opportunity, also turned upon his captor; but Dimmie, still smiling good-naturedly, let drive a smashing right that caught the would-be deliverer of the Rider full in the mouth and sent him sprawling backward upon the floor. Then he wheeled upon the Rider just as the latter seized him about the body, reached quickly over his shoulders, caught him around the waist, and, lifting him bodily from the floor, hurled him completely over his head.

In the meantime the three guardsmen were engaged with others of the roughs who had entered the fracas in the defense of their friends. No weapons had been drawn upon either side—as yet it was but a rough-and-tumble fist fight. The revolver which Dimmie had held when he entered the room he had slipped inside his shirt with its fellow, and

(Turn to Page 24)

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"It is best to pay in your land a skiliful gardener, or to buy good sense applied to gardening; in your sailor, good sense applied to navigation; in the house, good sense applied to cooking, sewing, serving; in your agent, good sense applied to accounts and affairs. So do you multiply your presence, or spread yourself through your estate. But because of the dual constitution of things, in labor as well as in life, there can be no cheating. The thief steals from himself. The swindler swindles from himself. For the real price of labor is knowledge and virtue, whereof wealth and credit are signs. These signs, like paper money, may be counterfeited or stolen, but that which they represent, namely, knowledge and virtue, cannot be counterfeited or stolen. These ends of labor cannot be answered but by real exertions of the mind, and in obedience to pure motives. The cheat, the defauiter, the gambler, cannot extort the benefit, cannot extort the knowledge of material and moral nature which his honest care and pains yield to the operative. The law of nature is: Do the thing, and you shall have the power; but they who do not the thing have not the power."—Raiph Waldo Emerson.

"We are no other than a moving row
Of magic shadow shapes, that come and go
'Round the sun-illumined lantern, held in
Midnight by the Master of the Show!"
—Omar Khayyam.

Maybe old Omar didn't run a state fair in the days when his tent making flourished in Persia; but he must have been perfectly capable of so doing, or these particular lines would never have come down to us. A bit cynical they are, but with the knowledge that a show is inevitable in the lives of aii of us. Some people scoff at fairs and exhibits, but they serve their purpose in keeping us up to standard—so perhaps that is the why of them.

And Omar didn't forget the bit of "magic" that he always uses. Nothing is worth while to any of us without the magic of interest. Pity be for the man who cares not at all for what his neighbor is doing—he couldn't go to anything and enjoy it, let alone see the real meaning and beauty of our community and county and state fairs.

"Oh Gee! Ain't it Fun? Hot Lunches in Our School," was the title of what seemed to be the keynote poster in one of the nome economics booths shown in the agricultural college division. And the four youngsters on the poster who were enjoying dishes of good things certainly looked as if it were fun.

Miss Haynes, representing the extension division of home economics for the college, who was in charge of the booth, had arranged it like a real schoolroom. There were the desks and tagle for the teacher, which made us realize that in this respect at least, schoolrooms were much as they used to be. But several other points about this schoolroom showed us that methods of real care for children there have changed somewhat.

For instance, who ever heard of an oil stove used for cooking purposes alone in an old schoolroom, or who ever saw a set of shelves built by one of the boys to hold cooking utensils and cans of rice and good things instead of schooi books? And last, but not least, who in all the wide world would ever have thought of seeing a big kettle of steaming soup on this particular sort of stove, with the ladle in it and the bowls on the desks all ready to be served?

Well, that's what a modern schoolroom seems to be like in these days. And away off in some of the most remote districts even they seem to have the idea that one hot dish to supplement the sandwiches brought from home, heips the children to study better and play better. We wish every country school in all the districts where Western Farm Life goes had the same idea. We shall be glad to heip with suggestions along this line, if the mothers ask our advice.

Mrs. Baker, superintendent of schools for Pueblo county, said that the directors of schools in that county had nearly all decided to provide means to have one hot dish served in their schools; and that most of the teachers, as usual, were willing to do their share toward helping to give the children this much needed boost toward better schoolwork. We'd like to say a "hurrah" for the teachers and schooi directors and school superintendent of Pueblo county!

FROM MARY AGAIN

In Regard to Fairs and Fairs

Dear Sarah:

These summer visits have certainly been more satisfying than letters because there was a chance to watch your eyes when I made some of my fool remarks. But now that we're finishing up fall work and beginning on winter, I know there'll be a season when we can't see each other so much. Letters in such a case aren't so unsatisfying, and, anyway, I want to ask you something.

You see I've been to two fairs lately and the inevitabie has happened. All the million or two jars of canned stuff I have seen have roused the usual feminine feeling, "What other women have done, I must do!" Now, please, send me your recipe for pepper relish. I am going to put up quarts of it in order to still the envy within me.

My latest escapade was the state fair at Pueblo and we waiked miles seeing everything; but it was worth while, from fat cattle to apples. They weighed babies and measured babies in spite of howls and protests. They showed us how to bathe 'em, and dress 'em, and feed 'em, and play with 'em, and send 'em to school where only hot lunches are served. I looked at them all, appreciated, criticized and said nothing.

But one thing they hit hard and I wish couid have been hit even harder, because it's so near my soul; and that was a booth where they tried to show all of us who went by the one sided argument of the "old oaken bucket" ag'in the "kitchen sink." Of course it came out in favor of the kitchen sink, and I was more than glad I could vote on that side from personal experience, and answer a most emphatic "No!" to a poster which asked, "Is This Your Home?" and then showed a beautifully equipped barn, but a woman carrying water to the house.

They had suggestions for different types of water systems for all types of homes and posters telling ali about it. But the main point in the booth was the fact that they had a corner of a kitchen with a really, truly white enamel sink with back and drainboard ali attached. The drainer even was inside and several interesting utensils were hanging up by the side of it. There was actually a curtain on the window.

Then outside, and far enough removed even in that small space to show its useless degredation was an equally really, truly old-fashioned well curb, old weather stained boards, pulley, oid rope, pail and all. In spite of romance and the poets you could mighty easily tell which the women preferred. Some of the men tried to make out they didn't really know what it was for, but I think they caught the point. Everybody looked inside, thus keeping going the old query, "Why does a crowd look down a hoie?"

I thought of ail the weary steps that oid weil curb represented to heaps of farmers' wives and wished with the little boy in the picture, that "it was inside." We went around to the movie show that Mr. Crosman of the agricultural coliege had fixed up and watched the screen account of some of the gala days of the college and the activities of the Sargent school a Monte Vista, and watched hens being trapnested. Then we went down to hear President Wilson and came home afterward!

"Fairs is fairs," and a lot of work but I guess they keep us humping and warding off stagnation by working for newer and better things than our neighbors have. So is the human constituted. Better pickles is what I'm after, Sarah, so please hurry the relish recipe. Then I'll have some when you come over Thanksgiving and make Marvin wish he'd married a real cook (?) instead of just the one who invented the combination.

Lovingly,

MARY.

No Sugar Required

No sugar is required to make a delicious syrup from apple juice for use on hot cakes this winter, or for beverages next summer, or to sweeten cookies or desserts.

Add five ounces of powdered calcium carbonate to seven gallons of apple juice or sweet cider. Calcium carbonate is the chemical name of powdered chalk and can be obtained at drug stores. Boil the mixture in a kettle or vat vigorously for five minutes. Pour the liquid into vessels preferably jars or pitchers. Allow it to stand six or eight hours, or until perfectly clear. Pour the clear liquid into a clean preserving kettle. Ad

Do you know the fineness of real tea-flavor or only the tang of coarse tea and tannin?

Common tea is the coarse tannin-flavored tea. It costs less per pound than Schilling Tea but more per cup.

Why not have good tea while you are about it?

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. Ali one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

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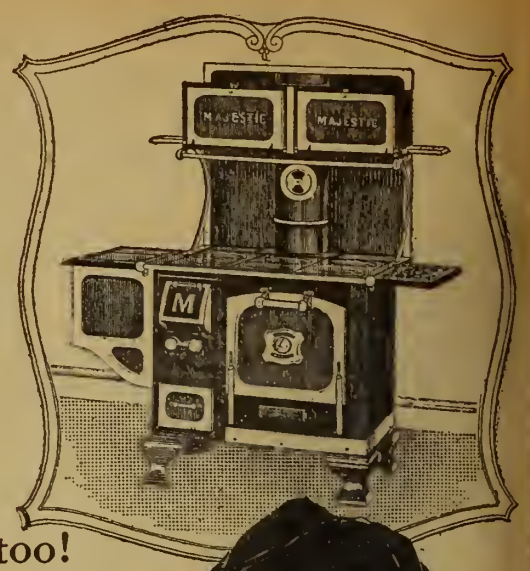
Just dip the boiling hot water whenever you need it, from the all-copper reservoir on the side of your Majestic Range. Reservoir top is level with range top, giving extra space. Patented heat pocket of reservoir fits directly against fire box —and convenient shifting lever moves reservoir close to fire, or away, controlling temperature of water.



Perfect baking, too!

Air-tight oven, all joints riveted, economizes fuel and assures delightful baking results. Large warming closets at top. Unbreakable malleable iron frame saves repairs. Pure charcoal iron body, best known rust-resisting material. Burnished cooking top requires no polish. Trimmings of smooth gleaming nickel. Whole range so easy to keep clean and bright.

Door panels and splasher back in lustrous Blue Enamel or White Enamel finish, if desired.

The Majestic Range is made in many styles and sizes—every style the highest range value obtainable at its price. Majestic prices the same everywhere—freight considered.

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Majestic Manufacturing Co.
Dept. 231 St. Louis, Mo.

Great Majestic
The Range with a Reputation

to this liquid one teaspoon of calcium carbonate; stir thoroughly. Boil rapidly (220 degrees F.) until the bulk is reduced one-seventh of the original volume, or about one gallon to each seven of the quantity first used. The syrup should then have, when tested in cold water, the consistency of maple syrup. Pour into jars or pitchers, and cool it very slowly.

Pour the syrup into fruit jars, cans, jugs or kettles. Boil in water bath ten minutes; in a steam-pressure cooker with five pounds eight minutes.

Remove containers and tighten covers or corks. Invert to cool and test joints. Store for winter use.—United States Department of Agriculture.

Height of Kitchen Table

The height of a woman's kitchen sink and work tables are important factors in her well-being and well-doing. She can't do as much or as good work and feel well and strong with her sink and table so low that she has to bend over to work, or so high that she has to "reach up," as she would were they the proper height. As a general rule, 32 to 36 inches from the floor is the height for general work tables and the bottom of the sink should usually be 30 to 31 inches from the floor, the home economics kitchen of the United States Department of Agriculture suggests. However, each woman ought to find out for herself the height of the table at which she can work most easily and efficiently, and see that her work tables and sink are adjusted accordingly. Legs which are too long can be cut off, and those too short can be raised by blocks under them.

Ashgrove Canning Club, Mrs. John Spacke, Leader

Ash Grove Club Entertainment

The entertainment and pie social given by the members of the Boys' and Girls' Clubs of the Ash Grove community was a decided success from all standpoints.

Mr. and Mrs. John Spacke, leaders of the Ash Grove clubs, are to be congratulated for the splendid program rendered and also thanked for their untiring efforts on behalf of the club movement.

The entertainment was held at the Ash Grove school house and long before the hour set to begin the house was crowded to its capacity with the parents and friends of the club members and it is needless to say that after the program had been rendered all were highly pleased and entertained.

The program consisted of negro songs and dances, vocal and instrumental solos by the club members, all of whom acquitted themselves with credit.

Among the visitors were Mr. George Adams and family, and Mr. George McCarroll of Glendale, and Miss Eunice Kennedy, Assistant State Club Leader of Fort Collins, who made a short talk on club work.

After the program was finished pies of all descriptions were sold to the highest bidders. The bidding was very spirited and $54.60 was realized from the same. Lemonade was also on tap and the crowd must have been dry for the sales amounted to $12.00.

The money taken in will be used to purchase a pressure cooker, a kerosene stove and cooking utensils to be used by the club members and by the community.—Arapahoe County Farm Bureau Bulletin.

A Good Excuse

"Lloyd, you must stop using such dreadful language," said his mother. "Where in the world did you learn it?"

"Why, mother," replied the boy, "Shakespeare uses it."

"Well, then," said the mother, "don't play with him any more!"—Country Gentleman.

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DURHAM
TRADE MARK
HOSIERY

Durable-DURHAM Hosiery is a product of industrial democracy—never of Child Labor. We have no strikes or lockouts.

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HOSIERY for every one in the family that is made thick and warm for winter—and light and cool for summer, but always of honest wearing value—and always good-looking. Every pair has real value. Longer wear at reasonable cost means true economy. Not only in the money saved—but the time that is saved in less darning.

Right now, thousands of men and women are buying Durable-DURHAM fleecy-lined hosiery for winter. Every pair is full of warmth and full of wear. This hosiery is comfortable to wear—and has a fine appearance.

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Every pair of Durable-DURHAM is made right. Legs are full length; tops wide and elastic; sizes are accurately marked. Soles and toes are smooth, seamless and even. The Durham dyes will not fade.

Ask for Durable-DURHAM Hosiery and look for the trade mark ticket on each pair. Your dealer should have Durable-DURHAM. If you do not find it, please write to our sales department, 88 Leonard Street, New York, giving us the name of your dealer.

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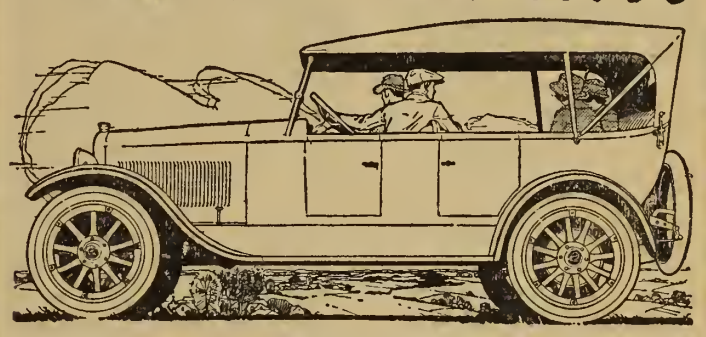

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We firmly believe, and so do great hosts of people all over America, that the Chandler Six is the most fairly priced fine car built.

Chandler features include the famous Chandler motor, now in its seventh year of constant refinement and development, solid cast aluminum crank case, Bosch magneto ignition, ball bearings, silent chain drive for auxiliary motor shafts, and most beautiful and comfortable bodies. Yet Chandler sells for hundreds of dollars less than other cars which might perhaps be compared with it.

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7-Passenger Touring Car, $1795 *4-Passenger Roadster, $1795*
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All prices f. o. b. Cleveland

If you do not know your Chandler dealer, write to us

CHANDLER MOTOR CAR COMPANY
CLEVELAND, OHIO

Profitable Farm Poultry

W. E. VAPLON

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries Poultry Department, Western Farm Life, Denver, Colorado.

Can you beat it? One thousand eggs in August from 60 hens; and city hens at that. That's going some and if our country hens would strike that gait, the past season's drought wouldn't seem so bad.

The dream of every prospective poultryman is a regular and constant supply of eggs; perhaps not the same number in the winter months, but still there seems no reason, in his mind, why, if something approximating summer conditions is furnished, the hens should not approximate the summer yield.

I think Lord Ogilvy of Denver has this winter egg proposition solved. If I were not so modest I should claim half the credit of this discovery or invention, as certainly not less than two heads could evolve such a wonderful scheme. When it is autumn here, it is spring in South America. I don't want to be quoted in this matter as this is only hearsay, I've never been there; if this is true, the hens down there are just now through the winter and are getting busy; in fact they are doing just what our hens do in March, laying about 20 eggs a month. Our scheme is to bring a ship load of those hens to this country right now and get them going good and plenty before they get onto the change and keep them going all winter. Then, next spring, when our hens get busy with 20 eggs a month, run a ship load down there and play the same game over. I don't know that this ante-over game could be played with the same bunch of hens continuously, but if all the stuff we read about 100 per cent layers is true, maybe we could.

Of course it isn't possible for all of our readers to put in the time making money so easily, and we know many do not think it proper to take advantage of the ignorance of others, even it "the others" is a hen, but really, it's just about as easy to get eggs at this season as to run back and forth to South America. The one who has a nice flock of early pullets is getting his interest now and will reap a regular harvest in November and December.

But this record of the city hens made me wonder why everybody's hens don't do better during late summer. We don't claim to have anything wonderful in our flock and certainly don't give them much attention, but in August they averaged 13 and a sixth eggs; the September average was around 9 or 10.

We hope our readers appreciate the bird in the hand; a few years ago forced moult for early laying was popular; we tried it but too many of our hens never came back to the nest and now our aim is to get every possible egg today and let tomorrow take care of itself; we never did believe in carrying a lot of insurance for the other fellow to spend.

I suppose everyone must decide for himself why his hens drop off heavily and sudenly and early. Self examination is a good thing at other times than January 1st. Not a farmer but can get a dozen eggs per hen in August, though few do it; I say this assuredly because he can give his hens as good care as I do mine. I clean my henhouse every Sunday morning; doing so makes me more fit to enjoy the services. I scatter the breakfast of wheat broadcast, throw in a head of cabbage or some green cornstalks, fill their pail with fresh water, and that's all until night. Then a measure of corn, fresh water, and gather the eggs. They have before them, always, a hopper containing 2 parts fine cornchop, 2 parts bran, 1 part good beefscrap; with plenty of milk the beefscrap can be omitted.

One, or at the most two, osteopathic treatments of paint brush and dope to the roosts insures the hens a good sleep; turned over fresh earth affords a bathing beach, and it is surprising how little time is required to furnish these luxuries, and how very satisfactory are the returns.

I suppose just because our grandfathers' and mother-in-laws' hens went on strike in mid-summer we expect the same thing from our hens and so get a little careless when the falling off begins. The love of money may be the root of all evil, but carelessness is the root of all loss. Carelessness may be defined, if you please, shiftlessness. neglect, indifference, or anything else that sounds worse than all those terms. In 95 per cent of the cases I have looked into because of trouble in the poultry yard, neglect and indifference, rather than ignorance, were the cause of the trouble. Eternal vigilance is the price of 60 cent eggs, and while one can ease up on the strenuous work of spring during the summer and early autumn, positive neglect is costly.—W. E. V.

Mrs. Kyffin's Winnings

Mrs. J. W. Kyffin, Rfd. 3, La Junta, Colo., who is well known to all readers of the poultry department, is pleased with her winnings at the Colorado State fair, taking first and second on cockerel, first and second on pullet, first on hen and first on best pen in Buff Leghorns. The show was a big one and these winnings speak well for the quality of Mrs. Kyffin's poultry

Ask Western Farm Life Service Bureau.

Says It's Depluming Mite

Mrs. H. O. of Montana is at a loss to find out what is the matter with her chickens. I think I can help her. From her description would say they were affected with the "depluming mite." It usually makes its appearance in spring and summer, attacks the roots or base of the feathers and spreads through an entire flock. If the hen is examined, the nearby feathers removed, the mites can be detected at their base, having the appearance of dust. Anoint their heads or backs, wherever needed with any of the advertised poultry disinfectants and dilute according to directions, or dip the hens in a weakened solution. I am quite sure feeding has nothing to do with it.—Subscriber, Arapahoe county, Colo.

How Much Grain to Feed

Specialists of the United States Department of Agriculture advise poultry keepers to feed about 1 quart of scratch grain and an equal weight of mash (about 1½ quarts) daily to 13 hens of the general purpose breeds, such as the Plymouth Rocks, Rhode Island Reds or Wyandottes, or about 16 hens of the smaller or egg breeds. This would be about 7½ pounds each of scratch grains and of mash daily to 100 Leghorns and about 9½ pounds of each to 100 general purpose fowls. If hens have free range or large yards containing green feed a general purpose hen will eat about 75 pounds of feed in a year, while a Leghorn will consume about 55 pounds in addition to the green stuff which she eats.

Removing Ink Stains

Black ink stains may be removed from colored garments, even when they have been in a long time, by soaking the part affected in clear kerosene. Rub gently with the hands. If necessary, soak and rub again. This method has been used for a pink and white chambray with good results. though the stain was regarded as hopeless and had been in the garment for nearly a year.—Farm and Fireside.

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It costs only one cent per dozen eggs to use Egg-o-latum. There is no other expense. Eggs are kept in carton or box in cellar. Eggs may be boiled, poached or used in any other way, just like fresh eggs. Simply rubbed on the eggs —a dozen per minute. A 50c jar is sufficient for 50 dozen eggs. At Drug, Seed and Poultry Supply Stores or postpaid.
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UNDERWEAR

GUARANTEE—We guarantee Hanes Underwear absolutely—every thread, stitch and button. We guarantee to return your money or give you a new garment if any seam breaks.

Greatest underwear value in America at the price!

You can't get greater warmth or better workmanship or more comfort or *more actual wear* than every suit of Hanes winter weight underwear for Men and Boys surely will supply!

Hanes is made in winter weight Union Suits and Shirts and Drawers. Illustrated here is the staunchest, most comfortable, wear-resisting union suit ever sold at the price.

Hanes Union Suits have the most desirable and dependable features—unbreakable seams; reinforced, non-stretching buttonholes *that last the life of the garment;* tailored collarette that cannot gap; shape holding elastic shoulders; elastic knit wrists and ankles; pearl buttons sewed on to stay. And, a closed crotch *that stays closed!*

Hanes Shirts and Drawers have the same desirable quality; perfect workmanship and features. Drawers have the durable, snug-fitting 3-button sateen waistband.

Union Suits for Boys in quality, cozy warmth and workmanship are unsurpassed at the price! Reinforced at all buttonhole and strain points. In fact they duplicate Hanes Union Suits for men, with added fleeciness. Made in sizes from 2 to 16 years. Two to four year sizes have the drop seat.

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Saguache County Canning Club Team, Winners of Second Prize in State Contest. Reading from Left to Right—Alice Gardner, Thelma Sutley, Lela Buckley, Mrs. H. V. McCullah, Club Leader

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No more hand pumping and carrying water in pails. Myers Self-Oiling Bulldozer Power Pumps give running water—all you need and wherever you need it. Extra strong and of simple, high grade construction. Moderate in cost, requires minimum attention and is easy to install. Is self-oiling, has covered working parts, large valves, liberal waterways. Operated by gasoline engine or electric motor Sizes for every need, 200 to 3000 gal. per hour capacity. You know it is better because it's a Myers. For the Myers Line of Pumps, Door Hangers and Hay Tools is acknowledged the standard in quality Ask your dealer or write us. Booklet on request

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Easy to move from cut to cut. Make big profits cutting wood. Cheap and easy to operate.

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Stationary, Portable or Saw-Rig—all at greatly reduced prices. Best Engine—longest record—strongest guarantee. Choose your own terms. No cut in quality, but a big cut in price for quick action. Write for new cut-price catalog—FREE, postpaid—ED. H. WITTE, Pres.

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Cut out this ad and mail it to us, with your name and address (no money); and we will send you our FAMOUS KARNAK RAZOR by return mail, postpaid. You may use the razor for 30 days FREE; then if you like it, pay us $1.85. If you don't like it return it. SEND NO MONEY.
MORE COMPANY. Dept. 442 St. Louis, Mo.

Fine Showing of Stock and Crops at State Fair

(Continued from Page 15)

that has been offered is that the amount secured from a levy one one-hundreth of one mill is not sufficient to meet the needs of the fair. Before it can lay claim to being truly representative of Colorado's importance as an agricultural state more suitable and substantial buildings must be provided. A special appropriation for building purposes should be secured from the next legislative session.

Tractors at the state fair drew the usual share of attention. That the tractor is suitable for other than farm purposes was evidenced by the fact that the ferris wheel on the amusement street got its power from a standard make of farm tractor instead of the usual form of stationary engine. In this case the tractor may also serve as motive power for hauling the ferris wheel from place to place.

There was always a crowd around the tents that housed exhibits of electrically driven farm household devices. The farm woman is coming into her own at last. She sees the day of back-breaking labor disappearing, as one task after another is being assumed by the electric light and power plant. It made some of the city women who saw these displays at the state fair envious to note how electricity was taking the toil out of farm housekeeping. The city woman has the same opportunity for progress but she isn't taking advantage of it as fully as is the up-to-date rural woman.

The officers responsible for the success of the Colorado State fair are Martin Walter, Jr., of Pueblo, president of the board; John T. Tobin, Montrose, secretary; Wyatt Boger, Burlington, treasurer, and J. L. Beaman, manager. The manager is on the job the year around, but he has had the constant assistance and backing of the board during 1919 and the results are apparent in the big exhibition and the splendid attendance.

Superintendents in charge of various departments were: M. F. Dillon, horses; L. C. Grant, beef cattle; W. L. Stone, sheep and swine; R. W. Carlton, poultry and pet stock; P. M. Keen, agriculture; J. N. Salter, horticulture; Mrs. R. D. Curd, pantry stores; Burt W. Hopper, apiary; Fred C. Waddell, dairy products; Mrs. L. McLean, needle and fancy work; Joseph H. Loor, better babies; J. K. Dunton, school exhibit; P. M. Keen, county exhibits; W. J. Kearney, oils and coal, and manufactures; Mrs. Kate Fitzpatrick, art; W. C. Porter, transportation; O. B. Kinkle, gates and grandstand.

Logan county won out in both the agricultural and general exhibits with as fine a showing of farm products as have ever been sent to Pueblo by any county. The exhibit included both irrigated and dry land products which had been gathered in all parts of the county by County Agent J. E. Morrison, who was in charge. In the agricultural class the standing of counties was, in one, two, three order: Logan, Rio Grande, Costilla. In general exhibits the standing was Logan, Fremont, Rio Grande. The judge in charge was Prof. Alvin Kezer, who was confronted by about as big a job as he had ever tackled.

SAVAGE QUALITY

SAVAGE

Woodchuck Season and Your Savage

Side-hill—hazy afternoon sunshine—clover—bumblees.

Hunch down lower. That woodchuck is working this way. See the grass shake? There—he's sitting up!

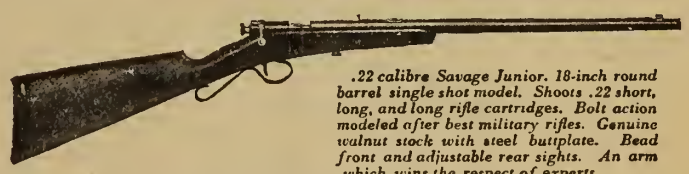
Now hold that little Savage front-sight into the grey of his neck—right where the ear ought to be. Hold that rifle TIGHT! And don't yank that trigger. Squeeze it gradually—smoothly—and watch those sights while you squeeze!

BANG! Spat! Hear it hit? Never knew what struck him! Pace it off. Eighty-eight steps? About fifteen rods. And right where you held. Some gun!

Aren't you glad you picked a Savage? The .22 Model 1904 Savage Junior is made and inspected and tested by the same men who make the .22 Savage N. R. A. rifle—the miniature military match rifle that the greatest experts use—and the .250-3000 Savage that kills lion and rhino and hippo and elephants. It has 18-inch round barrel, military bolt action, automatic ejection, and is a take-down. Shoots the world-beating .22 long rifle cartridge (shorts and longs, too) and costs only $8.00.

See it at your dealer's. If you want to know still more about it, write us.

SAVAGE ARMS CORPORATION
UTICA, N. Y.
Sharon, Pa. Detroit, Mich. New York, N. Y.



.22 calibre Savage Junior. 18-inch round barrel single shot model. Shoots .22 short, long, and long rifle cartridges. Bolt action modeled after best military rifles. Genuine walnut stock with steel buttplate. Bead front and adjustable rear sights. An arm which wins the respect of experts.

IT'S OIL
That Keeps Tractors Powerful

Tractors need an oil different from automobiles. Their operating heat is higher—especially when kerosene is the fuel. Ordinarily light bodied motor oils are neither most effective nor economical.

STANOLIND
TRACTOR OIL

is made for this particular purpose. It stands the high cylinder heat—keeps a gas-tight piston-to-cylinder seal that assures maximum power—oil-cushions the engine's vitals against wear. It's the oil tractor manufacturers recommend.

Use "Stanolind" and you will keep your tractor full-powered—and keep down bills for over-hauling and repairs. Join the thousands of satisfied users of this oil.

Buy it from our nearest distributing station or from your dealer.

THE CONTINENTAL OIL COMPANY
(A Colorado Corporation)

Salt Lake City Denver Pueblo
Cheyenne Butte
Albuquerque Boise

State Fair Awards

DAIRY CATTLE

Holstein-Friesian

Arkansas Valley Sugar Beet and Irrigated Land company: First bull 3 years old and over; third senior yearling bull; second junior yearling heifer; first exhibitors herd; third produce of one cow.

Hall Bros., Denver: First bull 2 years and under 3; second senior bull calf; second junior bull calf; second and third junior heifer calf; champion bull under 2 years, third get of sire.

Spencer Penrose, Colorado Springs: Second senior bull yearling; first senior heifer calf; champion bull over 2 years; grand champion bull any age; first young herd; first calf herd; second get of sire; second produce of one cow.

Fred V. Jensen, Pueblo: First junior yearling bull; first junior bull calf; first and second cow 3 years old and over; third junior yearling heifer; champion cow over 2 years; grand champion cow any age; third young herd; first produce of one cow; first bull 3 years old and over; first cow 3 years old and over.

L. C. Donley, Mt. Morrison: First senior bull calf; second cow 3 years old and over.

Woodcroft Hospital, Pueblo: First heifer 2 years old and under three.

R. Eggleston, Mt. Morrison: Second heifer 2 years old and under 3; second senior yearling heifer.

White and Davis, Bergerman and Stone, Pueblo: Second bull 2 years and under 3.

Ben F. Simpson, Denver: First and second junior calf; first champion heifer under 2 years old; second young herd; second calf herd.

Guernseys

W. O. Bohart, Bozeman, Mont.: Won all 3 years and over; first junior yearling bull; first aenior bull calf; first senior yearling heifer; second heifer junior yearling; first and third senior calf; first and second junior heifer calf; second exhibitors' herd; first young herd; first calf herd; first get of one sire; first and second produce of one cow; third heifer 2 years old and under 3; third cow 3 years old and over.

F. C. Kay, Pueblo: First bull 3 years old and over; first junior bull calf; first cow 3 years old and over; first and second heifer 2 years old and under three; first junior yearling heifer calf; first and second junior heifer calf; champion cow ober 2 years; grand champion cow or heifer any age; first exhibitors' herd; second young herd; first calf herd; third get of one sire.

W. L. Stone and Son, Pueblo: First senior yearling bull; second aged cow; second senior heifer calf; third produce of one cow.

Brown Swiss

W. O. Bohart, Bozeamn, Mont.: Won all premiums offered in this class.

Milking Short Horns

J. B. Benedict, Littleton: Won all awards offered in this class.

BEEF CATTLE

Herefords

Hereford Corporation of Wyoming, Cheyenne, Wyo.: First aged bull; second bull 2 years old and under 3; second and third junior yearling bull; third senior calf; third junior calf; second aged cow; first heifer 2 years old and under 3; third junior yearling heifer; first senior heifer calf; champion cow over 2 years; grand champion cow or heifer any age; firat exhibitors' herd; second young herd; first calf herd; third get of one sire.

Glendale Stock Farm, Aspen: Second senior bull yearling; first cow 3 years old or over; second steer under one ycar.

W. N. W. Blayney, Denver: First junior yearling bull; first and second scnior bull calf; second heifer 2 years and under 3; first senior yearling heifer; second junior yearling heifer; champion bull under 2 years old; champion heifer under 2; grand champion bull any age; third young herd; third calf herd; second produce of one cow.

J. D. Canary, Denver: Third bull 2 years old and under 3; first senior yearling bull; first junior bull calf; second senior yearling heifer; first young herd; aecond calf herd; second get of sire; first produce of cow; first ateer one year and under two.

L. C. Grant, Avondale: First bull 2 years and under 3; third junior heifer calf; champion bull over 2 years.

George W. Baker, Littleton: Second bull 3 years or over; third senior heifer calf; first steer under 1 year; first grand champion steer.

SWINE DIVISION

Duroo-Jersey

Caldwell Martin, Littleton: First aged hoar; second junior boar pig; first, second and third aged sow; first senior champion boar; first ana second senior champion sow; grand champion boar; first and second and grand champion sow; first aged herd; second owners' young herd; second breeders' young herd; third get of sire; second produce of sow.

R. C. Kibbey, Rocky Ford: Second aged herd; first, second and third fat barrow under 1 year; first pen of three barrows; second aged boar; third junior yearling boar; reserve champion boar.

W. L. Stone and Son, Pueblo: Fist junior yearling boar; first and third junior yearling sow.

Blue Ribbon Live Stock Company, Pueblo: Second junior yearling boar; second junior yearling sow; first senior sow pig; first junior champion sow; first aged exhibitors' herd; second get of sire; third aged boar.

J. W. Brauer, Colorado Springs: First junior champion boar.

George E. Morton and Sons, Fort Collins: Second junior champion sow; first junior sow pig; third owners' young herd; third breeders' young herd; third produce of sow.

A. M. Swartz, Avondale: Second senior boar pig.

R. C. Vanscoy, Denver: Second senior sow pig; second and tbird junior sow pig.

Poland China

F. E. Commons and Son, Yuma: First aged boar; grand champion boar; first get of sire; first produce of sow.

A. D. McGilvray, Boulder: First junior year-

(Turn to Page 24)

DUAL PURPOSE SHORTHORNS

12 Cows, 2 Past Yearling Heifers, 2 Heifer Calves, 4 Bull Calves

The cows are all with calf from my herd bull, who is a son of Maxwalton Stamp and grandson of Avondale International Champion, grandson of Imported Lucie.

Write for further particulars and prices.

GEORGE LAWSER Aurora, Colo.

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Legborns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS, grandsons Missouri Queen No. 750, famous long distance layer, Missouri Ex Station. W. W. Goodwin, Route No. 2, Canon City, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansaa.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

THOROUGHBRED BUFF ORPINGTON AND S. C. White Leghorn Roosters; price, $2.50 each. Mrs. Lizzie Knutb, Westcliffe, Colo.

BUFF LEGHORNS—R. I. REDS—BEST LAYers on eartb; fancy cockerels, Mammoth Pekin drakes. I want your market poultry. Champney, 2057 South Broadway, Denver.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—ONE REGISTERED JERSEY BULL Sure breeder. R. O. Darling, Rt. 1, Sedgwick, Colo.

FOR SALE—REGISTERED JACOBAS JERSEY bull, 2 years old, good breeder. F. Hendrickson, Gill, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis.

150 HEAD OF PUREBRED HEREFORD BREEDing cows and six registered bulls. About 30 or 40 of them are registered, balance unregistered, but purebred. They are all bred to the best bred registered bulls. The registered cows are aged, but good for several years yet, and a good bunch to start a registered herd. I can deliver these cows November 1st, when calves will be taken from them. There are 140 calves on these cows now, can you beat that for breeders? Save all bull calves for bulls. Address H. Bert Dave, Littleton, Colo.

HOGS

FOR SALE—PIGS, CHEAP, FROM WEANING size up, big type (registered). Write F. L. Oliver, Fort Collins, Colo.

FOR SALE—A FEW BIG TYPE DUROC boars left by the wonderful Orion Cherry King. E. W. Brown, Mitchell, Neb.

250 CHESTER WHITES—FALL AND SPRING boars and gilts, record, weanling pigs, pair not akin, state fair winners. Liberty bonds accepted at face. Earl Bloom, Bridgewater, Iowa.

FOR SALE—REGISTERED BIG TYPE DUROC Jersey bogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

SHEEP

FOR SALE—9 REGISTERED LINCOLN rams, 7 last spring lambs, the remainder 2 years old. Price $50.00 per head. Write T. M. Deal, County Agent, Fairfield, Ia.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

FOR SALE—FARM OF 320 ACRES—FOR particulars write Jason Carter, Cope, Colo.

WANTED—TO HEAR FROM OWNER OF FARM or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

WANTED—HOMESTEAD OR DESERT CLAIM, or relinquishment. Give price and description in first letter. G. A. Kuster, Sedgwick, Colo.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33 St., Chippewa Falls, Wis.

WANTED—TO HEAR FROM OWNER OF good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

FARM AND CATTLE RANCHES—CHOICE list. If interested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis streets, Denver, Colo.

FOR SALE—MY IMPROVED 480-ACRE ranch; good location for sheep and cattle; a bargain if sold next 30 days. Write or see the owner. Geo. W. Worthan, Neiber, Wyo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine soil; worth $100 per acre in cultivation; on railroad; foreigners must have first naturalization papers; stampa for particulars. Homeseekers Information Bureau, Sacramento, Cal.

345-ACRE DAIRY FARM, $7,000; 4 HORSES, 23 cows and 9 heifers, bull, wagons, implements, crops; convenient railroad town; 150 acres tillage, 75-cow pasture, wood, timber, fruit, 10-room house, big barns. Milk checks, $500 monthly. Aged owner sells everything $7,000, part cash. Details page 23 Fall Catalog Farm Bargains, Maine to Florida and west to Nebraska; copy free. Strout Farm Agency, 831 BA New York Life building, Kansas City, Mo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

POSITION WANTED BY A PRACTICAL EXperienced farm manager; one who understands both dry and irrigated farming and the management of all kinds of livestock. Apply Box 40, Western Farm Life, Denver.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

CENSUS CLERKS; RAILWAY MAIL CLERKS; mail carriers wanted by Government. Thousands men, women needed, $1,100 year, common education sufficient, list positions free. Urgent. Write today. Frankiln Institute, Dept. L-171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Beat terms, credit given. Order outfit without delay. Addresa the S. A. Mullikln Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AUTO AND TRACTOR SCHOOLS.

THE DENVER Y. M. C. A. AUTOMOTIVE School guarantees satisfaction in teaching these trades—Automobile repairing; tractor operation and repair; Oxy-acetylene welding; vulcanizing and tire repair; starting, ligbting and ignition; machine shop practice. 334 students last year. Tuition fees moderate. Practical work under seven practical instructors. Write today for illustrated booklet. The Y. M. C. A. also conducts splendid preparatory and commercial schools for young men.

GROCERIES & SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. Best beet augar, hundred, $10.20; 5 lb. can Calumet haking powder, 90c; 8 lh. Baker's hulk Cocoa, $1.00. With every auto casing you buy, we give you a tube free. Best sized binder twine, $23.35 per hundred. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

BEE SUPPLIES AND HONEY

DELICIOUS NEW HONEY, 60 POUND CASE, $10.50. A. A. Lyons, Ft. Collins, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

FARM MACHINERY

FOR SALE CHEAP—NEW NEWELL SAUNders gang 13-disc plow, newest type, 6-foot swath, $300. W. B. Foster, Box 94, Briggsdale, Colo.

FOR SALE—20x32 OWENS BEAN HULLER, good condition, guaranteed to do good work; $400. W. B. Foster, Box 94, Briggsdale, Colo.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before bullding. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Salea Conducted. I can sell your real estate if it can he sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager, Pueblo, Colo.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.

DENVER, COLO.

2055 Humboldt St. Phone Main 5713

FOR SALE

I can show buyers 600 registered Herefords. also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding atock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

REGISTERED DUROC SPRING PIGS

Fine quality, smooth and well grown

LA BELLE RANCH

Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver

H. G. SQUIBB AURORA, COLO.

YOUNG HOLSTEIN BULLS

Crescent Beauty Segis, Canary Sired by a son of King Segia Pontiac who had 101 A. R. O. daughters, and wbose dam produced 37 lbs. of butter in 7 days. This bull's dam produced 18 lbs. butter at 4 years and 7 months. A fine individual—nothing but good blood back of him.

Bull Calves With Equally Good Breeding

W. A. PURVIS Johnstown, Colo.

COL. H. C. JENNINGS

Pure-bred Livestock

AUCTIONEER

Also conduct Sales of Real Estate

534 17th St. Denver, Colo. Phone M-6870

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.

GEO. R. GILMORE, Ft. Morgan, Colo.

Boar Pigs For Sale

High class individuals of January and March farrow—will make exceptionally good Herd Headers. Prices in accordance with stock.

State Fair Winning Blood is mixed thru our entire herd. Inspection invited, or write

THE DEMING RANCH, Oswego, Kan.

La Mariposa

Tbe Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shorthorns for sale. Herd Sire Loyal Stamp 494953, a grandson of Whitehall Sultan. Correspondence solicited.

EXTRAORDINARY SALE

38 REGISTERED HOLSTEIN Cows, Heifers and two royally bred yearling bulls.

MONDAY, OCTOBER 27—10:30 A. M.

At the A. S. Carter Farm, 12 miles no. of Denver, Colo., 4 miles so. of Brighton on the main Denver-Brighton road.

These cattle were purchased directly from the Breeders of Howell county, Michigan, after a very extended search covering ten states, to establish a superior herd on my own farm but my plans have been changed.

Hence, my entire herd of 38 cows and heifers and 2 royally bred yearling sires will be sold without reservation. Every animal is a descendant of famous families of the breed and most of them are from A. R. O. dams and such sires as King Segis, Hengerveld de Kol, Pontiac Korndyke and King of the Pontiacs.

Competent dairy cow men say this is an exceptionally well-bred herd of large, straigth, smooth individuals.

Write for Catalogue.

W. A. NORRIS, FORT MORGAN, COLO., OWNER
CARL HALL, MANAGER
COLONEL G. M. BANKS, DENVER, COLO., AUCTIONEER

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE BRED AND REGISTERED

Hereford

BULLS and HEIFERS

1 car 2-year-old bulls.

130 head yearling registered and pure bred bulls.

Several cars yearling heifers, 2-year-old heifers and cows.

Good Bone, Colors and Markings

Write or phone us for prices

715 E. and C. Bldg. Phone Main 3989
406 New Live Stock Exchange Bldg. Phone Champa 4793

FOR SALE

A few good Poland China and Duroc Jersey boar pigs still on hand.
Holstein bull from cow with 576-pound record, sired by son of 900-pound cow.

One Good Shorthorn Bull

A Few Good Hampshire Ram Lambs for Sale
Sired by Imported Ram
A Few Cotswold Ewes and Ewe Lambs

DEPARTMENT OF ANIMAL HUSBANDRY
STATE AGRICULTURAL COLLEGE FORT COLLINS, COLO.

Wyoming 4th

L. G. DAVIS HEREFORDS

ANXIETY-BRED

Sires in service:

The great BEAU CARLOS 2D 352001, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS SARATOGA, WYOMING

Edgemoor Farm Durocs

Were the Leading Winners at
The Colorado State Fair, 1919

Our herd winnings included:

GRAND CHAMPION BOAR
GRAND CHAMPION SOW

Reserve champion sow (over year),
First prize aged herd,
First prize aged boar,
First, second and third prize aged sows,
First prize futurity boar,
with a total of **21 Premiums** won by us at this show.

Other exhibitors at the State Fair won a total of **7 First Prizes** on Durocs of Edgemoor breeding—**enough said.**

We are offering a few choice young boars at reasonable prices. If in need of a boar write us.

EDGEMOOR FARM,
Littleton, Colo.

Caldwell Martin, Owner
Chas. Seamore Herdsman

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion
Chicago, 1917,
Denver, 1919
and 1919

Breeders of

BELGIAN HORSES
and
POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, Soutb Denver Station, Denver, Colo., or visit tbe Farm, 5½ miles soutbwest of Denver on tbe Morrison Road.

BEAU ASTER

Registered Hereford Cattle

Prince Domino—499611 Sire of the Champion Futurity Bull and Heifer

Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER
Holyoke, Colo.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

Tbe name "Majesty" in a jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the bour, is a Majesty, and related to many in my herd, and to "Majesty's Feather Lad,' son of tbe show cow, Majesty's Feather Lass, 712.13 butter.

I have some extra fine young cows and heifers for sale. Have some extra fine bull calves, two out of half sisters to the great "Financial Sensation," the $60,000 bull. One out of Imported Cowslip's Sweet Bread, a R. of M. cow. Also others. These are extra fine calves, and my prices are right.

Two or three November gilts, by a son of Top Sensation. Write me.

A. M. McCLENAHAN, Greeley, Colorado

Milking Shorthorns

THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

WYNNEWOOD RANCH

Big Type Poland China Hogs

For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of botb sexes, including several of a litter from tbe Junior Champion Gilt, Denver Stock Show, 1919.

C. E. GORDON, Mgr., Overland, Colo.

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

William Upp

Breeder of

BIG TYPE POLAND CHINA HOGS—HERD HEADED BY BIG JUMBO, Missouri Prince, Cotton Wood King, and others.

Spring Boars and Gilts for sale.

Deer Trail - - Colorado

Forest Glen Shorthorns

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.
Elbert, Colorado

BOARS

Two Outstanding Herd Boars by Great Pathfinder
Two Outstanding herd boars by Victory
PRICED RIGHT

DR. F. T. DALY, Cambridge, Neb.

Brae Side Farm Durocs

I bred and exhibited the FIRST PRIZE futurity litter at Colorado State Fair, 1919. Also won four first prizes and one special in open classes on same litter.

BOARS, BRED SOWS, OPEN AND BRED GILTS, FOR SALE.

Everything sired by First Prize or Grand Champion boars.

BRAE SIDE FARM
E. D. Hardman Owner R. F. D. 1
Pueblo, Colo.

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH
Montrose, Colo.

State Fair Awards

(Continued from Page 22)

ling boar; first, second and third junior yearling sow; third junior sow pig; senior champion sow; grand champion sow; first aged herd; second owners' young herd; second breeders' young herd; second get of sire; second produce of sow.

L. G. Davis and C. E. Gordon (Wynnewood Ranch, Overland): First, second and third senior sow pig; first senior champion sow; first junior champion boar; first and second junior champion sow; reserve champion boar; reserve champion sow; first owners' young herd; first breeders' young herd.

W. H. Allen, Boulder: Second junior yearling boar; second and third senior boar pig; third junior boar pig; first senior yearling sow; second junior champion sow; second aged herd; third greeders' young herd; third get of sire; third produce of sow.

William McCutcheon, LaPorte: First junior sow pig.

Rufus Klein, Berthoud: Second junior sow pig.

Berkshires

Allan Deiterman of Kiowa won all prizes in this class.

Lack of space prevents publishing awards in horse department in this issue. They will appear in the November first number.

"H. R. H. The Rider"

(Continued from Page 17)

now that he had disposed temporarily of the two who had attacked him he ran to the assistance of his friends.

Ivan and Nicholas were holding their own with ease; but three men had engaged Alexander at once, and he was in a fair way to being beaten into insensibility, when Dimmie leaped upon the back of one of his adversaries, hurled him aside, and struck another a blow upon the chin that might have dropped a horse. As the third attempted to scramble from his path, the young man swung his foot in a kick that sent the fellow sprawling beneath a table.

Tillie, appalled by the dimensions and ferocity of the fracas, had retreated to the side of the room, where she stood with Bakla and the trembling Peter, wringing her hands and screaming out a torrent of invective. Beside her and next to Bakla stood the surly rough who had been the first to recognize the Rider. He had taken no part in the fight, and now one of his friends discovered him, and taunted him with his seeming cowardice.

The man muttered an oath, and turning to Bakla said: "If the fools knew who they were fighting with they'd break all your windows trying to see which could get out of here first and lose himself in the woods."

"What do you mean?" asked Bakla. "Can they not see that they are attacking officers of the Black Guard?"

"I don't mean them fellows," growled the man. "It's the other—do you mean to say you don't none of you know who he is?"

"Why of course I know who he is," cried the girl. "He has been coming here for months—he is M. Dimmie."

"M. Dimmie, hell!" cried the man. "That's—" And he leaned close to Bakla's ear and whispered a name that brought her eyes and mouth open in incredulous astonishment.

The fight seemed to be going all the guardsman's way, when the Rider bolted suddenly for the door. Dimmie sprang across a table in a mad effort to head off the escaping bandit, and the two met before the exit. Once again the Rider went down before the superior skill of his antagonist, and Dimmie turned with his back to the doorway as Alexander, Ivan, and Nicholas ran to his side.

A laugh was on the lips of the conqueror of the redoubtable highwayman as the latter crawled to his feet, nursing a bloody nose with one hand, and turning to his friends, who were now grouped in sullen defiance before the bar, called to them to rush the four at the doorway, and make good their escape.

"I was afraid the fun was over, Ivan," said Dimmie; "but evidently it has only begun."

"Come!" whispered Alexander in his ear. "The door is behind us; let's get out of here before any blood is spilled. The thing has gone far enough. These fellows are getting nasty, and there is no telling what may happen. There are more than a few knives and revolvers in that crowd."

"Never!" cried Dimmie. "I am having the time of my life, old killjoy, and I'm going to stick for the finish. Run, if you want to; the door is there, and we will cover your retreat."

Alexander flushed. "You know that I would not desert you," he cried. "I only thought of the danger to your—"

"Sh!" admonished Dimmie. "Forget it!"

The roughs were advancing slowly across the barroom when one of them, passing a table which had not been overturned in the previous scrimmage, seized an empty bottle and hurled it viciously at the four guardsmen. It grazed Dimmie's head and splintered on the oak panel behind him.

Instantly Alexander leaped in front of his friend and drew his sword.

"Stop," he cried. "This has gone far enough. In the King's name I command you to halt where you are!"

The answer to his order was a volley of glasses and bottles. Ivan seized a small table and raised it as a shield before them. Nicholas drew his sword and took his place at one side of the improvised barrier, while Alexander held the other.

At sight of the drawn weapons the crowd of cutthroats and thieves cast discretion to the winds. Knives flashed and revolvers flourished. A sullen roar rose from the pack.

Dimmie, the inextinguishable smile still upon his lips, thrust aside his protectors and stepped out and before the menacing foe, one hand upraised for silence and attention.

"Hold, my friends!" he said. "We have enjoyed a pleasant evening. None more so than I. Let us not spoil it now by the spilling of blood!"

As he spoke a man stepped forward from the crowd, advancing from the bar. A revolver glistened in his hand. Blood streamed down his brutal face from a wound above one eye. Behind him, unnoticed, came Bakla.

"You have come here once too often, you dandies," cried the fellow. "You have come looking for trouble and now you have got it, and you're going to get it good and plenty." And with that he raised his weapon and leveled it at Dimmie.

Ivan cast the table aside, and he and Alexander and Nicholas sprang forward to throw themselves in front of their friend, to shield his body with their own from the bullets of the assassin; but trig little Bakla was quicker than any of them. Without a cry she leaped at the man. As his finger closed downward upon the trigger, her lithe figure dodged beneath his upraised arm which she clutched with both her little hands. There was a sharp report of a shot; but the bullet buried itself in the ceiling, instead of finding lodgment in the body of Dimmie, for whom it had been intended.

Bakla, still clinging to the man's arm, threw herself in front of him, and, facing the menacing roughs, raised her voice in protest and in censure.

"Are you crazy," she cried, "that you would fit halters to your necks by threatening the life of the King's son?"

"The what!" exclaimed the man whose arm she still held raised aloft.

"The Crown Prince, you fool!" snapped Bakla.

The man gazed stupidly at the three guardsmen and their friend, only the last of which was not in uniform.

"Which is the Crown Prince?" he asked.

"He," and she pointed to Dimmie. "He is Prince Boris."

The roughs looked uneasily around at one another. One of them laughed scornfully. "That the Crown Prince?" he asked with a sneer.

"Yes," spoke up he of the low brow and surely expression, who had kept carefully out of the fracas from the moment that he had recognized Dimmie. "He's Prince Boris. I ought to know him. I worked in the palace for five years."

An uneasy silence fell upon the company. Those who had menaced the Prince shuffled their feet about on the sanded floor and cast furtive glances in the direction of their future King, who stood, unsmiling now, and rather ill at ease since his identity had been revealed.

"I think we better go now," suggested Alexander. "The thing has gone too far already, and the longer we stay the worse it may become; you'll have a bad time enough explaining it to His Majesty as it is, Dimmie."

"Without our dinner?" asked Boris, ruefully. "No, I came for one of Tillie's good dinners, and I'll never leave until I've had it. Here, Peter, you old rogue, see what the gentlemen will drink," and he waved his hand to include the whole company. "And Bakla, lay another plate at our table for my guest, if the Rider will honor us with his company?" and he turned with a bow toward the bandit.

"And then go back to Sovgrad and the halter?" demanded the Rider.

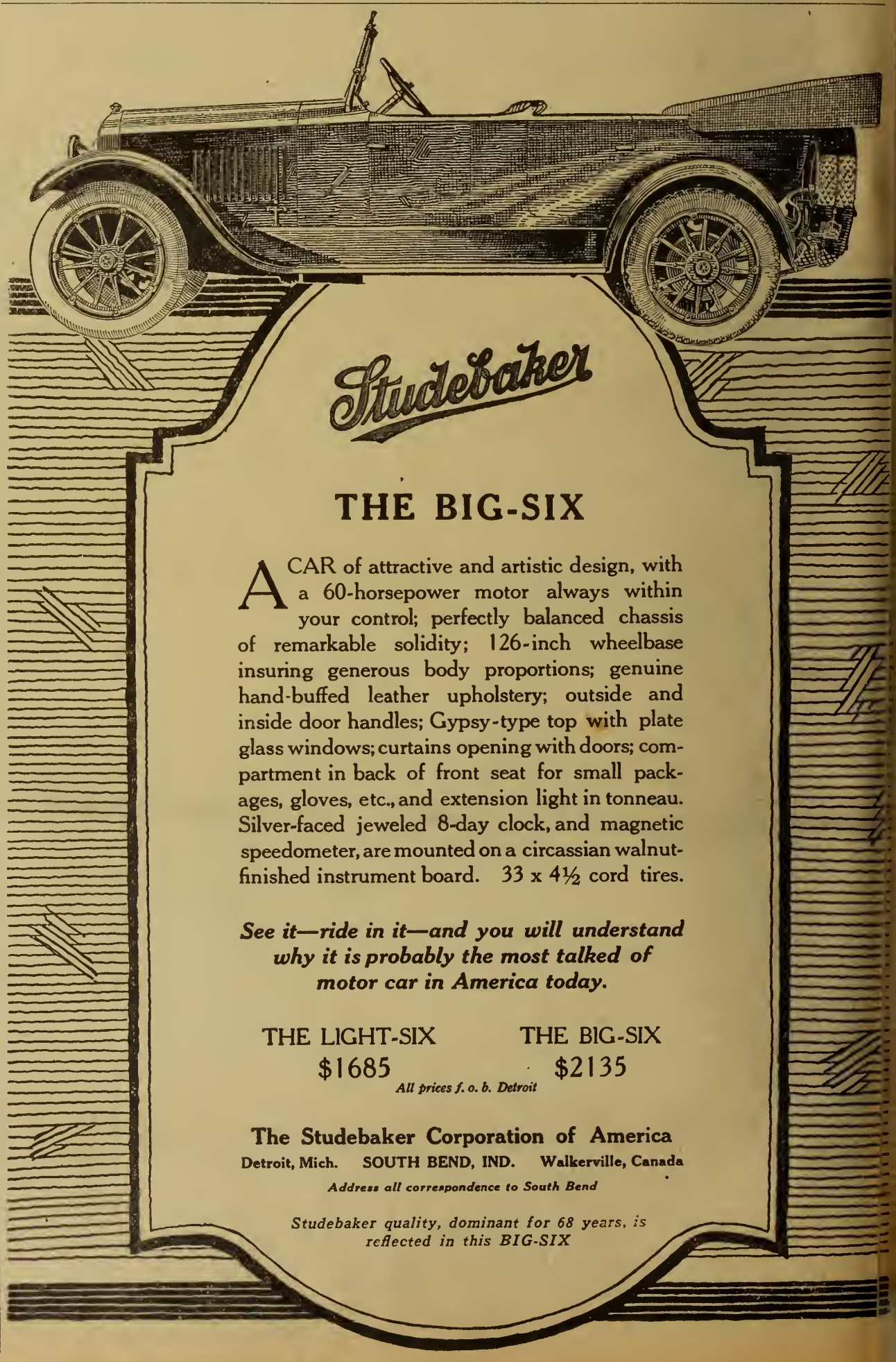
Boris drew the man's two revolvers from his shirt and extended them toword him, butt first.

"Here are your weapons," he said pleasantly. "Take them as proof of my good faith. After we have dined, each of us shall go his way unmolested, carrying only memories of a pleasant evening among friends. What do you say?"

"Done!" said the Rider.

The King's son linked arms with the bandit, and crossed the room past the bar, where Peter was already busy serving drinks to the relieved brawlers, toward the little alcove in which Bakla was laying the fifth plate at the round table.

(To be continued)



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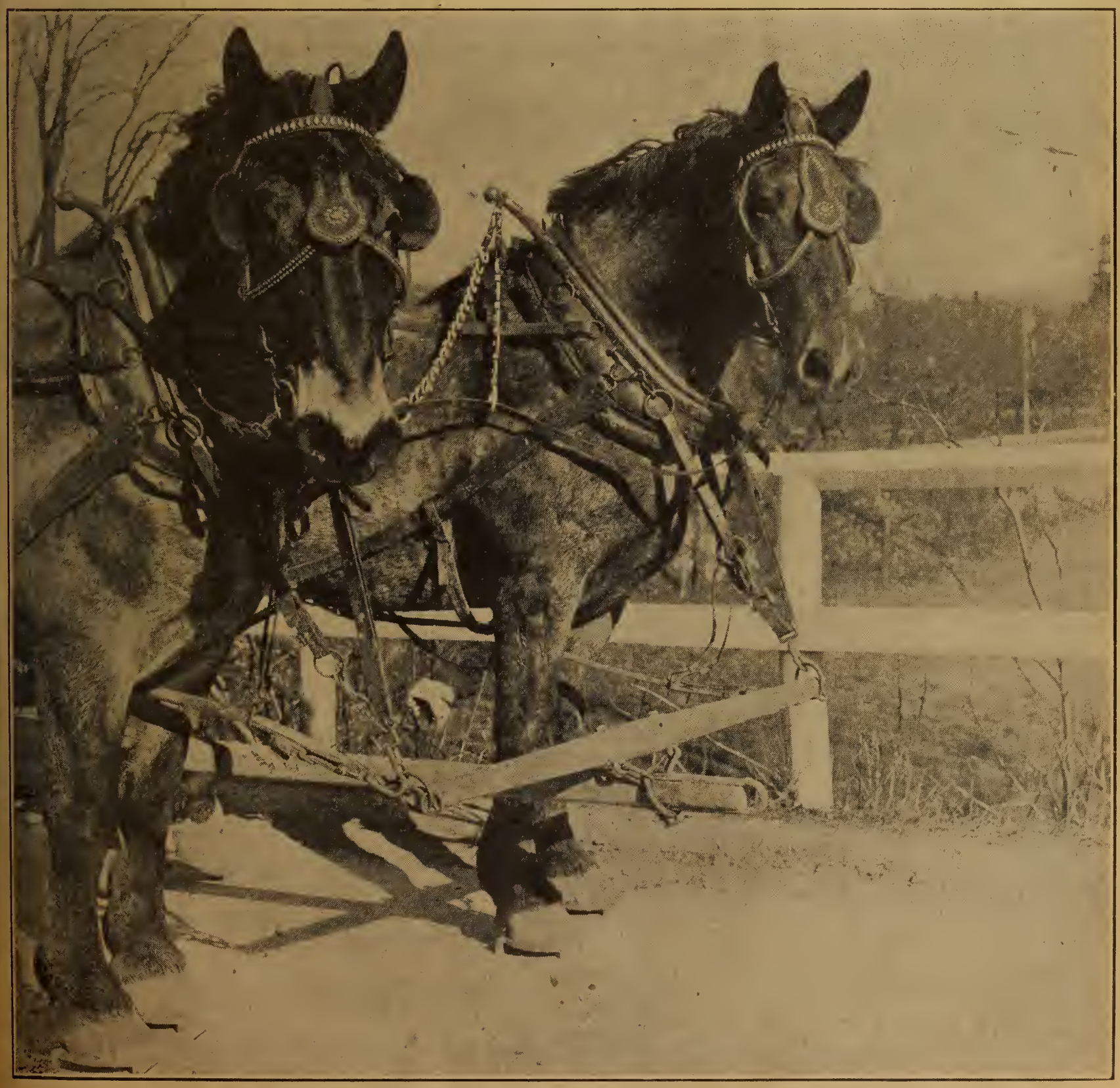
Vol. XXI Denver, Colorado, November 1, 1919 Semi-Monthly



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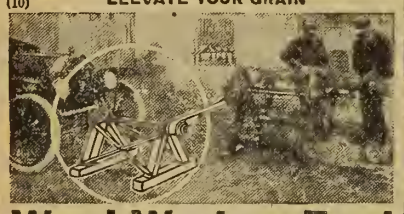

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Grand County Fair

W. J. HARSHA

Five years ago at the first county fair held in Grand county, Colorado, there was one automobile and one hundred and fifty teams of horses hitched to all sorts of vehicles. Recently when the last fair was held there were one hundred and fifty-seven cars and one lone team of horses! In addition there were, like the Irishman's pig, a number of cars going so fast that they could not be counted.

Five years ago at the fair there were beef cattle but not one dairy cow. Hereford calves but not one sheep, horse races but no agricultural lectures, bronco busting but no vegetables and no building in which to show grains or fruits. This fall the highest cash prize for cattle was offered for the best dairy cow, sheep wore blue ribbons as well as calves. talks on how to raise crops were given and the big new building erected to display vegetables and fruits was well filled. Sleek Jerseys and Guernseys occupied stalls next to Herefords; homesteaders came in strong in competition with the oldtime cowmen who once had things their own way.

All of this shows the change that has come over the spirit of our dreams. Grand county is rapidly becoming a settled region instead of a cow pasture. On our hills and mountain slopes there will always be a vast area of open range, but it is now realized that the best and biggest money is made by the man who fences in his stock and feeds them on irrigated grasses. On our open ranges twenty acres, or maybe more, are needed to mature and fatten a steer; if a section of that land is fenced and protected for three years or so ten acres will do the trick; if an irrigated pasture is properly laid out and seeded and wisely pastured one acre will put a steer in shape for the block.

At the fair the best collection of native grasses, over fifty in number, was exhibited by Mrs. Robert Smith The best collection of tame grasses was shown by Alfred Carlson. Among these were specimens of the 185 varieties of wild legumes we have on our hills. The best collection of vegetables was exhibited by Mrs. Adams, though Mrs. Weaver, an industrious woman over 70 years of age, did the growing of them. On vegetables Mrs. Gracey took second prize and Mrs. S. Carlson third.

At an elevation of 8,200 feet O. A. Pinney grew the best potatoes and the best oats. Walter Jones carried off the blue ribbon for winter wheat and cabbage and in connection with his son, Richard, had the best exhibit of all grains fully ripe. Several varieties of spring wheat were shown; of these the Marquis variety took the first prize, and it was grown by W. J Yust.

We had a Coney Island, a tight rope walker, a balloon ascension, any number of side show entertainments and freaks, confetti for the girls with which to shower our soldier boys, whistling ballons for lads, ribbon races, bundle races, wild horse races, cow pony races, bronco riding—all the essentials and all the trimmings of a gay gathering of hearty people, but after all the things that interested us were the worth while things, showing how skill and industry can make a wild and wooly region blossom like the rose.

Bloom Community Fair

The second annual community fair was held at Bloom Saturday, October 4, with about one hundred people in attendance. There were fourteen exhibitors and about fifty different varities of products were exhibited. Among them were Sudan grass 7 feet tall, three cuttings of alfalfa, eleven different kinds of pumpkins and squash, fine clusters of ripe everbearing strawberries. The ears of corn shown compared favorably with those of the famous cornbelt. Other exhibits were a cotton plant, broom corn, Lima beans and a live eagle. The ladies gave a dinner in the schoolhouse free to everybody. Everyone voted that the fair was a big success and the ranchers and homesteaders within a ten mile radius of Bloom are greatly encouraged over the outlook for the future.—R. S. Zimmerman, Bloom, Otero county, Colorado.

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Dinsmore Gives Demonstration of Multiple Hitch

EXPERT SHOWS ECONOMICAL USE OF DRAFT HORSE POWER

Demonstrations of the multiple hitch were given at the Colorado State fair in Pueblo recently by Wayne Dinsmore, Secretary of the Percheron Society of America, assisted by County Agriculturist H. H. Simpson, of Boulder county. Hundreds of farmers witnessed these demonstrations and much interest was aroused through them by reason of the fact that these hitches enable one man to handle six, eight or even ten horses. Just before the State fair Mr. Dinsmore demonstrated the hitch to a group of farmers near Longmont, using draft animals from the neighborhood.—Editor.

WAYNE DINSMORE, Secretary Percheron Society of America

FREQUENT requests for information relative to the practical hitches for large teams, and observation of good results obtained on the Pacific coast with such teams, led the writer to take up the subject in June, 1918, with Professors E. A. White and J. L. Edmonds, of the Illinois Experiment station. These men were greatly interested in the problem; and were prompt to pledge their hearty co-operation in collaborating with the Percheron Society of America in carrying out a series of practical field tests calculated to help horsemen in dealing with this question.

The writer secured complete sketches of all hitches used in Montana and on the Pacific coast, from Prof. E. L. Potter of the Oregon Agricultural college, who also furnished the details of the system of "tying in" and "bucking back."

This "tying in" and "bucking back" is the secret of the simple system of driving these six, eight, ten and twelve horse teams, by driving the leaders only, and is the principle followed in driving the 26 and 32 horse or mule teams used on the combined harvester, threshers used on the Pacific coast. Our especial thanks are extended to Prof. Potter for his courtesy in furnishing all of this information, which we desired before starting our own work.

It was determined to make extended field tests of every conceivable hitch, for while certain 8 and 10 horse hitches have been used for 20 years on the Pacific coast, this was no proof that they were the best that could be devised. A hitch of four horses abreast on sulky single bottom, and on two bottom gang plows has been commonly used for many years in Illinois and Iowa, yet this hitch crowds the horses, compels them to pull at an angle, creates side draft, and increases the tractive pull required by at least 25 per cent. Knowledge of these facts made it imperative to test the work carefully, in order that we might recommend only hitches proved satisfactory in the field.

Regardless of the introduction and use of other power units, some horses will always be needed in farm operations. Experience has shown that under mixed farming systems prevailing in the Central West, six draft horses is the minimum allowance on a quarter section farm, and as many of the best farms contain from 200 to 300 acres, 8 to 10 horses is the rule on a large proportion of our most effectively operated farms. On many of these, especially livestock farms, all work will be done by the owner and one or two helpers, who may be immature sons. On farms of this sort, the six and eight horse hitches will be found especially valuable, for one man can be started in the field, and the other, be he owner or employee, can proceed to other work, such as seed selection, adjusting machinery needed in the next farm operations, caring for livestock, or hauling fertilizer from field lots and barns to fields, or some of the numerous other tasks waiting to be done on a farm.

Actual experience satisfies us, however, that six, eight or ten horse hitches should be trusted only to the owner of the horses, who should be a first-class horseman, or to a son or employee who is an A-1 teamster with his heart in his work. Careless, reckless employees, or boys too young to exercise discretion, should on no account be trusted with such teams. It must be reiterated in the strongest possible terms that these larger hitches will not be operated

(Turn to Page 16)

What is the Market Value of Good Corn Silage?

DISCUSSION OF QUESTION THAT INTERESTS STOCK FARMERS

H. A. LINDGREN

MANY farmers in Colorado own silos but no livestock to which to feed their silage. Many of the stockmen are realizing the benefit to their stock from silage feeding. This is especially true where alfalfa is the main hay crop. There is, therefore, a strong demand for silage with the hay. This affords the farmers who have silos an opportunity to produce a very satisfactory cash crop.

The question is often asked as to what silage is worth when sold in this way. It has been found that no standard method of computing price has been set. In some localities stockmen will pay as high as ten and twelve dollars per ton for silage of good quality. In other places it brings considerably less.

Hoards Dairyman has the following to say regarding the market value of silage:

"If the farm value of corn is $1.30 a bushel, an acre of corn which yields 50 bushels would be worth ensiled $6 or $6.50 per ton. We estimate that an acre that will yield 50 tons of corn will produce ten tons of corn silage. Another way to arrive at the value of corn silage is to determine the number of tons in the silo and then multiply the number of bushels in a ton, which is about five, by the price of a bushel of corn. If corn sells for $1.50 a bushel, a ton of corn silage would be worth $7.50. It is held that 2½ tons of corn silage are equal to one ton of timothy hay. If timothy hay sells for $20 per ton, then one ton of silage is worth $8. In determining the value of corn silage we prefer to use the price of a bushel of corn rather than the selling price of timothy hay. Timothy hay and corn silage are really not comparable."

The values stated in the above are somewhat lower than the price that Colorado stockmen have been willing to pay and what the farmers believe it to be worth.

County Agent H. H. Simpson of Boulder county reports that the contents of nearly 100 silos was sold in his county last year, practically all of which brought $10 per ton. This was the prevailing price on the Western slope also. Mr. Simpson contends that this price is a little high. Profs. Morton and Lieper of the Colorado Agricultural college worked out a table of values on corn silage, basing their figures on the price of barley and alfalfa hay. The value on corn silage set forth in this table, was approximately one-half the value of alfalfa hay.

Farmers and stockmen seem agreed that the value of corn silage is higher than its analysis of nutrients would indicate. It is very evident that the succulent nature of silage has much to do in keeping all animals in a better physical condition.

While not in position to advocate a system of computing the value of silage, it would seem that the value can be based on a direct relationship with the value of hay. In many sections the stockmen feed hay alone. Where this is true, they figure on 30 to 35 pounds of hay each day to a 1,000 pound steer. Where silage and hay are fed together it requires 20 to 25 pounds of silage and 10 to 12 pounds of hay. In that case 20 to 25 pounds of silage has replaced about the same amount of hay. Of course, it is understood that this relates to feeding of the combination of the two feeds. Silage alone is not a satisfactory feed, but some good protein feed should be fed with it. It would not be fair to say that silage should be on a par with the price of hay, but its value should be based on the price of hay.

Mr. Dorman of the Western Dairy division, U. S. D. A., at Salt Lake City, considers good corn silage worth two-thirds as much as alfalfa hay when fed to dairy cows. He found in testing it out with one farmer several years ago that with hay at $5 per ton, the dairy cows paid over $8 for the silage they received.

The subject of silage value is an important one at this time of the year, when there is a strong demand for it.

There are now 86,635 Grangers in Ohio. And State Master Taber's request for a gain of 10,000 members during 1919 was realized by September 1, with all of September to "go on" before the end of the fiscal year.

Changing From Wheat to Milk, Beef and Pork

THE EDITOR'S OBSERVATIONS AT THE KIT CARSON COUNTY FAIR

ALVIN T. STEINEL

Champion Team of Mules, Kit Carson County Fair, and the Owner, Anton Broman

THERE is a most encouraging change going on in the dry farming counties of eastern Colorado, especially where there are county agriculturists on the job. It is the change from grain to livestock farming. Gradually but surely the man who relies on wheat is being forced to one of two alternatives—either he sells out, or he changes his methods and establishes a dairy herd, or a beef herd, with hogs following cattle. This change was noticeable during the fall fair season. One of the fairs visited by the writer—the Kit Carson county fair at Burlington—gave evidence of the new style of agriculture in exhibits of purebred beef cattle, dairy cattle, hogs, horses and mules. Yes, and poultry should be added, for the display of fowls while limited, included some that wer eworthy of any large poultry show.

To a person familiar with the history of development of the eastern Colorado plains there was a decidedly familiar ring to the stories one heard during fair week on the streets of Burlington. It was a repetition of old land boom days, the difference belng that instead of the old buckboard and ponies of the professional locater, we saw limousines or high powered touring cars loaded with landseekers from the cornbelt, eager to buy dry farming lands at $50 to $80 an acre. Sales were being reported in the newspapers as high as $100—near town. The high prices are due to a good wheat yield, many farms having threshed 20 to 30 bushels of the golden grain that is bringing $2 and more per bushel. This, on a 25-bushel yield, means $50 an acre from a crop on land that cost only $10 to $25 a few years ago.

The man from the east who buys the land at the advance has probably sold a farm in Iowa at $300 per acre, which was valued at half that figure three or four years ago. Some people are troubled about the rise in land values in the nonirrigated sections, but they seem to forget that land is only following in the wake of everything else and that what has changed is merely our standard of values. Our dollar buys just half of what it did three to five years ago and land has been the last thing to feel the effect.

Whether these high values are good or bad economically is not for decision here. The point is, when a man buys a dry farm at $60 an acre he is going to be more careful with it than his predecessor was with $10 or $20 land and that means, he will not rely exclusively on wheat, but will turn to livestock because of the necessity of building up his soil and maintaining a source of revenue that does not depend so absolutely on the annual rainfall as does wheat.

And this is no argument against wheat on the plains. Climate and soil are well adapted to winter wheat and the exhibits shown at the Kit Carson county fair were of the highest quality. The mistake lies not in growing wheat, but in failing to grow also feed crops to maintain a dairy or beef herd. So far the dairy herds are far in the majority but beef production is becoming more common and hogs are found on many farms now. We are speaking of the small herd of beef cattle, with registered sires, and in some cases all purebreds, with sales of breeding stock as the source of income.

Fine Livestock Exhibits

The man from outside who went to the Kit Carson county fair expecting to see grain farming glorified was due for a shock. Pens of beef cattle—Herefords and Shorthorns—greeted the eye on entering the grounds. Then there were three tents devoted to individual exhibits of various classes of beef and dairy stock; another tent of horses and mules and still another of hogs. With few exceptions all the livestock was registered. Nine years ago when the writer first drove around among the farmers of Kit Carson county there was hardly a head of purebred stock on any farm and such registered stock as was in the country comprised chiefly the sires of a few herds of range cattle, and some draft stallions.

The county has been known for years as the home of fine Hereford herds, but only one of these was represented at this year's fair—that of F. E. Winegar of Broad Acres farm, who brought in a young herd of splendid type.

The Shorthorn herds represented were those of Ephriam Watkins, Anton Broman and R. M. Adkisson.

Prof. B. W. Fairbanks of the Agricultural college, who judged the livestock, complimented the Shorthorn men on their good cattle. Grand championship on bull went to Mr. Watkins on Scot Free, a roan of Scotch pedigree. Reserve championship went to Mr. Broman on Prince Albert 597154, a red bull bred by J. C. Pomeroy of Holdredge, Neb. Mr. Broman is a newcomer from Nebraska. Although he did not begin to farm in Colorado until last March, fall found him ready to bring in his prize winning stock to the fair. Besides his Shorthorn herd he has registered Poland China hogs and a team of mules, the latter winning the championship.

Ephriam Watkins is new as a Shorthorn breeder, having bought the herd of L. F. Brammier less than a year ago. He now has 30 head of registered cattle.

R. M. Adkisson won the championship on Percherons with an imported stallion, and he got the blue ribbon also on jack, jennet and suckling colt.

M. T. Smith made a good showing of grade drafters (Percherons) on which he got the ribbons. He was also in the poultry division with silver spangled Hamburgs, silver laced Wyandottes, black Minorcas, barred and white Plymouth Rocks.

In hogs there was a good showing of Poland Chinas, Chester Whites and Hampshires.

Peterson's Poland Chinas

W. J. Peterson of Seibert with his big type Poland Chinas has been a leader in developing that breed, not only in Kit Carson but in neighboring counties. In fact, breeding stock from his herd has gone to Illinois, Kansas, Nebraska, Idaho and New Mexico, as well as all parts of Colorado. He brought in his herd header, Pete's Tim 286937, and his sow, Long Susan 658402. The boar was bought from Gilmore of Fort Morgan, another famous dry land Poland breeder, and the sow is from Fesenmeyer of Iowa. Mr. Peterson runs 75 to 100 head of breeding stock. He has upland alfalfa pasture, grows corn, barley and oats and buys tankage and mill feeds. His ranch is located 12 miles southeast of Seibert in the Rock Cliff community.

E. L. Clark showed the Chester White hogs and Henry Bernard the Hampshires.

In addition to the showing made by adult breeders there was also a splendid exhibit of pigs and calves by the Boys' club members. The Calf club work is with beef Shorthorn, Polled Durhams and Holsteins, while the pigs owned by the boys are Poland Chinas.

Viewing the crop exhibits one might easily have concluded that corn had superseded wheat as the chief grain crop of the county. While that is not the case, corn is nevertheless second in value and equal in importance to wheat in the farming program. It is needed chiefly for ensilage, though yet grown mostly for grain. Tests with Minnesota No. 13 were made this year by one hundred members of the Boys' Corn club. County Agent H. O. Strange secured registered seed from Boulder county for these tests. The boys had ripe corn on September 1.

The county needs a variety that is both drouth and frost resistant. At present there is no uniformity, every farmer growing what suits his fancy or catches his eye in the seed catalogues. The county agent is urging standardization and Minnesota No. 13 has been chosen for the tests. If the boys show that this variety will mature year after year a majority of the farmers will adopt it. As one farmer expressed it:

"We feel that the boys are able to show us. They take a pure strain, pick vital seed, prepare their ground properly cultivate their crop and select their seed in the fall. If they succeed with Minnesota No. 13 you'll soon find most of us adult farmers discarding the big eared corn that we brought from back east, or which we buy from catalogue descriptions."

Good Club Displays

To show that these farmers value club work, one entire building was given over to the juvenile exhiblts and to women's work. Thirty-eight corn exhibits were made by the club members and all but two were of Minnesota No. 13. The club work in the county is under the leadership of Miss Amelia Alexander of Flagler, who, having homesteaded a quarter section, knows farming from personal experience. Three hundred young people derive inspiration from her instruction, which is eminently practical. She shows the boys and girls how best to utilize the things that are nearest at hand.

Reference was made on the home pages of Western Farm Life recently to the canning of prairie dog and Russian thistle for which Miss Alexander is responsible. On first thought this might be interpreted as being material only for publicity. But it is nothing of the sort. It is a practlcal demonstration in the use of the things at hand as food. It is unfortunate that the prairie squirrels, which are clean little herbiverous anlmals, should have been wrongly named, thus causing a prejudice against them. People on the plains are overcoming this prejudice and using them for food. They thrive by the million and are easily shot if one is handy with a rifle, as is Miss Alexander. She always carries a rifle in her car as she drives about over the county and when passing a prairie dog town she stops to pick off enough good squirrel meat for a meal, or for a demonstration in preserving the meat fried in its own fat.

Russian thistles canned for food were new to the writer of this article, so he was much interested in learning that this despised weed, when cut young and green, makes a good table vegetable which can be put up for winter use and is the equal of any garden greens.

The use of Russian thistles for food probably came to our people on the plalns from Russian families, many of whom have homesteaded in western Kansas and eastern Colorado. Long ricks of thistles piled up around barns indicates that the farmers are making use of the cured thistle for roughage. For this purpose the weed must be cut when green, before the spines have hardened.

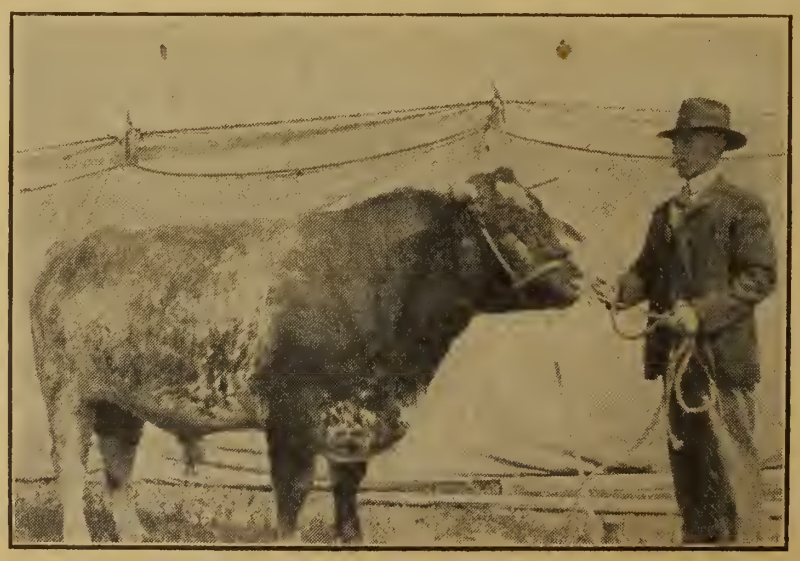
In spite of these uses, the Russian thistle is a pernicious, moisture sapping weed which has invaded wheat and corn fields and is taking thousands of dollars out of the pockets of plalns farmers. War on the weed should not cease, although it is commendable that some use be made of an infinitesimal portion of a "crop" that thrives even in the driest years.

Rock Cliff Wins Again

The community agricultural exhibits were one of the pleasing features of the fair and there was strong competition which was settled only after much careful and painstaking work on the part of Walter J. Ott, county agriculturist for Morgan county, who judged the crop exhibits. Rock Cliff community again won the silver cup for the best community exhibits and being the third time, the cup now belongs to this club. Another will be put up by the county next fall, so that this excellent feature of the Kit Carson county fair can be kept alive. The prize winning contenders this year, in addition to the winning community, were Fairview grange, second prize, $35; Golden Rule grange, third. $25; Mizpah grange, third, $15; Bethel grange, fourth, $10; Jewel grange, fifth, $5.

John Morris of Golden, master of the State grange, delivered an address from the grandstand on Thursday of fair week, calling attention to the activities of that organization and the opportunities it offers farmers for practical co-operatlon. The grange is strong in Kit Carson county and its influence was apparent in the fine community exhibits.

The Burlington school exhibits and demonstrations were another of the interesting features of the fair. Superintendent W. E. Richey, H. A. Underhill, manual training teacher, and Miss Mildred Dickinson, of the domestic science department were in charge. The demonstrations included methods of smut treatment for grains, use of the Babcock tester in determining the butterfat content of milk, and application of blackleg vaccine to calves, all of these demonstrations being carried out by students.



Grand Champion Shorthorn Bull, Kit Carson County Fair and the owner, E. B. Watkins

If you like this magazine tell your neighbor about it.

Colorado Breeders Win at the Utah State Fair

LESSONS FROM THE LIVESTOCK DISPLAYS AT SALT LAKE SHOW

W. H. OLIN, Supervisor of Agriculture, Denver & Rio Grande Railway

THE Forty-first Utah State fair was a real success from practically every standpoint. While the quantity of agricultural products was restricted by weather and other conditions prevailing this past season, in certain parts of the state, the quality was well up to normal. The district and county exhibits surpassed previous years in artistic arrangement and most creditable showing of the products of the soil from districts represented. So complete was this class of exhibits. it required a whole day for the committee of three specialists, from Utah, Idaho and Colorado, to check up these group exhibits so intelligent and accurate award could be made.

For size of exhibit, diversity of product, individual merit of products shown and artistic arrangement, all considered on an arranged scale of points, Salt Lake county won sweepstakes and the year's custody of Boyd Park trophy cup, held this past year by Utah county. Second place went to Box Elder county; third, to Utah county, with Weber county taking fourth place. Among counties showing widest diversity of products, Washington, with her grapes, nuts, cotton, sugar cane, vegetables and pomegrantes won for "Dixie Land" first place. The next in rank were Millard, Duchesne, San Juan and Iron county group exhibits.

The showing in fruit classes was good and home showing of canned and dried fruit with superior honey and dairy products exhibits awakened most favorable comment.

In the livestock classes, while the number of horses shown has, in former years, been larger, the classes of cattle, swine and sheep were quite well filled and made a most creditable showing. Said one exhibitor of Hereford cattle, who had made the northwest circuit of fairs, 1919 season: "This Utah State fair this week has the finest lot of beef cattle I have yet encountered." Prof. John T. Caine III, a noted livestock specialist, director of extension Utah Agricultural college, affirms the 1919 State fair had more good type, all-round high quality stock than has been assembled at any previous Utah fair.

Mr. Ed. Patterson, Brewster, Mo., judge of beef cattle at this fair, said he had never seen a better showing or display of beef cattle at a state fair. He has been a breeder of beef cattle for 40 years. Mr. Will Henn of Kansas City confirmed this statement. Mr. Jno. Seely of Mt. Pleasant, Utah, who is superintendent of the cattle department of the fair, had such a complete showing of Rambouillet sheep, Mr. Henn said he was in a class by himself. His showing of Shorthorn cattle was commented upon as way above the average in blood lines. The ribbons his cattle won backed up his statement.

Winners in Get of Sire Class, Utah State Fair, owned by Loesch Brothers, Montrose: From left to right Pahgre Elleb, Johanna Bess, Pahgre Ella Segis, Pahgre Segis Pontiac Johanna, Pahgre Farnella Pontiac Johanna.

Some Colorado Winners

The very best blood in Shorthorn and Hereford cattle was found here from Wyoming, Idaho, Montana, Colorado and other near-by states as well as Utah. The Maxwell Miller Cattle company of Steamboat Springs, Colo., won many ribbons, their list including the following: first and senor champion on aged bull; second on senior bull calf; first on junior bull calf; first on aged cow; third on two-year-old cow; first on senior yearling heifer; second on junior yearling heifer; first and third cn junior heifer calf; first on aged herd; third on get of sire; second on calf herd; second on breeder's young herd; third on produce of dam.

Pahgre De Kol Ollie Homestead, first prize yearling bull at Utah State Fair Owned by Loesch Brothers

Allen Herd's Fine Record.

In the Shorthorn division the grand championship on bull went to a Colorado breeder—the Allen Cattle company of Colorado Springs on Silver Star, along with a lot of other premiums, their winnings including the following: First on senior yearling bull; first and third on senior bull calf; second on junior bull calf; third on cow, 2 years and under 3; third on senior yearling heifer; first on junior yearling heifer; first and second on junior heifer calf; championship on bull under 2 and champion bull of any age; first on breeder's young herd; first on calf herd; first on four animals get of one sire; first on two animals progeny of one cow. Incidentally it may be remarked that the Allen herd made the rounds of several western fairs, including Montana State at Helena, Midland Empire at Billings, Idaho State at Boise and the Utah fair, winning a total of forty-four prizes at these exhibitions. All the way around this circuit Silver Star was made junior champion bull and at Salt Lake and Boise he was also the grand champion.

Other Colorado herds winning distinctive ribbons were the Loesch Brothers Holstein cattle, Pahgre Valley ranch, Montrose; Garmesa Farms Holstein cattle and Duroc Jersey hogs from Fruita. In fact, the Pahgre Valley and Garmesa herds won over 50 per cent of the premiums offered for Holstein exhibits, which is certainly a compliment to the Western Slope breeders, as the competition was very strong.

Loesch Brothers' winnings included the following: first on yearling bull; first on senior bull calf; fourth on

(Turn to Page 18)

The Intermountain Fair and Livestock Show

DAIRY CATTLE THE FEATURE OF THE GRAND JUNCTION EXHIBITION

H. A. LINDGREN

THE Intermountain Fair and Livestock show held at Grand Junction September 30, October 1-2 and 3 was in every way a success. It was intended to be entertaining as well as educational in its scope. Held at the time it was, it afforded an opportunity for some of the exhibitors of livestock, who were at the State fair at Pueblo to stop off on their way to the Utah State fair. These exhibits together with the local exhibits made a most excellent livestock show. This being the first fair held for some years at Grand Junction, it was found that the livestock accommodations were inadequate for the numbers that were brought in. It was remarked by several breeders that they had many more animals at home which would have been shown, had there been space for them.

There was a strong showing in the dairy division, the Jerseys, Holsteins, Guernseys and Brown Swiss being represented. There were fifty-two Jerseys in the show. Mr. George La Grange reported that there are now 43 Jersey breeders in Mesa county. It was interesting to learn that all the Jerseys shown at the fair were brought to Mesa county by George La Grange. He has been engaged in importing registered Jerseys for a period of six years and has brought in some of the best blood obtainable. He has among others, imported some from the St. Lambert and Hood farm strains. The champion bull in the Jersey classes was owned by C. S. Griffin of Grand Junction. The champion female award went to a cow owned by George LaGrange. E. T. Pettengil of Grand Junction and one of the exhibitors, has at the head of his herd a double grandson of Sophie 19th.

The Holsteins were well represented by the herds from Pahgre Valley ranch, Montrose; Garmesa farms, Fruita, and the Redlands farms, Grand Junction. The champion awards of both male and female were captured by the Garmesa farms of Fruita. As a part of the Holstein exhibit there was a booth in the agricultural hall showing up the food value of milk as compared with other foods. This exhibit is always interesting and instructive. Garmesa farms arranged this exhibit from material sent out by the Holstein Friesian association.

The Guernsey and Brown Swiss herds shown were owned by W. O. Bohart of Bozeman, Montana, and had just come from the Colorado State fair. These herds were the only entries of these two breeds. The hog show was up to the standard of the other livestock shows on the Western slope. The largest entry of Duroc-Jerseys was that of Garmesa farms. They succeeded in carrying away all of the leading premiums in the classes.

Mr. T. G. Twyman and W. E. Wright, both of Grand Junction, were the winners of the more important of the premiums in Poland China classes. Mr. Twyman won championship award on Poland China boar, which boar was classed as winner in special class for best boar any breed, any age. He also carried away champion award on sow. Mr. Wright won the Poland China Breeders association silver trophy on best boar and sow 6 months of age.

The horses shown, though few in number, showed some very good quality.

The agricultural display was most excellent, showing clearly that the Grand valley can hold her own in the production of fruit and other agricultural products. The fruit display was instructive in the manner of its arrangement, showing the various commercial packs.

Thomas E. Leiper, formerly of the Colorado Agricultural college, but now with the Grand Junction High school, is deserving of a great deal of commendation in his application of practical agriculture in the high school. Mr. Leiper is working under the Smith-Hughes appropriation. He has 28 live youngsters enrolled in agricultural work and had on exhibition some of the work they were carrying on. The boys are taken to the farms as a part of their course where Mr. Leiper gives them instruction in silo filling, seed selection, soil testing and stock judging. He is carrying on a most creditable plan of work which has resulted in a lively interest among the boys.

County Agent McCann was busy as only a county agent can be, in steering the agricultural department at the fair in a successful manner. The exhibits reflected the previous work he had carried on to get the interest aroused in bringing in the material. Mr. McCann has a most interesting field and one that requires a great deal of labor in getting the proper balance of agriculture started. He is very ably handling the proposition and has the support from the farmers that will spell for him success.

The Intermountain Fair and Livestock show has a wonderful field and with the success of the fair this year they can feel encouraged to continue toward further development of this event in the future.

H.R.H. the Rider

ROMANTIC ADVENTURES OF A PRINCE, A MAID, AND A HIGHWAYMAN

By EDGAR RICE BURROUGHS—Author of Tarzan of the Apes and Other Tarzan Tales
(Copyright by Edgar Rice Burroughs)

Time: About 1912. Place: A little kingdom in the Balkans.

Characters: Princes Mary of Margoth, who doesn't want to marry Prince Boris. Prince Boris of Karlova, who doesn't want to marry Princess Mary. The king of Margoth, Stroebel, his chancellor; the king of Karlova, Kantchi, his chancellor, who have arranged the marriage to heal the hereditary enmity existing between the two kingdoms. Carlotta, Mary's maid. Alexander Polensk, Nicholas Gregovitch, Ivan Kantchi—three guardsmen, friends and companions of Prince Boris. Gwendolyn Bass, who wants to marry Hemmington Main. Hemmington Main, a journalist of New York, who wants to marry Gwen. Abner J. Bass, New York millionaire, who fully approves of the match. Mrs. Bass, ambitious for a title in the family, who doesn't approve. The Rider, a common or garden stick-up man, with medieval trimmings.

Things moved quickly in New York. Mrs. Bass, determined that her daughter should not marry Main, whisked her off for a tour of Europe, with Hemmington, backed by Abner J., in hot but vain pursuit.

In the little kingdom in the Balkans, however, things were more complicated. Boris, while riding through the forest to meet his three friends at an isolated inn, was held up by the Rider, but managed to overpower and take him prisoner. He marched him before him to the inn and there Boris was seized with his great idea. He had that day received orders to proceed to Demia, the capital of Margoth, there to meet the Princess Mary and formally asked for her hand, but this he was determined not to do. Anyway, as leader of the military party, he much preferred war with the hated Margothians. So he determined on the coup that would defeat his father's plans for a diplomatic marriage to the Princess Mary, who was equally determined not to be forced into an alliance with a Karlovian, whom she had never seen but had been described to her an an ungainly boor. The next scene finds Boris and his boon companions at Peter's wayside inn, drawing tales of adventure from the Rider's lips.

"YOU must have had many thrilling adventures," said Boris to his guest after the dinner and the wine had warmed the latter's heart and loosed his naturally taciturn tongue. "Tell us of them."

For an hour the rider told them tales of the road—of narrow escapes, of running fights with gendarmes, of rich hauls, and of lean days. When he paused to light another of Ivan's gold-tipped and monogrammed cigarettes, Boris leaned back in his chair with a deep sigh

"Ah," he murmured, "such freedom! You have lived. For such as you romance still exists; but for us life is a tame and prosaic thing. I wish that I were a bandit."

"And I," said the Rider, "wish that I were a prince."

Boris sat suddenly erect, with a half-smothered exclamation.

"Why not?" he cried. "It would be great sport."

"Why not what?" asked Nicholas.

"Be a bandit for a week," replied Boris.

The others leaned back in their chairs, shouting in laughter. Ivan, tying a napkin about the lower half of his face, rose and pointed a salt cellar at Alexander menacingly.

"Stand and deliver!" he cried. "I am Dimmie, the terror of the highways."

Boris joined in the good-natured raillery, but when the laughter had subsided he turned toward the Rider.

"You have said that you should like being a prince," he said. "Well, you shall be for a week, and I shall borrow your horse and your mask, and uphold the honor of your calling upon the roads."

"Dimmie, you're crazy," cried Alexander, realizing at last that Boris was in earnest.

The crown prince paid no attention to his friend's interruption.

"And you," he continued, still addressing the bandit, "shall live like a prince while I am gone."

"It can't be done, Dimmie," broke in Alexander. "How could this man pass as Prince Boris? Except in size, you are as unlike as two men can be. Where could he go to play prince where the imposture would not be immediately discovered and exposed?"

"My hunting lodge," cried Boris. "It's just the place."

"But, Dimmie," expostulated Ivan, "within a week you will receive his majesty's commands to proceed to Demia for the purpose of paying court to the future crown princess of Karlova. I have had the information in a letter from my father."

"Good!" exclaimed Boris. "Now I am unalterably decided, and a setting is provided where our friend here may play prince to his heart's content, and do me a good turn into the bargain."

"What do you mean " asked Nicholas.

"I mean," replied Boris, "that I shall send the Rider to Demia to pay court to the Princess Mary of Margoth."

The three guardsmen gasped.

"You are my best friends," continued Boris. "A thousand times have you sworn that you would willingly lay down your lives for me. Now I shall discover how sincere were your protestations of fidelity. I do not wish to marry, yet; and most certainly I do not wish to marry a scrawny-necked, watery-eyed Margoth princess. If she refuses me, I shall be saved, and our friend here can see to it that she refuses. Should she accept him" —and Boris could not restrain a grin of amusement—"I shall still be saved, since she will be married to another."

"But, Dimmie," cried Alexander seriously, "you cannot mean to carry your hoax as far as that! It would mean war, Dimmie."

"And which of you would not prefer war to Margoth?" asked Boris.

The others were silent. Prince Boris had spoken the truth, for the military party of Karlova had for long sought to foment trouble between the two countries. The crown prince, to whom they looked for guidance, had counseled temperance, and though the acknowledged head of the war party, he had been the strongest advocate of peace with Margoth. Now, however, that a distasteful marriage was to be thrust upon him, he was quite willing to go to any lengths, though the principal appeal of the adventure lay in its levity.

The city of Demia was draped with bunting. The flags of Karlova and Margoth floated from a thousand windows and balconies. They were suspended across the main thoroughfares upon ropes of flowers. The colors of Karlova were twined with those of Margoth upon the coats of the men of Margoth and in the dark hair of the women; yet, notwithstanding these outward signs of rejoicing, the hearts of the Margothians were heavy, for today a Karlovian prince was coming to pay court to their beloved princess, Mary of Margoth.

In the palace of the king the object of their devotion stamped back and forth the length of her boudoir. Her little hands were flying in excited gestures as she stormed vehemently to the sympathetic ear of her audience of one. Faithful Carlotta shared her mistress' aversion to the thought of the impending calamity.

"I won't! I won't! I won't!" cried Mary. "I'll—I'll die first. I won't marry a hideous, hateful Karlovian. I don't care if I am a princess. It isn't my fault, and I don't want to be one, anyway."

"My dear child"—and Carlotta's voice was choked with sobs—"if poor old Carlotta could only help you! But there is no help. You were born to the purple, and you must accept the responsibilities of the purple, and, too, dear, you may find that Prince Boris is not entirely impossible—even though he be a Karlovian. He—"

"Carlotta!" interrupted the Princess Mary, clapping her palms together. "I have it!"

"Have what?" asked Carlotta.

"Never mind what I have; but I have it. And Carlotta, pay no attention to anything that I may say or do while Prince Boris is present. Do you understand?"

There was a blare of trumpets from far down the broad avenue which leads up to the palace.

"He is coming!" cried Carlotta.

"But he won't stay long," said Princess Mary, with a shrug and a girlish giggle.

In the uniform of colonel of the Black Guard, and attended only by three officers of that famous regiment, came Boris, Prince of Karlova, to the court of Alexis III. Between lines of royal troops, down a flower-strewn

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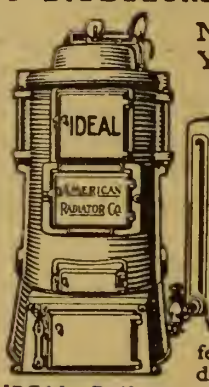

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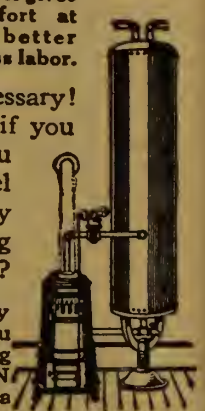

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boulevard he rode in the French limousine which had brought him along the Roman road from Sovgrad to Demia. Prince Stroebel, prime minister of Margoth, had met him at the city gates, and now sat beside him. The crown prince of Karlova seemed ill at ease. He played with the sword-knot upon the hilt of the jeweled weapon at his side. He cast apprehensive glances at the long line of soldiery standing with arms at the present along either hand. To the perfunctory plaudits of the citizens of Demia he made no response.

Ivan Kantchi, who sat just in front of him, kicked his royal foot and made a surreptitious gesture toward his helmet. The crown prince snatched off his own headgear and waved it frantically at the cheering populace. Ivan Kantchi bit his lip, and a slow flush crept up from beneath his military collar. Prince Stroebel became acutely interested in something straight ahead of him. Alexander Palensk, sitting beside Ivan gave the latter an almost imperciptible nudge with his elbow. The people packing either side of the avenue gazed wide-eyed at the crown prince of Karlova for a moment, then they broke into loud and tumultuous laughter.

Prince Boris glanced nervously to right and left. He saw the strained expressions upon the faces of his companions; he sensed the jeers in the laughter of the people of Demia. Then he lost his temper! Jamming his helmet down upon his head, the eagles of the Black Guard to the rear instead of to the front, he rose to his feet, and shaking his firsts at the Margothians, unloosed a stream of profane invective upon them.

A young American, standing upon a balcony of Demia's principal hotel, witnessed the outbreak.

"The future husband of your princess appears to have a little temper of his own," he commented, grinning, to a chance acquaintance at his side. The latter, a very tall young man, broad shouldered, and with an unmistakably military bearing, smiled happily.

"He doesn't seem to be making a very good impression, does he?" he asked. "But you are mistaken, M. Main, in thinking me a Margothian. I am not. Just a chance visitor to Demia, like yourself."

"Well," said Hemmington Main, "I hope that whatever your business here may be that you are more successful than I have been. One disappointment after another has been my lot since I first reached Europe, and now I have entirely lost track of those I am seeking. They should have arrived in Demia three days since, and I can only account for their absence on the hypothesis that—ahem—one of them discovered that I was following them, and has altered their route in order to elude me."

"You are an American detective?" asked the stranger.

Main laughed. "Far from it," he replied; "though I have often thought, until recently, that I was a natural-born sleuth, and now to lose two women and a chauffeur, to say nothing of two maids and an automobile, in the heart of Europe is a severe blow to my egotism."

"My dear fellow!" exclaimed the stranger; "can it be that you are trailing a convent?"

"I'm trailing the dearest girl in the world," replied Main.

The other raised his eyebrows in partial understanding.

"Ah," he said; "a love affair—romance—adventure! My dear M. Main, I think that you are a man after my own heart, with this slight difference—you are seeking to find a love, I to elude one. Possibly we might join forces, eh?"

"How?"

"I do not know—we must leave that to Fate; and while Fate is mustering her forces, let us find a table here on the balcony, and investigate again that incomparable 'Bronx' which you taught the barboy to concoct before we were interrupted by the coming of His Royal Highness Prince Boris of Karlova."

"You're on!" cried Hemmington Main. "His royal nibs has passed. The troops are going. Hoi polloi are dispersing. The circus parade is over. Now for red lemonade and peanuts."

"You Americans don't entertain a great deal of respect for royalty," commented the stranger, with a good-natured laugh.

"Oh, but we do," replied Main. "We deride the gods even while we tremble at their feet. We poke fun at kings, for whose lightest favor we would barter our souls. We are a strange race, monsieur. Europeans do not know us; nor is it strange, for, as a matter of fact, we do not know ourselves."

The two men had seated themselves at a small table near the balustrade overlooking the avenue beneath. Traffic was once more assuming its normal condition, though many pedestrians still lingered in idle gossip upon the narrow walks. An automobile—a large touring-car—honked noisily out of a side street and crossed toward the hotel entrance. Main chanced to be looking down into the street at the time. With an excited exclamation he half rose from his chair.

"There they are!" he whispered. "There she is now."

"Who?" asked the stranger.

"The convent," explained Hemmington Main.

"Good! You are something of a detective, after all."

The car drew up before the hotel and stopped. Two maids alighted, followed by a young girl and a white-haired woman.

"I am interested, my friend," said the stranger. "Tell me something of your romance; it is possible that I may be of assistance to you."

Main looked the other squarely in the eyes. He had been attracted to the man from the first by that indefinable something which inspires confidence and belief even in total strangers.

"My dear Kargovitch," he said, "I do not know you from the side of a barn; but I like you. You are what my friend Garrigan of the late Chicago Press Club would call 'a regular fellow.' I think I'll tell you my troubles; but I'll promise not to weep on your shoulder."

M. Kargovitch leaned across the table and laid a hand on the American's shoulder.

"I am glad that you like me, my friend," he said; "and I can assure you that I return the compliment. Tell me no more than you care to, and if I can help, I will."

Hemmington Main let his eyes return from the walk below, from which the little party had disappeared from the automobile into the interior of the hotel.

"It is this way," he said. "The young lady whom you just saw leaving the machine is Miss Gwendolyn Bass, daughter of Abner J. Bass, the multimillionaire American. I—er—ah—we—well, you understand; she is perfectly willing to become Mrs. Hemmington Main, and her father is with us, strong; but Mamma Bass has aspirations. She wants a title in the family. Money ,of course, is no object to them. The fact that I am poor means nothing to Mrs. Bass one way or another; but, you see, being a plain American, I am absolutely titleless, and therefore impossible. Gwendolyn would marry me in a minute if we could get her away from her mother long enough to have the ceremony performed; but Mamma has Argus backed through the ropes in the first round when it comes to watchfulness. If I could only find some way to separate Gwen from Mamma for about an hour, it would be all over but the shouting."

M. Kargovitch smiled pleasantly at his American friend.

"Let's have another of those delicious Bronx inspirations," he suggested; "it may inspire a solution of your problem."

When the waiter had brought the two drinks and set them upon the table, M. Kargovitch raised his glass to the American.

(Turn to Page 17)

Studebaker

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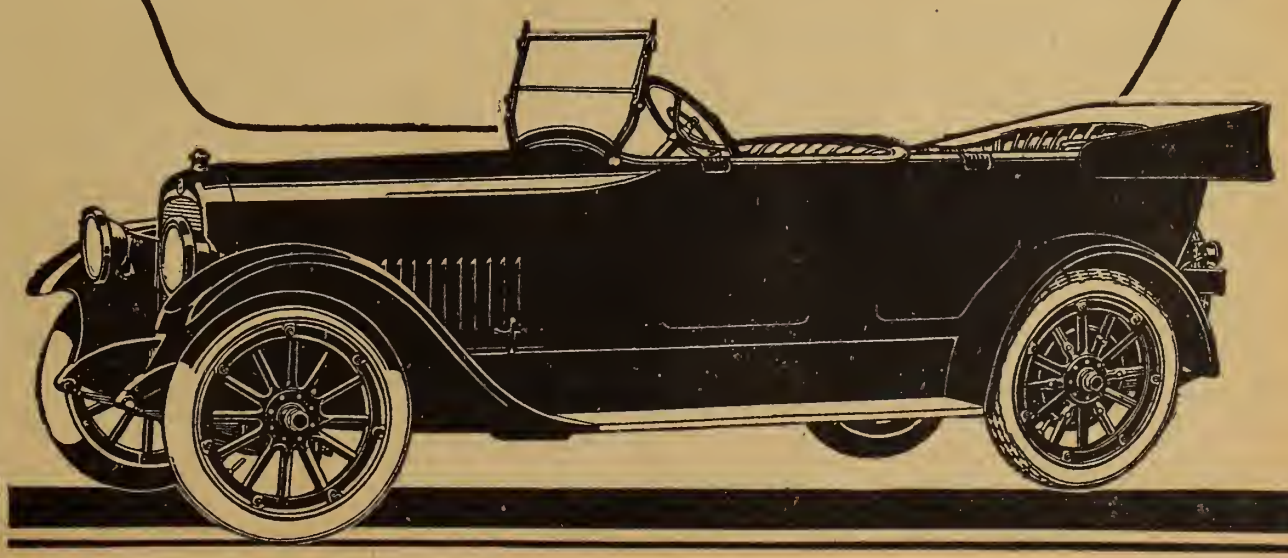

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The Colorado Potato Crop

An error of 2,500 cars was made in the October potato crop report sent out by the United States Bureau of Crop Estimates covering Colorado. This state's condition was given at 55 per cent of normal. Correction of the error is promised in the November report. Colorado's potato crop is short, but nothing so nearly approaching a half yield as was indicated by the government's figures. The truth about the crop is given in the U. S. Bureau of Markets summary for October 15, which shows that Colorado will have approximately 10,000 cars of potatoes from the present crop, and not 7,662 cars, as erroneously reported by the Bureau of Crop Estimates. The corrected figures were received too late to be given in detail for the present issue.

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Purebred Livestock Associations

The stockmen over the country are fast realizing the necessity for organization in the handling of their purebred livestock markets. In many of the newer sections, there are breeders of various classes of purebred stock no one of whom has enough to warrant him to market it in a satisfactory manner. For him the purebred Livestock Association will be of double value. Under such circumstances the smaller breeders can, through an association, conduct combination consignment sales of livestock and have enough to make it worth while to advertise it throughout the territory in such a way as to bring buyers. Probably the sale feature of these organizations is the strongest one. There is one other feature that will help their community greatly and that is the undivided support of the livestock exhibits at the fairs. No community can stage a successful livestock show without the support of the stockmen and, on the other hand, nothing reflects a greater indication of the livestock in a community than the exhibits at the fair.—H. A. L.

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Grange Packer Bill

The Grange bill provides for a national food commission instead of the Secretary of Agriculture to administer the law, of five men to be named for ten years, clothed with regulatory powers defined in the bill, and amply sufficient to prevent unfair competition, the suppression of competition and excessive prices in sales by, and monopoly or unfair prices in purchases by packers. It provides for the control of stockyards by the commission, but not for their sale by present owners. It substitutes for the arbitrary licensing system a registration which will bring every packer or other person, firm or corporation attempting to dominate any traffic in foodstuffs within the jurisdiction of the food commission—on the sound legal and economic ground that the distribution of foodstuffs has become a matter of national policy in which the public concern ontweighs personal or private right.

Unlike the Kenyon-Anderson bill which provides for the cancellation and forfeiture of licenses to do business and a federal receivership, destroying private property, the Grange bill provides instead that any and all complaints against a packer concern shall be heard and determined by the commission and the subsequent issuance of such orders by the commission as the evidence may justify, conditioned upon the continuance of the packers' business by the packer concern exactly as ordered by the commission; subject to heavy criminal penalties for failure to obey and without the interposition of any "stay of proceedings" which, as provided for in the Kenyon-Anderson bill, might mean interminable court delays. In place of this the Grange bill provides for the adjudication in the proper courts of such questions as may arise while and not before the remedy applied by the commission is taking effect. The bill as a whole, it is believed, is stronger in its control features than the Kenyon-Anderson bill, less dangerous in that no government ownership is possible under its provisions, and more effective because of its elimination of the probability of court delays until after a legal remedy for violation of the orders of the commission has been put into execution. It is based on the Kenyon-Anderson bill and uses its language in the main and makes no effort to change the broad general provisions for control, the adoption of rules, regulations, etc., to safeguard public interests, as worked out in great detail and stated with great force and clearness by Senator Kenyon in his draft of the proposed control legislation.

The National Grange wishes to ask farm people everywhere—now, immediately—to write strong letters of approval of the principle of government control of the packers. It is not certain at this time whether or not a majority of Congress favors even this principle. If Congress stands square for control, the details of the legislation can safely be left to the leaders of thought and action in the two houses. What the Grange wants is first to have all farm people come out strong for control legislation, unblinded and uninfluenced by the clever and persistent packer propaganda, and then to help get the very best control bill into words which can be framed and passed.—Hoard's Dairyman.

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Rat Pest Threatens

A stitch in time saves nine. Unless eastern Colorado farmers get busy they will have a menace which will be hard to control. Unless some organized effort is made (the sooner the better), the country will be overrun with rats, which will be hard to eradicate, if it is not too late even now. An Adams county farmer's wife remarked that she could not raise any chickens on account of rats. Whenever the time arrives when farmers cannot raise chickens, turkeys, etc., successfully they are going to lose a source of food to themselves and a lot of profitable grocery money.

The prairie dog is a nuisance, but he is harmless so far as the damage he does to the farmer when compared with the damage the rats do. Not only does the rat destroy young chickens, get away with setting hens and turkey eggs, but he is destructive in many other ways. He is a pest and a nuisance, and a determined and organized effort should be made without delay by all farmers to eradicate what will be a very serious condition to overcome later on. Get busy now and save a lot of future worry and property.

In England there are professional rat catchers, or perhaps one should say rat destroyers, who have trained dogs and ferrets, the dogs being trained to not kill the ferrets. These men go from farm to farm to destroy what rats they can and are paid for the work. This adds additional cost of running the farm, besides the destruction of values in the shape of young turkeys and chickens. Must we too have rat catchers?—Dr. V. T. Cooke.

Western Slope Fair

H. A. LINDGREN

The Western Slope fair held at Montrose, Colo., Sept. 16 to 19, was pronounced better than ever before. The financial report indicated that the attendance was larger than last year. The weather was ideal and regardless of the busy season the farmers were present in full force.

The agricultural display was not so large as it has been in former years, although the quality of the exhibits was excellent. John Howell had an unusually good exhibit of general farm crops. Other creditable exhibits were shown by Chris Picker of Olathe and J. J. Ross of Montrose. These gentlemen always bring a large display of farm crops. John L. Stivers of Montrose had a strong showing of dry farm crops from the Log Hill Mesa section, which attracted considerable attention.

The fruit display was not so large as formerly, due to the spring freeze. The fruit usually shown at the fair comes from the Spring Creek Mesa section. This year very few orchards had any fruit whatever in that section.

The livestock department was well filled with good stock. The quality of the stock shown was far above the average. It was interesting to view the beef cattle this year as this department was better filled than formerly. All of the cattle shown in this department were Herefords owned by Sneffles Livestock Co. of Ridgway, Colo., and Howard Lathrop of Montrose. These gentlemen carried away the ribbons in all classes filled.

The dairy cattle show consisted of Holsteins from the Garmesa farms of Fruita, Colo.; Loesch Brothers, Montrose, Colo.; H. J. Koch and C. C. Wortman, both of Montrose county. Guernseys were shown by R. W. Romig of Montrose and Jerseys by N. F. Phelps of Montrose.

The principal awards on Holsteins were divided between the Garmesa farms and Loesch Brothers. The former won senior and grand champion awards on bull, also senior championship on females. Loesch Brothers won junior and grand champion awards on an excellent young heifer. Garmesa won the trophies offered by the Holstein-Friesian association on aged herd and breeders young herd. Mr. Romig, being the only exhibitor of Guernseys, was given the awards in these classes.

The hog show was filled largely with Duroc-Jerseys from representative herds on the Western slope. Mr. A. A. Clements of Paonia, Colo., won senior and grand championship on an excellent Critic sow. He also won second and fourth in the district futurity on litter. Garmesa won senior and grand championship on boars, winning with a boar of the Brookwater Cherry King breeding, also first in the district futurity on litter. Some very fine individuals of the breed were shown by Allen Nash of Montrose, V. A. Phillips of Cedaredge, H. R. Spencer, Montrose, and Judson Solomon, Olathe. A few Poland-Chinas were shown by new breeders. Mr. E. N. Gibson of Montrose, Vernon Squires, Montrose, and Claude McLaughlin of Olathe, each showing a few animals. The only showing of Berkshires was that of John Howell of Montrose.

The farmers of the Uncompahgre valley are raising more farm sheep each year. There was a very creditable showing of Cotswolds, Hampshires and Rambouillets. There were fewer horses this year than formerly and, in reality this department showed less interest than is usually the case at a Montrose fair. Regardless of this fact, however, there were some very good stallions shown and several good draft teams. The standard bred classes were well filled from the farm of J. J. Tobin of Montrose.

The horses were judged by Dr. George H. Glover of Fort Collins and the remainder of the stock by Prof. George E. Morton. These two experts are always welcomed by the breeders of the Western slope.

The feeling regarding the fair is one of interest in making it a stronger event, through the building of better equipment for next year's show.

Be not prodigal of your opinions, lest by sharing them with others you be left without.—Ambrose Bierce.

The Branding Iron

They are canning Russian thistles out in Kit Carson county. Keep up the good work; they should all be canned—and canned right!

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College News Notes, in a headline over an item from the Home Economics department asks: "Why do you wear clothes?" We have been asking that question ever since war prices hit the clothing market, but now that winter is approaching our intention of beating the high price by means of what, in legal parlance, might be termed a non-suit has been temporarily deferred.

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The Weld County News is urging the building of a permanent structure for housing its agricultural exhibits. A good suggestion. Weld claims to be the "biggest agricultural county in Colorado, if not in the world," and that claim is justified by the statistics on production. The county should have a fall fair commensurate with its importance in agriculture and it should be adequately housed.

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Imagine for one moment what would happen if the farmers of the country should go on a strike and permit the loss of one wheat crop, or one corn crop. There would follow such an industrial panic as the world never saw and civilization would stand face to face with absolute starvation.—Manufacurers Record.

The farmers have no intention of striking, but it might be a salutary lesson for the striking industrial laborers if they were given a touch of real hunger. An interesting item comes from the Southern Colorado coal fields, where a vote among the miners resulted against striking. Women employed in the industry were almost unanimous against a strike, but among the men there was some favorable sentiment. Women know, better than men, what a strike means. The brunt of it always falls upon the innocent.

✦ ✦ ✦

A recent report of the Colorado State Crop Reporting service on corn says: "Corn makes a much poorer showing. The acreage planted was the largest ever reported but reports received by the Crop Reporting service indicate that only 66 per cent of the acreage planted was harvested for grain, which would indicate a production of approximately 11,000,000 bushels, or something short of last year's crop."

The statement that corn "makes a much poorer showing" is subject to misconstruction. Corn is making a good showing. The crop is being grown more and more for silage, as it should be, and the difference between the 66 per cent harvested for grain and the 100 per cent planted is not abandoned acreage, but mostly rich corn ensilage that should be accounted for in our crop reports, because it is worth all the way from $40 to $150 an acre as feed.

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Two noted ex-members of cabinets join in an opinion of interest to farmers in regard to the validity of the tax exemption clause in federal farm loan bonds. The two authorities are William Gibbs McAdoo, former secretary of the treasury, and George W. Wickersham, who was attorney general in President's Taft's cabinet. In the opinion of these eminent lawyers bonds issued by the federal land banks are instrumentalities of the government, and as such they, and the income derived therefrom, are exempted from all federal, state, municipal and local taxation. This is specifically set forth in the law creating the banks. The mortgage bankers of the United States have combined in an effort to kill the law. Suit has been filed to test the validity of the tax exemption feature, which makes the bonds such an attractive investment and produces the money that is loaned to the American farmer on long time. Attack on the law is doomed to failure. The mortgage bankers haven't a leg to stand on except self-interest, a desire to continue to mulct the farmer out of usurious interest.

Comment by Farmer Putnam

OUR MISSOURI FRIEND MAKES A DEFENSE OF HIS ABUSE OF THE ENGLISH LANGUAGE

ONE of them professors in the Agricultural College up to Fort Collins is roastin' the farm papers that prints such letters like this, because us fellers is so hard on the English language. He sez it gives people a false impression about farmers and makes the publick think we don't know no good grammar when we see it. His article was printed in Mr. Crosman's paper, the College News Notes, a few weeks ago. I wasn't goin' to pay no attention to it but the other day Isaia Holdemback come over and joshed me about it and sez: "Well, Putnam, I seen where the college is goin' to have a law passed to make them farm papers stop printin' foolishness about the farmers. This'll make some of you literary fellers go to work at the plow handles." I told Isaia I reckoned that I could plow as well and as straight a furrow as he could and what's more, I knowed a thing or two about the English language so that I wouldn't be afraid to argy the question with that professor, whomsoever he might be. "He's the professor of English," sez Isaia, "and them fellers has to be eddicated in all languages, dead or alive. You git mixed up in a argymint with one of 'em and he begins to throw Greek roots at you and, believe, Putnam, you'd have to dodge or git your fool head busted."

Sez I to Isaia: "Don't waste no sympathy on me. If any professor ever begins to throw Greek roots my way I kin toss back rootabagas. We grow 'em on our farm weighin' 23 pounds. Maybe you seen some of 'em at the Strasburg fair?"

"I did, but you never raised 'em. I seen Grover Totten at the fair and asked him where was Farmer Putnam's exhibit, and he pointed outside the tent to the west wind and sez: 'That old stiff from Missouri has never done this community no good. What's blowin' past outside is about all he's ever raised.'"

This made me sore, because Grover is a good friend of mine and I knowed he never said nuthin' like that about me, but I didn't stop to argy because what we want to consider is that thar little question of the English language.

Here is what the professor sez in his article in Crosman's News Notes, as follers:

> Why is it that newspaper reporters, story writers and editors think that they must use all the gutter English and slang to get the attention of the farmers? There is about as much resemblance between the language of the modern farmer and the language attributed to him as there is between the "movie" representation of the wild and wooly west, and the real, progressive, civilized communities we know. The fact of the case is that it's the city people that read that trash—not farmers; and the city people get absolutely false ideas and notions through this reading. Attend any farmers' meeting and note the vigorous language used. We don't for a minute mean to say that the language of the farmer is all that it should be, but we do mean to say that the writers who use the Sis Hopkins language are not setting the ideals of the farmer any higher by the example. Who, farmer or anyone else, does not long for the vigorous, yet simple, language of a Lincoln? Why does the reporter for the stock show or farmers' institute have to write in the language of the street loafer and the bum? The farmer and his wife and children are reading the daily papers; they are patronizing the school and village libraries; they attend church and chautauqua; they are becoming more and more educated; they want the best; they want plain, direct, vigorous English.
>
> They appreciate a little appropriate slang the same as the rest of us, but they resent the insinuation that they can appreciate or use nothing else. It is high time there were a changing attitude of respect for the agricultural public. The paper, institution, or organization that uses so-called farmer talk, thinking thereby to draw a certain clientele, is on the wrong track. Why go to the trouble of putting splendid ideas into language that is an insult to the modern, progressive farmer? Why use a language that is a horrid example to the farmer who is not progressive but wants to be?

The more I read it the less I knowed what to say, so I went to Josephine and asked her what to do about it, and she sez:

"Tom, don't take that to heart. He don't mean your letters. Why, don't you see he sez people long fur the vigorous yet simple language of a Lincoln? Why, that's describin' your letters to a t-y ty. Vigorous yet simple, with accent on the simple!"

"You're kind-a sarcastic ain't you?" sez I.

"No," sez she, "I'm tryin' to keep you from makin' a fool of yourself. Of course, if the shoe fits you put it on, but my idear would be to say nuthin. I been wonderin' myself why Western Farm Life pays you fur writin' such trash, but as long as the editor don't seem to know better why, we kin use the money. Here, let me have that yaller slip ag'in."

So I handed it to her and she read the rest of it and then laffed.

"No, Thomas, you ain't meant by this here article. Don't you flatter yourself. This here professor sez: 'Why go to the trouble of putting splendid ideas into language that is a horrid example? You ain't never been guilty of a splendid idear yet."

Gittin' no sympathy from Josephine, next I went to the editor and I sez: "Did you see this here article in News Notes about Farmers and English?" He sez he hadn't seen it, so I let him read it and he laffed too:

"Well, Putnam, I guess somebody's been handin' it to you all right. Pretty good, pretty good, that's what I call rich. He calls your stuff trash. I'll say it is. I don't understand why we have to give up a whole page to you every issue. I'm going to write this professor a letter of thanks. He ex presses my sentiments quite fully."

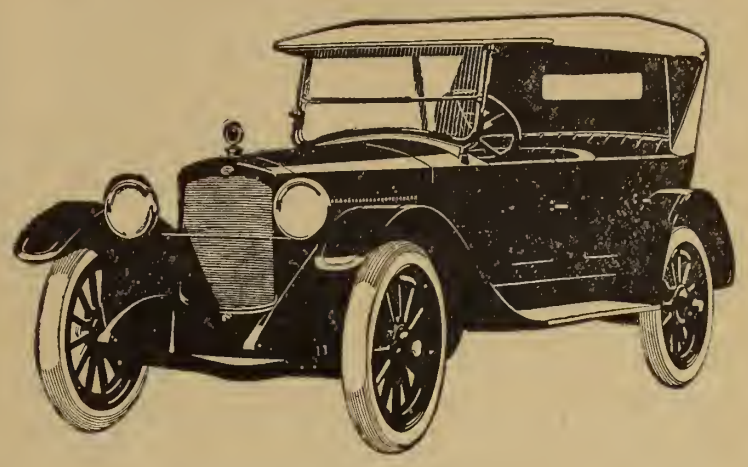
That did make me sore, and gittin' nobody to defend me I has to do it myself, as follers:

"Dear Professor of English: I seen the article in Mr. Crosman's yaller sheet about usin' hamstrung English in my literary works. I don't think you're doin' right. I make my livin' by butcherin' the English language; you make yours by tryin' to teach young Aggies how not to butcher it. The English language has been used and abused more than a thousand years and if it's all the same to you—I know it won't make no difference to the English language—please don't try to make trouble fur me with the farmers. I'll let you alone and you let me alone. You kin try your hand at eddicatin' them young fellers; they don't read my kind of stuff nohow. I write fur them old-timers—the old, broke-down work hosses, with teeth missin', hair thin and scarce, a little locoed and spavined, maybe sufferin' from part ossification above the temples, but havin' the savin' grace of humor. Them old codgers that likes this stuff don't give a hang fur the English language. They sets around the fire of a evenin' communicatin' their thoughts in the "vigorous yet simple language of a Lincoln" and gittin' joy and comfort outen a philosophy of life which ain't bound up by rules of grammar and sin tax.

The English language is their servant; if they want it to cuss fur 'em why they go to it; if they want poetry it yields that; if humor, they make it laff; if pathos, they kin make it cry. They spell words like they sounds and not like they was wrote by the feller that invented the dictionary. As long as you keep on your side of the fence we won't quarrel. I ain't a-blamin' you; it's your business to keep the English language pure; that's what the college pays you fur, and you're doin' the work well. My business is to juggle it around. It's just like makin' them cartoons in the papers. Some of them landscape artists might say that fellers like Opper and "Ding" ain't got no business usin' pen and ink to make funny sketches because that ain't art. It's the same way with this here dialeck; I know it must sound awful to you, but when a feller ain't got much schoolin' and the spirit moves him to write, what's he goin' to do? I'd bust if I couldn't set down what I think in the way I think it. Nobody has to read it, but some people seems to like it fur dessert to their solid readin'. Maybe you're right and I'm wrong, but I'd like to have some of our readers vote on it before I quit writin' these here letters, so I'll ask the folks to take this here as notice fur a vote. Send in your postal cards sayin' who you think is right. me or the professor.

Thos. Jefferson Putnam.

FINER THAN EXPECTATIONS



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Lincoln's Long Legs

The novice was not enjoying his first trip through the air, and his more experienced companion regarded him with some amusement.

"I say, Bill, what's on your mind?" he demanded.

"I was just thinking about Abraham Lincoln," replied Bill, thoughtfully.

"Abraham Lincoln?"

"Yes. I was thinking how truthfully he spoke when he said a man's legs ought to be just long enough to reach the ground."—Puck.

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Running Hogs at Large in Idaho

Answer to Mrs. M. C. D., Idaho.

Any person who wilfully or negligently permits any hog owned by him or in his care or custody, to be or run at large without a drover within the limits of any city, town, or village or in the vicinity of any farm, ranch, dwelling house or cultivated lands of another, or who wilfully or negligently fails, neglects or refuses to keep any such hog securely penned within the limits of any city, town, village, or in the vicinity of any farm, ranch, dwelling house or cultivated lands of another shall be guilty of a misdemeanor. Also Chapter 74, secs. 1278 to 1283, p. 486, Vol. 1, Comp. L., provides, in substance, that the owner or occupant of premises is not required to fence against hogs, and that if a hog trespasses on the premises of another, the land owner may take up and keep the hog at the expense of the owner, holding the same until payment of all such expenses and all damages and an additional sum of 50c per head is made. The procedure for notice to the owner of the animals, the adjustment of the damages and the sale of the animals in case of necessity for damages and costs is provided in detail in the sections cited.—Roy L. Black, Attorney, Boise, Idaho.

Changing Point of Diversion

Answer to T. McH., Las Animas Co., Colo.

Section 3226 R. S. 1908, Colorado, provides that one wishing to change point of diversion of ditch shall file a petition in the district court where the original decree was granted asking for the change. Proper process will then be issued by the court to give notice to all parties interested.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Melons Mix in Field

Answer to W. F. C., Nevada:

It is a well-known fact that all members of the melon and cucumber family which, of course, includes all squashes and pumpkins, mix very readily in the field, and it is quite possible that the muskmelon seed were the result of a cross with the hybrid squash, though personally I have not heard of any such cases occurring. It may be possible that you had other melons growing side by side with these, and in such case the cross can easily be accounted for. All the muskmelons and cantaloupes will cross very readily, and seeds for the market should be grown apart from the general field or from other melons, in order to keep them true to name.—Prof. E. P. Sandsten, Horticulturist, Colorado Agricultural College.

Black Locust Borer

Answer to J. N., Rumbel, Boulder county, Colo.:

Doubtless your locust trees are infested with the black locust borer. It is almost useless to fight this borer, especially when it occurs upon scattered trees such as you would have in your yard. It is said that groves closely planted with black locusts will resist the borer, excepting those trees on the outside rows. The black locust borer does not attack the honey locust, which can be identified by having branched thorns. There is a thornless variety of the honey locust which, of course, would not be attacked by this black locust borer. It is possible that some of your locust trees are the thornless variety of honey locust. I regret that I can only recommend that you cut down the trees infected with the borer and replant with some other species.—W. J. Morrill, State Forester, Fort Collins, Colo.

Ornamental Tea Plant

Answer, Mrs. M. C., Idaho:

The ornamental tea plant which you have in your lawn is one which sends up suckers from the roots in a manner similar to the maple leaf or white poplar. The plant will continue to do this until it is dug out, root and all, and I recommend this as the only method of getting rid of this plant. This is a much better method than one which involves the use of chemicals, because one is bound to ruin the soil conditions in the lawn by the use of chemicals.—W. W. Robbins, Botanist, Longmont, Colo.

Cattle Taken Up in Town

Answer to C. C., Kit Carson, Colo.:

Yes, an incorporated town has a legal right to take up cattle where an ordinance against cattle-running in the streets is in effect. This applies to cattle owned either in or outside of the corporate limits of the town.

Breaking Sod in Fall

Answer to C. R. A., Morgan county, Colo.:

We see no reason why you should not break up your land this fall if the moisture conditions are suitable. We think it would be advisable to plow seven or eight inches deep with a moldboard plow and then follow this with a disc harrow if the ground has been well covered with vegetation. Harrowing in the fall does not mean that you should put the ground in fine condition, but simply go over it to break up the larger clods and cut up the vegetation so that the soil will be compact enough to hold the winter moisture.

Feeding Wheat in Bundle

Answer to P. S. McD., New Mexico:

Feeding sheaf wheat to cows and horses is advisable only if fed in limited quantities. I question the advisability of selling your entire feed crop and depending upon the sheaf wheat crop as the sole feed. You could probably use part of it in this way, but it is not advisable on account of it causing digestive trouble, especially to the horses. If it would be possible for you to have this wheat threshed and ground it would provide a most excellent hog feed. You do not mention having any hogs on your farm, in which case you probably could sell it to better advantage than to feed it to your cattle and horses. In case it is not possible for you to get your threshing done in time to feed say half ration of the sheaf wheat to your cattle; very little of it to your horses.—H. A. L.

Unearned Premium on Insurance Policy

Answer to N. L. W., Pueblo county, Colo.:

You can always cancel a fire insurance policy and procure the return of the unearned premium on the short rate basis. A three-year policy which has run for two years and three months has earned 78 per cent of the premium paid and the company would be obliged to return at least 22 per cent of the premium to you.—C. W. Fairchild, State Insurance Commissioner, Denver.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

I have a five-year-old mare that has had a growth about half the size of an egg on the inside of the left hind foot, just above the hoof. It has been there about nine months. She is sometimes very lame; at other times she seems hardly to notice it. She has not been worked since last May. Can you advise me what is the matter and prescribe treatment?—C. H., Garfield county.

The tumefaction in the place described might be an unusually large "side-bone" or it might be an extosis of bone localized, which if it were to extend around the joint would be called a "ring-bone." There is a joint exactly opposite the upper margin of the hoof wall and in case of ringbone there is not simply a ring of bone formed around the joint, but the joint itself is obliterated

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and the two bones are united (anchylosis). This reminds us somewhat of a plumber "wiping a joint." This process requires several months' time, during which there is lameness and, in fact, any time thereafter a mis-step may cause severe lameness. A ringbone is never cured (restoration to a normal condition), and the only advantage of the many "cures" is the irritation which they produce. If the ring of bone were removed the horse would be helpless indeed. A blister applied occasionally promotes healing. It is now thought that infection may play an important part in causing ringbone, spavin, and various abnormalities of the joints. An inherited predisposition should not be overlooked. "Like produces like" and such animals should not be used for breeding, or mares may be used for raising mules. If it proves to be a "side-bone," an occasional blister will be helpful and it will not be as serious as though it were a ringbone. Again it may prove to be an entirely different condition. I have no means of knowing. —G. H. G.

Condition Indicates Garget

I have been milking my cow for seven months. One teat gives thick yellow milk like cream, part of the udder is caked, the other three teats are all right. The milk from these three strains, but the milk from the other will not strain. It seems to thicken. The cow seems all right and eats well. I would like to know what is the cause and what to do for it.—W. L. B., Pueblo county, Colorado.

There is inflammation of one quarter of the udder and the other quarters are liable to become involved. This is probably a case of infection through the natural opening in the teat. The thick condition of the milk is caused by coagulation of the casein by inflammatory products or in exceptional cases from the presence of pus. The treatment for this condition (mammitis) has been given several times recently in this department of Western Farm Life. It will be well to quit milking the diseased quarter of the udder, for as long as it is functioning actively the "gargety" condition will be likely to persist. Internal treatment through the natural opening in the teat is most effective, but should be undertaken only by a veterinarian. Hot poultices are applicable. If the udder is badly congested it should be suspended in a sheet placed around the body and tightened by twisting at the top. Give laxative food. Milk from the diseased quarter last, to avoid danger of infecting the remaining healthy portion of the udder. Excellent veterinary services are available in Pueblo, and it may be better to seek professional assistance in case the cow has not fully recovered.—Geo. H. Glover.

County Veterinarians Needed

There is a growing demand for county veterinarians to supervise the control of animal diseases. There is also a growing demand for veterinary practitioners. Many populous communities are without a veterinarian, but this need is gradually being supplied. The real problem is in sparsely settled communities and counties where there is not sufficient work to warrant a qualified veterinarian locating for practice. Certain communities have met this difficulty by organizing the farmers into protective associations for the purpose of employing a veterinarian to practice for the benefit of the membership and to supervise the control of infectious disease. An association of this kind at Monte Vista is now employing three veterinarians and find it eminently satisfactory. Montrose has recently reorganized, and will employ two veterinarians. LaJara has one. Salida one. Kiowa is ready as soon as a man can be supplied. Durngo and two or three other places will follow suit.

The statutes provide for county physicians and provision should be made by legislation for county veterinarians. It seems that now the only way many communities can secure adequate veterinary supervision is to subsidize a veterinarian by some money-raising scheme which is more or less unsatisfactory. Every county should have a county veterinarian on the job all the time, ready to take immediate measures to suppress hog cholera and other infectious diseases of farm animals.—Geo. H. Glover, Colorado Agricultural College.

Additional Awards

Following are the awards in horses and sheep at the Colorado State Fair, omitted from the October 15th issue on account of lack of space.

THE HORSE DIVISION

In Percheron horses Zang's Elmwood Stock Farm, Broomfield, Colo., made almost a clean sweep, securing grand champion stallion and mare, the senior and junior championships in both stallion and mare, get of sire, best stud comprising three animals of either sex, and firsts in stallion 1 year and under 2; brood mare 10 years and over; brood mare 5 years and over (both first and second); mare 4 years and under 5; mare 2 years and under three; mare 1 year and under 2; mare under 1 year; mare with foal.

In the class of herd sires 5 years and over the competition gave Elmwood Farms first, C. W. Krause, Manzanola, second; Marion F. Craft, Fowler, third.

In Suffolks, Clydes and Shires, Alexander Yant, Rocky Ford, was the winner of championships and firsts in all classes.

Other awards in the horse division were made as follows:

Standard Bred Roadsters

Stallion 4 years or over: First, Wm. Irvine, Colorado Springs; second, Wm. Irvine; third, C. W. Krause, Manzanola.

Mare, 4 years or over: First, E. P. Smith, Pueblo; second, Wm. Irvine; third, Wm. Irvine.

Grade Horses—Draft

Mare or gelding, 4 years or over: First, Alex Yant, Rocky Ford; second, R. T. Vaughn, Pueglo, third, Alex Yant.

Mare or gelding, 3 years or under 4: First, W. T. Sackman, Pueblo; second, H. C. Murray, Pueblo.

Mare or gelding, 2 years under 3: H. C. Murray, Pueblo.

Either sex, 1 year or under: First, Alex Yant, Rocky Ford.

Horse colt, under 1 year: First and second, Alex Yant, Rocky Ford; third, P. Kelley, Pueblo.

Filly under 1: First and second, Alex Yant, Rocky Ford.

Brood mare with colt by side: First and second, Alex Yant, Rocky Ford.

Champion gelding: First, E. F. Sackman, Pueblo.

Champion mare: Alex Yant, Rocky Ford.

Grade team draft horses shown to wagon: First, R. T. Vaughn, Pueblo; second and third, Alex Yant, Rocky Ford.

Grade horses, coach—Mare or gelding 4 years or over: First, C. F. Burke, Pueblo.

Display of horses owned by exhibitor: First Elmwood Stock Farm, Broomfield; second, Alex Yant, Rocky Ford; third, R. T. Vaughn, Pueblo.

Display of draft horses owned in Colorado: First, Elmwood Stock Farm, Broomfield; second, Alex Yant, Rocky Ford; third, R. T. Vaughn, Pueblo.

Draft mare showing 2 colts, 3 years old and under: First and second, Alex Yant, Rocky Ford.

Pair Colorado-bred team, general purpose, not less than 1,200 pounds weight: First, R. T. Vaughn, Pueblo; second, E. F. Sackman, Pueblo; third, Alex Yant, Rocky Ford.

Fancy Class

Driving team roadsters: First, H. S. Burnham, Pueblo; second, E. P. Smith, Pueblo.

Gentlemen's fancy driver: First, E. P. Smith, Pueblo; third, H. S. Burnham, Pueblo.

Single horse driven by lady: First, E. P. Smith, Pueblo; second, Jno. H. Voorhees, Pueblo.

Matched team shown to carriage: First, A. A. Hunter, Walden; H. S. Burnham, Pueblo.

Three-gaited saddle class: First, A. L. Allen, Pueblo; second, Jno. H.Voorhees, Puegio.

Gaited saddle horse by gentleman: First, Elster Ralston, Colorado Springs; second, John H. Voorhees, Pueblo; third, A. A. Hunter, Walden.

Gaited saddle horse by lady: First, A. A. Hunter, Walden; second, Jno. H. Voorhees, Pueblo; third, A. L. Allen, Pueblo.

Combination 5-gaited class: First, Jno. H. Voorhees, Pueblo; second, A. A. Hunter, Walden.

Shetland ponies: First and second, A. L. Allen, Pueblo.

Mule, over 1 year under 2: First and second, Arthur & Potter, Undercliff, Colo.

Mule colt, under 1 year: First, Arthur & Potter, Undercliff, Colo.

SHEEP DIVISION

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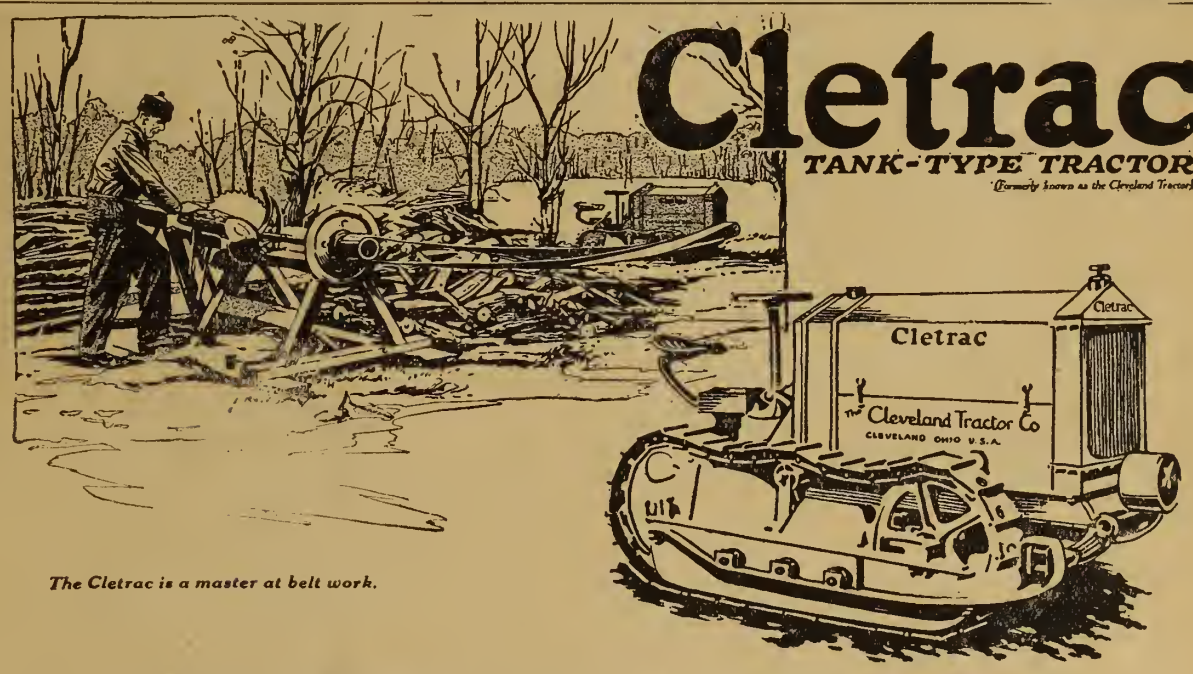

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Making Sunflower Silage

Sunflower silage is being discussed pro and con through many of the papers throughout the country. In parts of the Rocky Mountain region where the altitude is too high for the growing of corn, Russian sunflowers are proving an excellent crop. In sections where corn is grown, the sunflowers on the same ground far outyield the corn. Although grown quite extensively at the present time, the method of handling the crop is still experimental. There are several methods advocated by which to determine the proper stage at which to put sunflowers in the silo.

Some farmers say that the proper stage is when the seeds are in the dough. However, under certain conditions, it is found that although the seeds are still in the milk stage, the stalks have already become extremely woody. It would seem that both the seed and the stalk needs to be watched and rather than let the stalk get hard and woody, it should be cut before the so-called dough stage comes.

On the western slope, several of the larger growers have this year intimated that on account of the difficulty in handling sunflowers, they are going to raise corn next season. It has required more men to handle the crop in harvesting than when corn is used. One farm reports that they were compelled to pay higher wages for sunflower harvesting than for harvesting of corn. It is difficult for the men to handle the long stalks and put them on the wagon. There was no great difficulty in the work of cutting them after they reached the machine. On several farms in Montrose county this season special binders were needed to handle the crop.

Another feature noticeable in two fillings on western slope, was the tremendous amount of leakage coming from the silo after filling. In one case last season dry straw was mixed with the sunflowers at time of filling to take up the excessive moisture.

The first frost, the one that killed the corn this year, did not injure the sunflowers in the least on the western slope. Last year Ed Hansen of Delta county had 70 acres at an altitude of 7,500 feet, that made 25 tons of silage per acre.

A similar report comes from County Agent W. O. Sauder of Saguache county who says: "The Russian sunflowers which were put out by various farmers over the county were still green and unaffected by frost as late as the first of October. At this date we had frost nearly every night since September 22. This shows the hardiness of the Russian sunflowers, both in spring and in the fall, thus making it an ideal forage crop for this valley. Several farmers are planning to put up silos next year and grow these for winter feed. It will pay."

There seems to be no question but that sunflowers will prove a very valuable crop for dairy cows and sheep. Some question has arisen as to its value for beef feeding when compared with corn silage. This would prove an interesting subject for a test for some of the western experiment stations. We need more definite data on the feeding value of Russian sunflowers as compared with corn silage.—H. A. L.

Harvesting Russian Sunflowers on Paghre Valley Ranch, Montrose, Colo.

As a Man Thinketh

"John is a good fellow but don't use his brains." This and similiar remarks are often heard by anyone who mingles with his fellow men, and by the way, quite as often among dairymen as among other folks. We would assume from such remarks that when the formula for man was made, it included a certain amount of brains which said man must use if he would live a useful and happy life. Too much has been said about people being slow and lazy. It is "lazy brains" rather than "lazy bodies" that retard progress. The quality of a dairyman's brains are, figuratively speaking, on the table, where all can see. Drive by his farm and even casually observing the crops, herd, etc., you can see how much mental effort is in use.

A scrub bull running with a herd of scrub cows on a scrub pasture indicates the inactivity in certain cells of the owner's brain. He probably has a very active body for under these conditions he would have to do very active physical work to exist. The farm management accountant would find that he has a labor income of about $333 a year, $330 of it as reward for physical exertion, the remaining $3 for mental effort. This man has good brains but he does not want to wear them out.

Across the road on similar land with similar opportunity is a man with a labor income of about $3,330 a year, $330 of it as reward for physical exertion, the remaining $3,000 for mental effort. This man has good brains but he does not want to rust them out. He believes that the success of a dairy farmer is dependent largely upon mental activity, just as that of the successful lawyer, doctor or manufacturer. He knows that animals are compared according to appearance and weight, but that one man is more useful than another largely to the extent to which he has developed his mental and spiritual abilities over the other. This is true of the dairy farmer for he is rewarded according to the amount of skill, energy and brains that he puts into his work.

But are the rewards for mental effort only in dollars and cents? Talk with the farmer and his family and investigate some of the farm homes for an answer. The dairyman who thinks sees his business as a means of rendering service to others and obtaining happiness for himself and for those he loves. He sees that he is engaged

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in a work that if properly conducted will require of him the best of mental and physical activity, and that his rewards will be largely in proportion to the extent of his exertions. He has cause to be proud of his occupation. He believes, therefore, that it is a fitting occupation for his sons and daughters and has no difficulty in making farm life more fascinating for them than the city. Thus, in the home of the "thinking" dairyman we find those comforts which the returns from good management can buy and which good sense selects.

Contrast this with the "unthinking" dairyman. No matter what the price of products or the costs of production the conditions of life always seem hard to him—in these times unthinking brawn cannot command a better reward. Nature does not respond to him with abundant crops or productive animals because he does not study her and her forces. He has no vision of the possibilities for service or the opporounities for happiness—hence life on the dairy farm is only one monotonous thing after another.—Noel Negley, Dairy Husbandman, Western Dairy Division, U. S. D. A.

Cow Testers' Reports

Arkansas Valley association, Lamar, Colo., Robt. Boerner, tester: "During the month 322 cows were tested, the average of all the cows being 510 pounds of milk containing 17 pounds of fat. The highest butterfat producer is a grade Holstein owned by Wagner and Gilbert of Lamar. She produced 1,907 pounds of milk containing 82 pounds of fat. The high herd for the association is also owned by Wagner and Gilbert. This herd of 33 grade Holsteins averaged 995 pounds of milk containing 29.9 pounds of fat. Three cows have been disposed of for beef in the past month. One breeder is feeding his "star" cow liberally in grain and soilage corn. Her production has increased 50 per cent over last year. She produces almost a ton and a quarter of milk per month, which is worth $3.10 per hundredweight. His profit per month is $25 higher than last year, when she was on dry pasture and receiving only only a little bran supplement."

Boulder County association, Niwot, Colo., Lloyd Simpson, tester: "Two hundred forty-four cows were tested this month, averaging 560 pounds of milk, which contained 24.3 pounds of fat. Ten cows produced over 40 pounds of butterfat. Gypsie, a grade Holstein cow, owned by Ross Stephen of Longmont, is the highest butterfat producer. She produced 1,438 pounds of milk containing 54.6 pounds of butterfat. Clark Wood of Boulder is owner of the herd having the highest herd average. His herd of eight Holstein cows averaged 901 pounds of milk containing 32.4 pounds of fat."

Johnstown Cow Testing association, Johnstown, Colo., Roy M. Curtis, tester: "Four hundred cows were tested during the month, the average of all the cows being 748 pounds of milk containing 29 pounds of fat. Fifty cows produced 40 pounds or more of butterfat. A grade Holstein, owned by L. H. Harrison, Platteville, is the highest butterfat producer. She produced 1,940 pounds of milk, containing 69.9 pounds of fat. W. A. Purvis is owner of the herd making the highest average production. His 18 registered Holstein cows averaged 1,190 pounds of milk containing 42.5 pounds of fat. Most of our cows will freshen through the fall and winter, so are not showing up very good now. One of our cows under systematic feeding has produced in the last seven months 510 pounds of butterfat from 16,110 pounds of milk. She is still milking 65 pounds of milk per day with a 3.5 per cent test. In September she made 67 pounds of fat. She is a registered Holstein owned by J. W. Whowell of Johnstown. We are getting more particular about selecting our sires and don't believe it is possible to put our ideals too high and feel that some day we will have as good herds as any. We have one 24-months-old heifer milking 60 pounds of milk per day testing 3.3 per cent. A few members with registered cows are going to put cows on semi-official test for year."

Brae Side Farm Winnings

An oversight caused us to omit the winnings of E. D. Hardman of Brae Side Farm, Pueblo, in our report of the Colorado State fair. Brae Side Duroc Jersey hogs are known all over the west and naturally when the herd goes into the show ring, it means a good string of ribbons. This year's results at the State fair were highly satisfactory to Mr. Hardman, who came away with the following premiums: first on get of sire; first on young herd owned by exhibitor; first on young herd bred by exhibitor; third and fourth on junior sow pig; third on junior boar pig. In the futurity he won first and fourth on litter and second on sow and boar.

A Farmer at Sixteen

Meet Harley Rhoades, age 16 years, the youngest farmer in Colorado. Although his postoffice is Kanarado, Kansas, Harley lives just across the line and his interests are entirely in Colorado. He is a member of the Boys' Calf club of Kit Carson county, but his membership is merely an incident; he keeps that up to show his interest in community activities. His life work is running a farm comprising approximately 1,000 acres of fine

Harley Rhodes, a 16-Year-Old Farmer

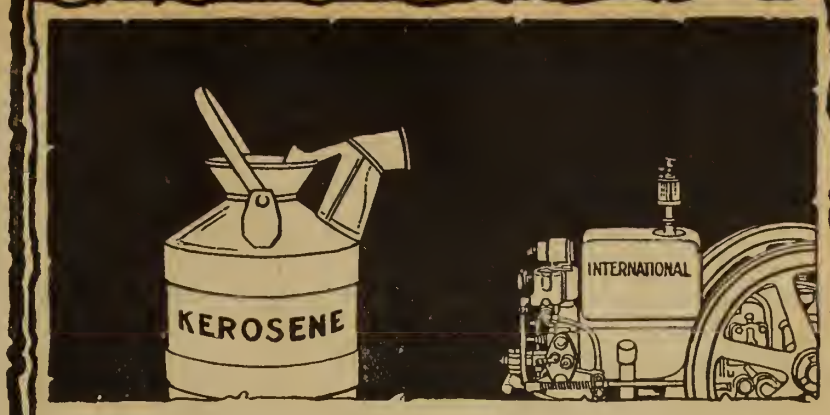
prairie land, about 300 acres being under cultivation. Of course, he does not do all the work, being ably assisted by two younger brothers, Lester, age 13, and Rueben, who though only 10 years of age usually does the milking.

Death claimed the father of the family about two years ago, leaving Mrs. Rhoades with a family which, in this particular case, proved not to be a burden but a decided help. To Harley fell the duty of assuming charge of the family and he has made good right from the start.

Unlike so many on the dry land plains, Farmer Rhoades does not put all his eggs in one basket. He raises wheat, of course, as this is the principal cash crop in that locality, but his operations are based on livestock. Holstein cows are depended on for milk production, which is sent to market in the shape of cream. There are about fifty head of Holsteins on the farm with two registered bulls and one registered cow now being used to grade up the herd.

Sudan grass, millet and cane hay are grown for roughage and a silo is one of the necessities which Farmer Rhoades expects to have in a season or two. He threshed 3,000 bushels of wheat this fall. At government prices this will bring in enough revenue to make some necessary improvements and take care of running expenses of the farm and family. There are ten purebred Poland China hogs on the place but only one of the animals is registered, this one having been exhibited at the Kit Carson county fair along with the Holstein bull, who was champion in his class.

Any young man who has the grit to successfully handle the business of a big farm and who still finds time to spend three days at his county fair with exhibits, and to carry on juvenile club work is destined to be a community leader. His example ought to make some of the adult farmers who are "just too busy" to come to the fair, or to prepare exhibits, feel that they are lacking in community spirit.



You Wouldn't Haul Crops

to town on your back and yet you unnecessarily break your back doing a lot of odd chores around the farm such as sawing wood, turning the grindstone, pumping water for the livestock, etc., and let your wife and girls wear themselves out over the wash-tub, churn, and separator. Drudgery of this sort was absolutely necessary on the farm once upon a time—but times have changed.

There is no need to let these little jobs take the joy out of life, because an **International Kerosene Engine** will perform all of these tasks—and a lot more, besides—doing the work much faster and more cheaply, to say nothing of doing it better than it could be done by hand. These engines deliver steady, uniform power—**they never lag**—so any machine that they operate works to the best possible advantage. There are three sizes—1½, 3, and 6-h. p. engines.

The 1½ and 3-h. p. engines are the all-around "chore boys" while the 6-h. p. engine is the dependable "man about the farm". It does work that a dozen hired men couldn't do, such as shelling corn at the rate of from 1,000 to 1,500 bushels a day, baling 15 to 20 tons of hay in a day, grinding feed at the rate of from 5 to 25 bushels an hour, and threshing 20 to 40 bushels of wheat an hour (operating a Sterling thresher).

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The Arapahoe Farm Bureau Fair

EXCELLENT SHOWING OF CROPS AND LIVESTOCK

Main Exhibit Hall at Strasburg Fair

AT the risk of overstepping the bounds set for an editorial observer of county and community fairs the writer ventures the assertion that the Arapahoe County Farm Bureau fair at Strasburg, Colo., October 9 to 10 was the grand champion of them all. Some of the other counties and communities might protest this decision and their protests would be upheld insofar as size is concerned, but when it comes to artistic arrangement of exhibits nothing better was seen anywhere in the state this fall.

In one other point Strasburg excelled, namely, in variety of exhibits from dry land farms. Practically all the farm crops shown with the exception of sugar beets, came from nonirrigated farms. As has been pointed out on previous occasions the time has come in the development of our dry farming regions when it is unnecessary to make any dictinction between the products of the irrigated and the dry lands, except it may be in favor of the dry lands in quality. Some irrigated products, notably potatoes, are apt to be watery in comparison to the mealy potatoes grown under dry land conditions, and dry land grains are often higher in protein content because grown with a minimum of moisture.

The irrigated land, of course, has the advantage in yield per acre on grain, and in tonnage of forage and root crops. The dry land product, however, is usually as good or better by reason of having been produced without artificial watering.

Looking at such an exhibit as was seen at Strasburg one unfamiliar with dry land development would have been inclined to doubt that most of these good samples of grains and grasses, roots, fruits and vegetables came from the nonirrigated prairie farms. But they did and they represented fairly and accurately the farming conditions during a summer of rather severe drouth conditions; a very dry spring, a long time between rains in early summer and then only a few late showers of any consequence. It was a badly spotted season in the country immediately adjacent to Denver on the east and yet one young farmer brought to this exhibit 33 varieties of pumpkin and squash and 150 varieties of other farm and garden products.

He was G. W. Deming, who came here from Nebraska during the present year and grew his first crops in the Kiowa valley district on Comanche creek, near the line between Arapahoe and Elbert counties. Mr. Deming is, what might be termed, a professional exhibitor. He used to grow special crops to show at the Nebraska fairs, and last spring he decided to see just what his new farm in Colorado would produce. The results were shown by him at Strasburg in 20 varieties of field corn, two of sweet corn, four of beans, 18 of garden truck, four of potatoes, ten of tame grasses, 50 of native grasses, 20 of sheaf grains, six of treshed grains, seven of melons and citrons besides the 33 squash and pumpkin varieties already mentioned.

Splendid Corn Show

There was a fine showing of corn; in fact that crop was emphasized in the exhibits, for the reason that the farmers and the Corn club boys are making tests of varieties in order to pick one that will ripen uniformly in that part of the county. Minnesota No. 13 is the variety chosen here, as in many other sections of the state where the altitude is around 5,000 feet. County Agent Walter A. Groom secured registered seed corn of the Minnesota 13 variety from Boulder county, the Farm bureau paying for the seed which was loaned to club members for the tests. The county commissioners donated the prizes in all juvenile club classes, with the exception of the grand championship in Pig club, which was a check for $25 donated by the Strasburg State bank. This prize for the best pig went to Oscar Mennenga.

Other winners in the Boys' and Girls' club classes were as follows: Pigs, class A: Oscar Mennenga, first; Leighton Edelen, second; George Norton, third.

Pigs, class B: Russell Rodgers, first; Manford Goodell, second; Otho Gorbet, third.

Minnesota No. 13 corn: Alice Roach,

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31x3½	6.75	1.85	35x4½	11.00	3.15
32x3½	7.00	2.00	36x4½	11.50	3.40
31x4	8.00	2.25	35x5	12.50	3.50
32x4	8 25	2.40	36x5	12.75	3.65
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Charles Deabenderfer, Grant, Neb., wrote:

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"My position here pays me three times as much money as I could make before going to the Lincoln Auto & Tractor School. I like mechanical work far better than any other I ever did.

"I would be glad to recommend your school to any boy or man who wants to improve his position. You did more for me than you said you would.

"I wouldn't trade my job and my work for any other line of work in the world, and I want to thank you for making it possible for me to advance so rapidly."

Paid for His Training in One Week

Louis Burleigh, Gordon, Neb., wrote:

"I have been running a tractor most of the time since I finished the course at your school; also have done some outside repairing.

"It has helped me very much in making money. I paid for my time and expenses in one week after I returned home and started work.

"I could get all the repairing I wanted if I had the time, but we have two cars, gas engine and tractor, so you see it keeps a person busy to keep them in shape and drive a tractor.

"I like this mechanical work fine, and would recommend the Lincoln Auto & Tractor School to anybody who is interested. It is sure the school for good training."

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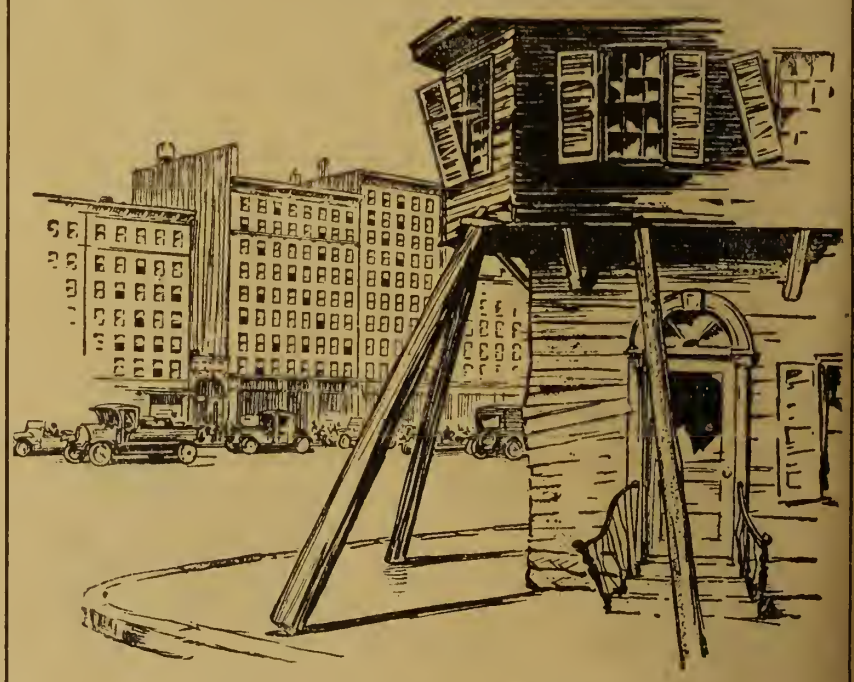

The Cost of Upkeep

A run-down business is like a dilapidated house, the cost of putting either one back on its fect is often greater than it would be to start all over again.

To let the telephone run down, in quality of service or in mechanical equipment, would mean far more than a loss to the telephone company, it would mean a loss in business to every user of the telephone.

It has always been the policy of the Bell Telephone Company to keep its property in such repair that its subscribers receive the greatest possible benefit.

But to keep things "ship shape" requires money, more money today than ever before. Materials cost more and wages have increased in an attempt to keep pace with the increased cost of living.

The Bell Telephone Company is working hard to make ends meet, to keep its property in proper operating condition—and to pay wages which will secure the most intelligent and loyal service for the telephone user.

YOUR loyalty to the telephone will make it easier for us to serve you.

The Mountain States Telephone and Telegraph Company

first; Leslie Baird, second; Manford Goodell, third.

Swadley corn: Oscar Mennenga, first.

Sewing: Marion Nelson, first; Helen Fulton, second; Malvina Sprague, third.

Canning: Helen Fulton, first; Jeannette Koelbert, second; Ruth Simon, third.

In the girls' work, canning and sewing, all prize winners were from the Ash Grove club, except Miss Simon, who is a member of the Englewood club. Strasburg and Deer Trail divided the honors in boys' work.

Competition among the adult farmers was especially strong in corn. The grand championship was awarded to Fred W. Haupert of Bennett, whose

Alice Roach, Winner in Minnesota No. 13 Corn Class at Strasburg Fair

farm is just over the line in Adams county. Like others similarily located Mr. Haupert believes in community effort regardless of county lines. He selected the very best pedigreed seed of Minnesota No. 13 corn last spring that he could procure. In fact, he discarded some corn sold to him as pedigreed which was not true to type, feeding it to the hogs, rather than plant something that would be out of line with the effort toward standardizing corn varieties. The result was apparent in his fine showing of fifteen ears of Minnesota No. 13 which won for him the grand championship and a prize of a steel corn sheller donated by the International Harvester company.

Other awards in the corn division were as follows:

White dent: R. H. Eachus, first; J. H. Hicks, second; Carl Hansen, third.

Yellow dent: Fred W. Haupert, first; F. S. Richter, second; George J. Gordon, third.

Other dent corn: Oscar Mennenga, first; Jesse H. Michael, second; Emil Stahl, third.

Flint: Shadydale Stock farm, first and second; Roy Christner, third.

While corn was important on account of the necessity for developing a safe variety for ensilage and grain purposes, the sorghums were not forgotten, prizes being awarded for both the grain and saccharine varieties. For the best fifteen heads of grain sorghum the awards were: Frank Capps, first; Oliver Trumbauer, second; J. D. Jeffries, third.

Saccharine sorghums: R. A. Miller, first; Dan Michell, second; Mr. Hadican, third.

In irrigated products for best three sugar beets George Ballard won first, Mr. Walker second and George Turner third, the beets being selected according to sugar type and not size.

W. G. Deming with his remarkable exhibit of varieties, won many premiums on individual displays, among which was an Owen bean harvester donated by the Barteldes Seed company of Denver for the best peck of pinto beans. Second in this class was Geo. Turner of Comanche and third C. B. Sergeant, Jr., of Strasburg.

Prof. A. E. McLimon of the Agricultural college judged the crop exhibits.

The classification was strictly in accord with approved methods adopted by educational fairs, the stress being not on the largest but the best type of marketable product; quality was emphasized instead of quantity. There was a list of special classifications to add zest to the competition such as "best general display," "stalk of corn with most ears," "tallest and best stalk of corn," "largest pumpkin," largest and best ear of corn," "three largest potatoes," and "best display of fruits," for which all prizes were donated by Reynolds, Covey & Reynolds, the firm responsible for the big development that has taken place in the Kiowa valley during the last five years.

The Livestock Division.

In the livestock division, which was mainly composed of hogs and horses, with a very meager showing of dairy stock, the Pig club boys were in evidence, Oscar Mennenga being first for best sow and litter; Leighton Edelen second and Manford Goodell third. Among the adult breeders in the Poland China classes the awards went to Boyd & Burton of Byers and Shadydale Stock farm of Bennett. In Durocs the winners were Tom Cundiff. W. K. Edelen and E. H. Gentry, all of Strasburg.

Sherman Dye of Strasburg won a Holstein heifer donated by George McCarroll of the City Park dairy, Denver, for the best milch cow; Floyd Herrick, second, winning a ten gallon milk can donated by the Windsor Farm dairy of Denver, and Sherman Dye took a money prize on third in this class.

For best team of horses Tom Cundiff of Strasburg received a $5 seed order from the Burton Seed company of Denver; C. O. Strand of Strasburg was second. E. N. Gentry had the best span of mules and F. L. Guy won the prizes in best colt under three years. J. T. Tingle, a representative of the Bureau of Animal Industry, judged the livestock.

Space limitations prevent publishing the entire list of awards, which were exceedingly liberal in all classes, including the women's section where there was strong competition, Miss Miriam Haynes of the College Extension department, officiating as judge. The award for the best pound of butter went to Mrs. J. J. Rodgers of Strasburg, who won a Babcock milk tester donated by John Spacke of Denver. Second in this class went to Mrs. Frank Wasson of Comanche and third to Mrs. H. D. Vodra of Strasburg.

There was also a fine showing of poultry and pet stock, including chickens, ducks, turkeys and rabbits.

Sheep were represented by two good exhibits, the prizes being divided between A. H. Nordloh and Karl M. Luke.

During the afternoon of the second day there was an auction sale of hogs, including some of the prize winning stock from the club exhibits. Pigs brought all the way from $17 to $30, which was very satisfactory to the boys who produced them. Col. H. C. Jennings of Denver cried the sale and urged the farmers to support the club work by being liberal with the youthful breeders.—A. T. S.

Of course, man is like any other animal that growls when it's hungry.

A Modern King Canute

The people who lived in the good days of the wise King Canute thought he had the power to make the ocean recede at a mere word of command. Today the Bell Telephone Company finds itself in a position not unlike that of the ancient king. Its mere word will not hold back an ocean of expense.

Rigid economy and the most modern methods of operation have made it possible for the Bell Company to keep its rates at a far lower level than that of the commodities which it must use in construction and upkeep. But it has felt the rising tide of costs just as certainly as has every business and every family.

The one source of revenue of the Bell Company is the price you pay for service. If this price fails to cover fair wages and necessary materials, then both you and your telephone company must suffer.

For one year the Bell Company was under Government control. The Government analyzed methods and costs; and established the present rates as just. All the Bell Company asks is a rate sufficient to provide satisfactory service to every subscriber.

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With this wonderful smoke house, home curing, smoking and storing of hams, bacon, sausage and fish become practical and easy. So don't sell all your hogs. Keep a few for your own meat. The saving in butcher bills will surprise and please you. The

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Sectional View of the Original National Giant Smoke House. Beware of Imitations.

Machinery for the Rupert, Idaho, cheese factory, which will be run cooperatively by the farmers, has arrived. H. R. Lochry, of Salt Lake, of the western office of the dairy division of the United States department of agriculture, will assist in getting the factory started. The market for dairy cows around Rupert is reported to be a little stronger, owing to prospects for the cheese factory and the return of hay to more moderate prices.

Passed by the Censor

The following is an extract from a soldier letter, repeated by a censor who had a sense of humor:

"Somewhere in France."

"Dear Ma: I have saved a little money, and when I get back home I'm goin' to buy me two mules, and name one of 'em Corporal and the other Sergeant; then I'm goin' to lick hell out o' both of 'em!"—Carry on.

Trapping Suggestions

Frequently a boy, eager to begin trapping, gets the idea that trapping is the simplest thing in the world—that all he has to do is to buy a trap, set it somewhere and wait for the animals to walk in.

Trapping is easy—but it requires a little patience and study. Any bright boy or girl interested enough to take the pains to do so can become a very fair trapper in a few weeks or months. Trapping is simply pitting your wits against the wits of animals which for thousands of years have known man to be their greatest enemy.

Therefore, when you plan to trap there are several things for you to do.

The first is to familiarize yourself with every hill, nook, stream and woodland in your vicinity where animals make either temporary or permanent homes. Then when the season opens and the animals appear you can, figuratively speaking, put your finger on the places where otter, mink, skunk, weasel or other species would be most likely to be found.

Next study the habits of the animals themselves whenever the opportunity presents itself. Learn what they like to eat, when they breed, how they travel, when their fur is shedding and whether they are wary of man or friendly to him. Then you will be better able to trap them; for the men who know the habits of animals best are the ones that can trap them most successfully.

Books that the higher class fur houses in St. Louis can furnish you, either free or at low cost, will be an invaluable aid in this. Your own observations will prove of service, too.

You cannot get out to trap blindly without knowing the habits of the animals you seek. Never miss a chance to study how they live, for everything you learn will help you in your future trapping.

For instance, it would pay a young trapper to know that otter, when traveling in a crowd, all use the same trail; that they will leave stream beds that have been traversed too often by humans; that in trapping mink and fox, more than ordinary precaution must be taken to eliminate the human scent, and that extreme cleverness must be employed in placing and baiting the traps in order to outwit these species which are both cautious and cunning.

Begin your studies on even so lowly an animal as the skunk, which is one of the easiest to trap. In a week you can learn enough about him to prove that he is a fascinating study. And the more you learn the easier it will be to trap him.

The territory around you doubtless has many furred inhabitants if you will take the trouble to watch for them and find their hiding places. At present prices for furs, trapping offers big money to country boys and men—and women, too.

Dinsmore Gives Demonstration Of Multiple Hitch

(Continued from Page 3)

successfully by ordinary hired hands.

Prof. E. A. White is head of the division of farm mechanics at the University of Illinois. He brought to the work great technical skill, scientific knowledge, and long experience in field tests with farm implements. He had at his command the shops and skilled mechanics of the University of Illinois and a dynamometer similar to those used in testing the tractive pull exerted by locomotives. He also had the assistance of leading plow companies, and the help of Prof. J. L. Edmonds of the animal husbandry division, whose horsemanship was enlisted in the tests.

"Tying in" consists of tying the near horse in each pair to the hame of the off horse with an ordinary tie-strap, and tying the off horse (the furrow horse) to the draw rod running forward to the next team. These tie straps should be just long enough to permit the horses to move straight forward when straightened out on a pull. When correct lengths are once determined a snap should be tied in at the proper point, so that in hitching up it is only necessary to snap it to the proper place after the neckyoke has been attached to the horses.

Bucking in is done by taking a strap or rope 10 feet long, placing a snap or buckle on each end and a ring on the strap running free. The ends of this strap are snapped into the bit rings so that this strap rides the same as an ordinary checkrein but is slightly longer.

An ordinary tie-strap is snapped into the ring and then tied back to a ring welded on the draw rod. The length of this, called a "buck strap," is adjusted by field test, and a snap then tied in at the proper point to snap into the ring on the draw rod. The buck straps should be so adjusted that the horses will work freely, but be checked whenever they are in danger of drawing the chain back against the pulley wheel.

Join the Parade

Start now and ship every skin you handle this season to the greatest fur house in the greatest fur market in the world, Abraham Fur Co., St. Louis.

You are about to start the greatest fur season in the history of the fur trade—you will receive the highest prices for your furs ever known and if you want every dollar coming to you for your shipments, send them to the Abraham Fur Co. We have cleaned out all of our old supply, lock, stock and barrel, and have nothing on hand but money—millions to pay for furs.

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Don't ship a single skin to any other fur house before you have carefully investigated the Abraham Fur Co. of St. Louis.

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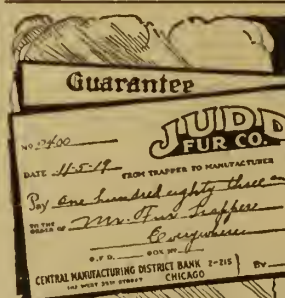

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"H. R. H., The Rider"

(Continued from Page 7)

"My regards, my friend," he said "I have been thinking, and I believe that I have found a way. Listen—" And leaning across the table he bent close to Hemmington's ear, into which he whispered a long explanation of a heaven-born plan which had come to his fertile and romantic mind.

When he had done Hemmington Main leaned back in his chair and laughed.

"I would never take you for that sort," he said; "and I don't give two whoops in Hades if you are. You're right, Kargovitch—you're a right one. I'd trust you with my life and my pocketbook, too; but I can promise you, on the credit and the word of Abner J. Bass that you'll be well paid if you can pull this thing off as you have outlined it. You won't have to depend on what we've got in our pockets—just name your price and it'll be paid."

"I promise you," said M. Kargovitch, "that my charge shall not be exorbitant. I have taken a fancy to you, and your Bronxes, and it may be that I shall not ask a kopeck of reward. Promise me that you will let me name my own price when the thing is done, and accept the word of a gentleman that no advantage will be taken of you or your friends."

"Done!" cried Hemmington Main; and he extended his hand across the little round table to the tall young man who faced him.

"Now go," said Kargovitch, "and learn if you can when Argus and Io leave Demia, and the road that they will take."

CHAPTER VI
THE PRINCESS ACTS

When Prince Boris of Kariova stepped from his limousine before the palace of Aiexis III of Margoth, Ivan Kantchi was close at his elbow.

"Turn your helmet around," he whispered into the royal ear, "and keep it on. In the name of Heaven don't take it off and wave it again. When you're saluted, return the salute."

"Shut up!" growled the crown prince, "and don't forget that I'm a highness. You ought to have your head chopped off. When we get back to Karlova I'll see to it; but, Kantchi, my friend, if ever I do get back, you'll never make a prince of me again; I'd rather hang to the nearest gibbet."

"Which would suit your highness's peculiar style of beauty far better than the purple," replied Ivan.

"Purple?" asked the crown prince. "I don't see no purple in this uniform. It's black and yellow."

"Hist!" warned Ivan; "Prince Stroebel is awaiting your highness. Trip along with him, and when you're presented to the king, don't act like a swineherd—remember that you're a prince."

The pseudo Prince Boris turned quickly to follow the instructions of his mentor. He took two or three rapid strides in the direction of the prime minister of Margoth, forgetful for the instant of the unaccustomed saber which dangled at his side. The perverse weapon swung between his long legs, he tripped, stumbled, and lunged headlong upon the bemedaled breast of Prince Stroebel. His helmet tumbled from his head and rolled along the marble pavement, and one of his huge hands, grasping widly for support, jammed the helmet of the prime minister over that dignified official's ears, extinguishing him, momentarily.

From an upper window of the palace a pair of girlish eyes looked down upon the scene. A girlish giggle broke from a pair of red lips, and Princess Mary of Margoth threw herself upon the window-seat and shook with laughter.

"Oh, Carlotta!" she cried. "Did you see him? And poor old Stroebel! It serves him right. It is he who is at the bottom of this ridiculous scheme to marry me to that hideous and impossible boor. He is even worse than I had imagined. From here I could see his red nose and his little, close-set eyes; but, Carlotta, we must hasten—the moment of ordeal approaches. Oh, but won't dad be mad!"

"Yes, our highness; I think that he will," agreed Cariotta, with an unmistakable shudder.

"Come!" cried the Princess Mary; and seizing Carlotta by the hand she dragged that unhappy lady toward the door to the royal dressing room, where, behind bar and bolt, the two work assiduously with pencil and paste, and comb and brush, for the better part of an hour.

The meeting between Alexis III of Margoth and Crown Prince Boris of Karlova had passed off without any untoward incidents to greatly mar the felicity of the occasion. It is true that the royal Karlovian had seemed often at a loss as to just where to dispose his hands or feet to the best advantage, and that for a while he had sat with one long leg thrown in careless disorder over the arm of the great throne-chair in which he sat beside his illustrious father-in-law-to-be; but on the whole he had got through the ordeal with much greater credit than he had won upon the streets of the capital.

The great functionaries of the state, the little functionaries, the nobles, the ambassadors from foreign courts, and the high officers of the Margothian army had been presented to the royal visitor. The absence of Baron Kantchi, the Karlovian minister, was duly explained by the Karlovian military charge d'affaires—Baron Kantchi had received only that morning an urgent command from his royal master to present himself at court in Sovgrad without delay. The charge d'affaires looked rather frightened, uncomfortable, and scandalized; but Ivan Kantchi, Aiexander Palensk, and Nicholas Gregovitch supported him with such frightful glares that he managed to look almost happy as he kissed the large, red hand of Prince Boris of Karlova.

At last the great doors at the far end of the throne-room opened wide, the heavy hangings were drawn back. A court functionary in knee breeches and gold braid appeared in the opening.

"Her Royal Highness Princess Mary Constantia Deodora Theresa Eugenie Sylvia!" he announced in reverent tones.

An aisle was opened from the doorway to the foot of the throne, upon which a third chair had been placed for the princess. Every eye turned in the direction of the little figure walking slowly at the head of her ladies-in-waiting, and more than one Margothian smothered an exclamation of incredulity or horror as they saw the face of their beloved princess.

Prince Boris of Karlova, prodded by Ivan Kantchi, rose as the Princess Mary entered the room, and, with the other Karlovians who had not before seen the Margothian princess, strained his eyes in her direction. Trained in the etiquette of courts, the audience gave no token of the true emotions which surged beneath their resplendent costumes, as Mary of Margoth approached the throne to meet her future husband.

The Karlovians saw a small woman, bent, and supporting herself with a cane. The yellow skin of the forehead was lined with wrinkles. Dark rings circled the squinting eyes. The lower lip drooped, the upper was slightly raised, giving an expression of partial idiocy to the countenance, and exposing a dark spot where a front tooth was missing. The low-cut bodice revealed a yellow, scrawny neck, creased with many lines.

Ivan Kantchi gave a mental gasp; but to all outward appearances he might have been looking for the first time upon the most beautiful woman in the world. Not so Prince Boris, however. His eyebrows went up, and he raised his palm to cover the grin which he made no effort to suppress.

"Name of a name!" he whispered to Ivan; "what a fright!"

"Shut up, you fool!" snapped Kantchi. "She is a princess and a woman."

Aiexis III rose to greet his daughter. A terrific frown darkened his brow; but he had seen the contemptuous smile upon the face of his royal guest, and anger and pride smothered the rebuke which he had been upon the point of delivering to his temerious daughter.

True to his coaching, the Rider raised the hand of Princess Mary to his lips. Like a parrot he repeated the words which Ivan Kantchi had taught him; but the only reply was a vacant stare from the squinting eyes of the princess, and a still farther droop of the lower jaw. It was evident to the Karlovians that the Margothian princess was a hopeless idiot.

At last the painful audience was terminated. The king, Princess Mary, Prince Boris, Stroebel, and Kantchi withdrew. The assemblage separated into little knots of animated gossipers, and with the restraint of royalty removed, long-restrained laughter attested the appreciation with which the Margothians had viewed the daring ruse which their clever little princess had adopted to discourage the matrimonial advances of the Crown Prince of Karlova.

As the king and Princess Mary passed out of the throne-room together, the former spoke in low tones to his daughter. His face was very white and stern; the arm upon which the little hand of

(Turn to Page 19)

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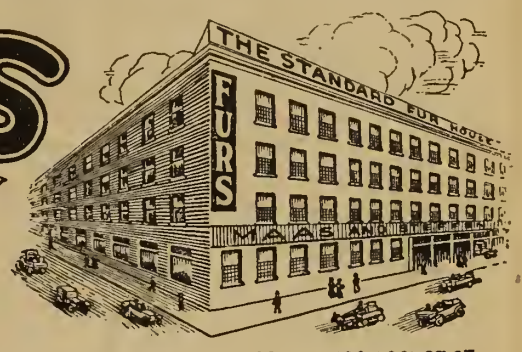

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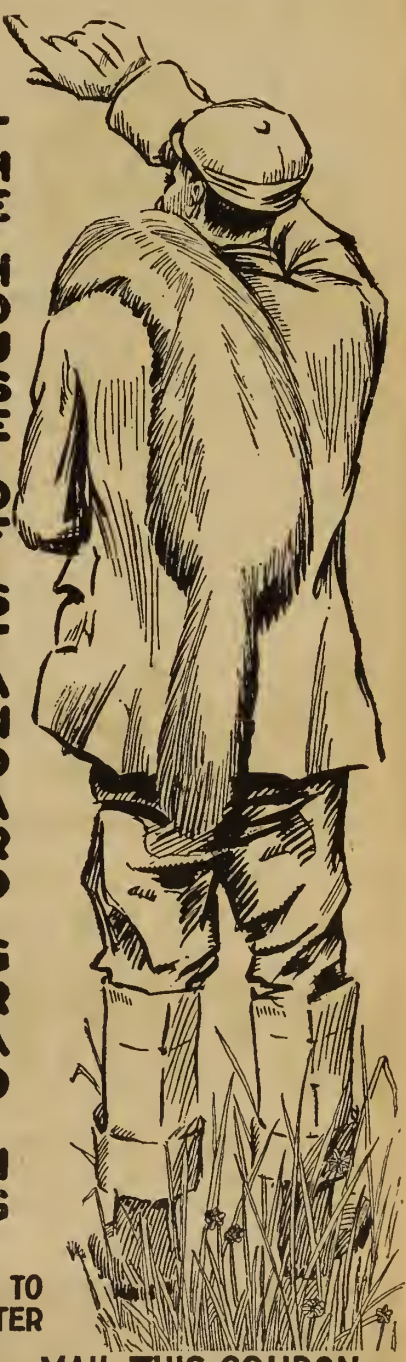

H. M. Mitchell, Page, Wash., says: "I shipped furs for 25 years and this is the first time I ever got twice as much as I expected."

Louis Erickson, Kasota, Minn., says: "Received my check; I am more than 100% satisfied."

Carson Nasseil, Rockport, Ill., says: "I have shipped you seven bunches last year and I found out that MAAS & STEFFEN is the best FUR house in the world to ship to."

Fred Peterson, Roosville, B. C., Canada, says: "I got $27.00 more for the same number of skins from you than I received from the other two houses I shipped to at the same time."

W. E. Leach, Marble, Mont., says: "Am more than pleased with returns; have recommended you to everyone whom I know buys or traps FURS."

Claude Skelton, Beaver Lake, B. C., Canada, says: "I promise you all my furs hereafter; also will recommend and persuade everyone to ship to you. A continuation of your policy should give you all the furs in B. C., Canada."

Jno. R. Gibson, Horton, Ala., says: "You surely surprised me on my last shipment. You gave me more than I thought you ever could get out of them."

O. M. Baker, Linn Co., Ore., says: "Your returns are perfectly satisfactory; my grading was $42.00 and your check $42.20—many thanks."

N. M. Traffas, Sharon, Kans., says: "I am sending you a box of furs again, as you treated us better than any other company last year."

S. A. Stein, White Horse, B. C., says: "Through your outlet I have been able to buy most all Furs on the Yukon this year. Keep me posted this coming season."

Mr. J. R. McKee, Leoodore, Ida., says: "Received your check and can say that you are the most liberal graders that I have ever shipped to."

John J. Courts, Greenville, Cal., says: "I got your returns. I shipped Furs for the last 20 years and this is the first time I ever got such big returns—about 20% more than I expected."

Henry Schumacher, Cedarburg, Wisc., says: "I buy furs in this state and for the last five years have been selling to you; often tried many other houses, but could not get within 25% of what you pay for any lot, so I always had to send them to you. You get all hereafter."

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Colorado Breeders Win at the Utah State Fair

(Continued from Page 5)

senior yearling heifer; second on junior yearling heifer; first, second and fourth on senior heifer calf; first, second and third on junior heifer calf; second on breeder's young herd; first on breeder's calf herd; first and fourth on get of sire; junior champion heifer.

Garmesa Farms' winnings were as follows: first and grand champion on aged bull; first and second on three-year-old heifer; third on two-year-old heifer; first, second and third on senior yearling heifer; third, fourth and fifth on junior yearling heifer; third on senior heifer calf; fourth and fifth on junior heifer calf; first on graded herd; first on breeder's young herd; second on breeder's calf herd; fifth on get of sire; third on produce of cow.

Garmesa Farms also made a fine showing in Duroc Jersey hogs, receiving the following awards: second on aged boar; first and second on boar six to twelve months old; first on boar under six months; junior champion boar of the breed; second on herd exhibit; first on breeder's herd; first, second and third on barrow under one year; first on pen of three barrows.

How Blood Will Tell

Some striking examples of what good blood will produce we desire to cite our readers to in three remarkably good herds of Hereford cattle. Winterton Bros. herd from Charleston, Utah, has for head herd bull "Mischief Maker." He remained undefeated in the Utah classes for the past four years. His sire was Beau Martin, whose sire was Beau Mischief, a celebrated bull in Hereford classes. The dam of Mischief Maker was Princess G., sired by Repeater, another celebrated Hereford sire. From the bull Mischief Maker came offspring that this season won first for get-of-sire and a heifer calf that was at this fair champion in Utah classes.

The Wyoming Hereford corporation herd showed for get-of-sire four calves that were sired by Fairfax, that were an exact counterpart of each other, though all had different dams. Perhaps the most striking illustration of how good blood tells is shown in the story of "Joy" in the A. B. Cook Hereford herd of Montana. Joy was an outstanding heifer born September, 1912. Her sire was Beau Carlos and her dam was Welcome's Delight out of Armour's Delight by Druid 16th. Joy was, as a heifer calf, the grand champion at Kansas City Royal 1913. It was an exceptional honor for a yearling heifer to win. But note, she came from a great show cow and her sire was a winner in his classes whenever and wherever shown. Three of Joy's calves were in the 1919 Utah State fair. The oldest one—Miss Joy—won first in aged cow and was made senior champion. The second calf was made first prize senior yearling heifer and her 1918 calf was made first in class and grand champion of the breed. This dam illustrates how blood tells in livestock.

Uncle Ben's Dairy Exhibit

Uncle Ben Eldredge, representing the Dairy division of the Bureau of Animal Industry, U. S. Department of Agriculture, and the Utah Agricultural college, had a most original dairy demonstration. In a suggestive dairy barn were shown three Holsteins, two Guernseys and two Jersey cows. One of the Jerseys shown was "Nebos Maid," the state champion butter cow. On special test she gave 11,637 pounds of milk in one year when eight years old. Her test was 6.23 per cent B. F., making 854 pounds of butter, 85 per cent B. F.

By the side of Nebo's Maid was an empty stall with a black bordered display card at the head of the stall bearing this inscription:

"Calamity produced in one year 1,653 pounds of milk, which would have churned 82.6 pounds butter, costing $2 per pound. Her owner never knew she was loaded until he got her in a cow testing association. Then he cut off her head. That is why this stall is empty. She was a pretty cow. All the family liked her on account of her pretty color. They buy butter now for 65 cents per pound."

Back of her stall was a display card on the wall which gave the following statement:

"We can increase Utah's output of dairy products 20 per cent without bringing another cow into the state. How? Simply take better care of the cows we now have. We can increase our profits 20 per cent by using the milk scale and milk tests for elimination of the Calamity cows and what it teaches us about the others."

Another poster bore this inscription:

"Last year 18 per cent of the total food consumed by the people of the U. S. came from the dairy cows. In Utah it was higher than that. One-fifth of Utah's food supply was in the form of dairy products. Milk, cream, butter, cheese and ice cream." Space will not permit us to give other unique and interesting posters shown.

The University of Utah, School of Mines and Agricultural college had in separate buildings very interesting and instructive exhibits, likewise the schools of Salt Lake. The machinery and agricultural implement classes were full. A large and instructive agricultural exhibit was put on by the U. S. Department of Agriculture. Here was given the work of the various bureaus and arms of service from forestry to grain standardization. The exhibit by the U. S. army of armament and equipage of war was complete and interesting. The attendance was notably good running between 15,000 and 30,000 daily. The Utah people most generously support their fair. Thursday of fair week was set aside as Veterans' day and every soldier was the guest of honor of the management. Some county farmers came in a body to make a study of machinery and livestock under specialists from Utah Agricultural college extension service.

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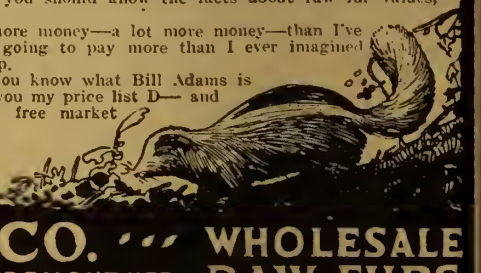

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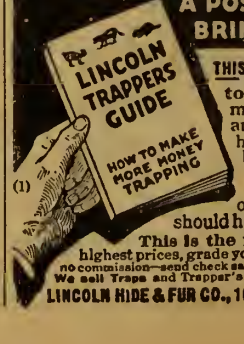

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"H. R. H., The Rider"

(Continued from Page 17)

Princess Mary rested trembled to the anger which filled Alexis III.

"You have accomplished nothing," he said, "other than to make yourself and your king ridiculous in the eyes of our subjects and of strangers, and to finally crystallize my determination that you shall wed Prince Boris. After seeing him, I might have hesitated; but if he is a boor, what shall the King of Margoth say for his own daughter? It will be an excellent match, and I promise your highness that the betrothal shall take place upon the morrow."

In accordance with the program which the king and Prince Stroebel had arranged, Princess Mary and Prince Boris were to be given a half-hour together alone, that they might become better acquainted, and pursuant to this idea the king, Stroebel and Kantchi left them.

No sooner were the two alone than the princess rose and hobbled slowly across the floor, leaning upon her cane.

Without a word of apology or adieu she passed through the small doorway and was gone. The door opened into a corridor near the foot of a staircase, and as the portals closed behind her Princess Mary straightened up, the stupid squint in her eye was replaced by a mischievous twinkle, and a merry smile transformed her sagging jaw into a well-molded, aggressive little chin.

Gathering her royal robe half-way to her knees, Princess Mary scampered up the stairway, and along a wide hallway toward her own apartments. At a turning she came unexpectedly upon an officer on guard. Instantly the skirts dropped demurely about the trim ankles, the reckless gait became a dignified walk, though the roguish dimples still hovered about the corners of the piquant little mouth, and laughing eyes looked sideways at the stony-faced lieutenant standing rigidly at salute.

Once inside her own suite the princess ran quickly toward the frightened and nervous Carlotta, who advanced to meet her, a question on her lips.

"Oh," cried the princess, "he is awful—just simply awful; and dad is so mad at me he could eat me alive. And, Carlotta, I'm going to run away!"

"Your highness!" almost screamed the scandalized Carlotta.

"But I am. Dad is so angry that he swore that I should be betrothed to that frightful Karlovian person tomorrow, and I simply must get out of his clutches until he has had time to cool off."

"Oh, your highness, it is awful!" moaned Carlotta. "I knew what would come of an American education. Never before has a Margothian princess thought to question the commands of her father, the king. It is all due to those frightful, democratic ideas which you picked up in the New World."

As she talked the faithful Carlotta was busy removing the state robes of her mistress, while the latter grimaced at herself in an adjacent mirror that she might enjoy the ecstasy of contemplating the missing tooth and network of wrinkles before Carlotta removed the last vestige of them, to leave the fair young face as clear and blemishless as marble, and the firm white teeth glistening in an unbroken row. In half an hour Mary was herself again. Her aggressive spirit had swept away the weak remonstrances of Carlotta to the bold plan the girl had conceived, and now there remained but to discuss the details and make the final arrangements.

As the two talked there came a knock upon the door, and in reply to Carlotta's summons the king's secretary entered the chamber, halting inside the doorway and bowing very low. With a smile and a pleasant word the princess bid him advance. As she noted the man's hesitancy and embarrassment she broke into a merry laugh.

"I can guess your errand!" she exclaimed. "You bear word of my punishment from his majesty—I am to be shot at sunrise."

The secretary, who was a young man, blushed and smiled sheepishly, then he cleared his throat once or twice.

"Not quite so bad as that, your highness," he replied. "His majesty commands that you remain in your apartments until he summons you tomorrow. I am to return with your assurance that the king's commands will be respected."

"And if I will not promise?" she asked, with one of her sweetest smiles.

"Then his majesty directs that you be placed under arrest and a guard posted in the corridor before your apartments," replied the secretary.

"You are to return at once to his majesty, I presume, with my assurances?" she asked.

"His majesty has already departed for Karlova, where he dines this evening," replied the secretary. "I am merely to act for him, your highness. If you give me your promise to respect the king's wishes, I am to receive them for his majesty; if you do not, then I am to arrange for the guard."

"I see," said Princess Mary, and she rose and walked to and fro as though in deep thought. At last she paused before a small door in that part of the room opposite from the doorway through which the secretary had entered.

"I should like to have a few minutes in which to think the matter over and talk with Carlotta," she said in a voice so sweet and with a smile so winning that it would have been impossible to deny her had she been but a goose-girl instead of a princess; "so if you will step into this antechamber," M. Klein, and she laid her hand upon the knob and partially opened the door, "Carlotta and I will discuss the matter."

Now, what is there to do when a princess of the blood royal condescends to hold a door open for one but to pass through backward, in as courtly a manner as possible? Nothing, of course, and so the king's secretary backed into the little room, the Princess Mary cast a sweet smile upon him, and the door closed—with an ominous click that was not entirely lost upon the gallant M. Klein.

Then he turned and looked about him, to discover that he was in a very small room with a single heavily grated window high in one wall above his head—a small window which let in air but none too much light. M. Klein scratched his head and let his eyes return to the closed door. He was half tempted to turn the knob; but no, to enter the presence of her highness until bid would be an unpardonable offense. So M. Klein waited,

(Turn to Page 21)

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The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

A Book

He ate and drank the precious words,
His spirit grew robust;
He knew no more that he was poor,
Nor that his frame was dust.
He danced along the dingy ways,
And this bequest of wings
Was but a book. What liberty
A loosened spirit brings!
—Emily Dickinson.

For Winter Evenings

A howling wind outside, a roaring fire within, the chores done up for the night and a good book to read, that's a pleasure open to practically everybody, but enjoyed by only those who know what real enjoyment is.

Once, some months ago, we mentioned the fact that music, enjoyed and participated in at home by Johnny and Susie went a long way toward removing much of allurement from the city to the old farm home. The books of a home are just as much of a factor in making it the sort of spot that one has a bit of regret in leaving, just for the evening. Tell me the sort of books a man really enjoys and I will tell you—well, what I think he is anyway.

You who thoroughly enjoyed your young days at home, and from whom the world can never quite take the tug of the word, weren't there shelves of much read, much beloved books there, which were often a part of the family conversation? That is one of the points of enjoyment, to talk it over. The family that can laugh and thrill and weep together over a story or a bit of stirring drama or a beautiful poem needn't ever worry about family ties; they've got the biggest one there.

To some of us it seems that piteously starved is the childhood that's never gone pirating with Stevenson, or lost ten scalps a minute with Cooper; and warped the grown-up who can't puff up a bit with very conscious pride in quoting Lowell or Longfellow. Maybe the thing you really need to make your home attractive to the young people isn't a new crocheted table runner, or a new easy chair, but a shelf of books that everyone can thumb over and talk about.

Western Farm Life expects to publish in the next issue some suggestive lists for winter reading. Be sure and tell the rest of the family which ones you have liked best.

What Mary Wants

Dear Sarah:—

You are such a comfort at agreeing and disagreeing, for I've come to the conclusion that you are almost always right. Just saved my conceit, didn't I? Water at one's faucet tips is a foregone agreement between us; but I did expect to hear from you about my lack of principle in making pickles for a fair instead of for my family.

Yes, the wind is blowing here, too, and your tirade against it made me think of a man not far from us who is building a new house. He knows wind and he's tired of it, so he's putting three doors on his back porch, one to the west, one to the east and one to the south, and anyone leaving the house is always supposed to make his exit by the windward one, if the breezes are coming from the west, you exit east, and so forth. I suppose if the wind blows from the south, you stay at home. But his assumption is nearly always correct, and that is that you'd never be puzzled by being able to go from all three doors at the same time because there didn't happen to be any wind!

But our back porch isn't built that way, and whenever the wintry blasts are blasting and the wintry blizzards blizzing, and somebody comes in from either the back or side door, there's a shock area of about ten feet inward where you can't get your breath because of the cold and snow which entrs also, in spite of the screened in effect which goes clear around the side. My present ideas don't include the front doors at all, because you know in a really truly farm house there are only two uses for them, at weddings and funerals!

You might know there's a scheme coming, there always is, but what do you think of this? I want to build a wall from each house door to the porch doors, leaving space enough on each side so that there will be plenty of room to hang wraps at both doors. The screened in sides opposite each of these walls can have tight sections fitted in over each of these screens which can be removed in summer time. I want the "walls" removable also, so we can have all the air we want in summer. But when they're in place in the winter and hooks along there's a place to hang wet things and get rid of the drips and temper the atmosphere a bit. You know I don't object to air, it's just the arcticness that riles when I am thinking I am warm.

Tell me what you think. And tell me, too, how big your turkeys are. I've got some that should even make John D. blink from the size of them and the price I'm going to get per pound. I'm just going to prove to you that you can't beat me feeding turkeys.

There come the children in from school and the corn shelling machine has stopped operations, so I take it John is coming in for something. Write me quickly and don't forget to mention how your chrysanthemums look.

Lovingly,

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A Youthful Farmhand

Here is a real Colorado farm hand—the kind that every farmer likes. He never kicks about wages or hours and is always satisfied with the grub, so long as there is plenty of it. His name is Clifford Cain; his age 11 years, and he was born in Missouri—which ought to make him solid with

Clifford Cain

Farmer Putnam. This picture shows him just as he is, except that his freckles wouldn't reproduce. County Agent Walter Groom of Arapahoe county was taking pictures on George J. Gordon's farm near Bennett when Clifford came up and asked if he couldn't pose for a picture.

"Sure," said Mr. Groom, "just look natural."

Clifford just looked his natural self, and the result is a good picture of a farm hand in his working clothes. Clifford handles four horses to a plow or a harrow, milks the cows and does other chores on the Gordon farm. During the summer he took care of an acre of Minnesota No. 13 corn. He is a member of the Arapahoe County Boys' Corn Club and is learning scientific farming methods while getting practical experience.

Stretching Fruit and Sugar

To obtain the largest possible amount of jelly from fruit with the use of the smallest possible amount of sugar, follow the directions given below by United States Department of Agriculture specialists:

If a good jelly-making fruit, such as quince, green grapes, tart and partly ripe apples Siberian crabs, or cranberries, is being used, make a second extraction from the fruit. That is, take the pulp from the jelly bag add one cup of water to each pound of pulp, cook 20 minutes, and drip a second time, using some pressure at the last. Second-extraction jellies are likely to be somewhat different in flavor from the first, and it is an excellent plan to combine the two juices before sweetening.

When fruit is cheap and sugar expensive, jellies may be made to advantage with one-half as much sweetening as usual, that is, with one-half cup of sugar to one cup of juice. The yield of jelly will be less, for one cup of a good juice plus one cup of sugar should make between one and one and one-half cups of jelly, whereas one-half cup of sugar plus one cup of juice makes between one-half cup and three-fourths cup of jelly.

One-half of the sweetening may be glucose sirup, light-colored corn sirup, honey, or sorghum sirup. If the other half is granulated sugar, there will be little noticeable difference in sweetness in most cases. Grape with glucose or corn sirup will make a good jelly even when no sugar is used.

When Stitching

If the belt on your sewing machine is a little loose and slips when operating the machine, rub the belt thoroughly with a piece of resin.—Mrs. F. F. W., Vermont.

"H. R. H., The Rider"

(Continued from Page 19)

shifting his weight from one foot to another, the pleasure of the little princess whom all Margoth loved.

And in the meantime the princess, aided by Carlotta, slipped into a long, dark-colored cloak. Carlotta, too, garbed herself in bonnet and wrap, and the two, carrying themselves more like criminals than members of a royal household, sneaked out into the corridor and made their surreptitious way down back stairways to the rear of the palace. The royal stables lay not so far away, night was falling, and undetected the two fugitives presently appeared before a surprised and bowing chauffeur.

"The open car, Stefan," instructed Princess Mary; "the old one without the arms, and take me west on the Roman road. I'll tell you just where we want to go later."

CHAPTER VII

"STAND AND DELIVER"

Hemmington Main rushed into the room of his new friend, Kargovitch.

"They're leaving this evening," he cried. "They only stopped here because one of the maids is sick. Mrs. Bass wants to get on to Sovgrad as soon as possible. I got it all from their chauffeur. She's heard rumors of trouble between Margoth and Karlova, and she's afraid they may be detained here if they delay. They're leaving both maids—the well one to look after the sick one—who are to follow by rail later. You can't miss 'em—touring-car with a chauffeur and two women. One of the women is middle-aged, with grayish hair, and the other is young and—beautiful."

"Good, I'll get them," replied Kargovitch. "Now you take the next train for Sovgrad—it leaves in about twenty minutes. As soon as you get there, get a couple of horses and a priest and ride to Peter's Inn; anyone can direct you. Give this note to Peter, and he will send a guide with you who will conduct you to where I'll wait for you with the future Mrs. Main—and Mamma's full and unqualified consent."

"Gad!" exclaimed Main. "She'll never forgive me."

"Probably not; but now go, there's no time to waste if you want to catch that train."

When his friend had departed, M. Kargovitch strolled down to the hotel office, paid his bill, and walked out into the streets of Demia. There he bought a late afternoon paper in which appeared a carefully censored account of the visit of Crown Prince Boris of Karlova to the court of Alexis III. The article closed with the statement that "it is understood that Prince Boris will return to Sovgrad tonight following the banquet which the king is giving in his honor at the summer palace at Klovia."

There was no reference to the Princess Mary, or to the alliance between the two royal houses. In another column a few lines were devoted to the arrival of the wife and daughter of the famous American multimillionaire, Abner J. Bass. M. Kargovitch was not the only person to read this latter item with interest. Princess Mary of Margoth saw it, and gave a little exclamation of surprise and delight, for she had known Gwendolyn Bass well at the select American boarding-school to which the little princess had been sent at the instigation of Stroeniel. The royal guest of Alexis III saw it, and licked his lips sorrowfully at the thought that he was a prince and not a bandit—what a rich haul would be the wife and daughter of an American millionaire!

"Stefan," called Princess Mary as the machine rolled from the palace grounds, "to the Hotel Royal first."

Carlotta asked questions and interposed objections, saying that they surely would be recognized; but Mary, accustomed to having her own way, overruled them all.

"I want to see Gwendolyn Bass," she announced. "She knows me only as Mary Banatoff, so she couldn't expose me even if she would. When I enter the hotel I'll draw my veil. It'll be safe enough."

When the car drew up before the hotel the two alighted and entered. At the office they obtained the number of the Bass suite, and saying that they were old friends, took the elevator and ascended without being announced.

A maid admitted them, and as Princess Mary stepped into the room and threw back her veil, Gwendolyn Bass gave a little cry of astonished pleasure as she ran forward to greet her friend.

For half an hour the two girls chattered on as fast as their tongues would go. Mary Banatoff was "so sorry that you are not going to be in Demia longer, and next time be sure to let me know; and, Mrs. Bass, you must be very brave to travel the Roman road into Sovgrad at night, with the Rider abroad. He is a frightful wretch. Have your chauffeur drive at top speed after you pass the border."

While they talked Stefan sat rigidly in the driver's seat of the waiting car. A horseman rode up from behind, and at the sight of the car drew rein. Then he approached close to Stefan's side.

"Whose car is this?" he asked.

Stefan looked up to see a tall, military figure bending toward him. The man was not in uniform, and Stefan did not recognize him; but Stefan had a guilty conscience, because he knew that the excursion of his young mistress was entirely irregular. He hesitated.

"I asked," said the stranger, "whose car this is. Does it belong to the Americans by the name of Bass, who are traveling to Sovgrad tonight?"

Stefan grasped at the suggested straw. "Yes, monsieur," he replied, "it is the Bass car."

"And you are leaving at once?"

"Yes, monsieur." Stefan could have strangled the man for his impudence. The very idea of questioning him, Stefan, the royal chauffeur, in this familiar manner!"

"Good!" said the stranger, and rode on.

Slowly he turned the next corner, and when out of sight of Stefan spurred his horse into a trot. At the end of the city street, where it broke into the open country and the Roman road, the trot was quickened into a gallop.

"I'll never make it," muttered the rider. "What the devil are they leaving so early for? Well, I suppose one place is as good as another; but I should have preferred Karlovian territory—it might raise the devil should I happen to be caught in Margoth."

At about the same time Mary Banatoff bade farewell to her American friend and descended with the faithful Carlotta to the waiting car.

"Drive slowly, Stefan," she said, "for the night is beautiful. I am going to Vitza."

"Yes, your highness," replied Stefan.

"Sh!" cautioned the princess, "some one might hear you."

"Yes, your highness," said Stefan.

Princess Mary sank back into the cushions of the tonneau with a smile.

"The safest thing, Carlotta," she said, "is not to speak to Stefan at all."

The road to Vitza leaves the Roman road about ten miles west of Demia, and runs north through the mountains for another ten miles to the favorite palace of the King of Margoth. Stefan drove slowly, as he had been instructed. The moon shone brilliantly down from a cloudless sky, and Princess Mary was enjoying to the full every moment of her adventure. She would remain at Vitza for a few days until the king's anger had blown over, as it always did blow over when the Princess Mary transgressed. Then she would come back and forgive her father, and everything would be as it had been before. Dad would never force her to marry that frightful Prince Baris!

As the car turned north into the hills, and wound slowly back and forth up the steep grade just before leaving the Roman road to enter the road to Vitza, a horseman drew rein at the summit of a particularly steep and tortuous stretch, and, turning, looked back into the valley beneath and behind him.

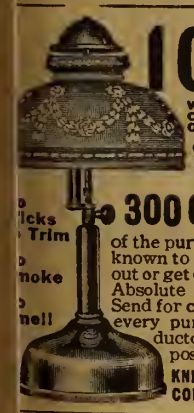
The lights of a car showed for a moment far in his rear, and then were lost in a sudden turning of the road. The man drew a black mask from his pocket and adjusted it over the upper part of his face. Then he reined his mount close behind a shoulder of rock at a sharp turning of the road, where the shadows veiled him from the sight of the approaching wayfarers. The fingers of his right hand gripped the butt of a long and formidable-looking revolver, while his left curbed his restive mount.

Slowly the big car wound its way up the steep grade. The gears, meshed in second speed, protested loudly, while the exhaust barked in sympathy through an open muffler. Stefan, outwardly calm, was inwardly boiling, as was the water in the radiator before him threatening to do. Silent, but none the less sincere, were the curses wherewith he cursed the fate which had compelled him to drive "the old car" up Vitza grade which the new car took on high with only a gentle purring.

Almost at the summit there is a curve about the projecting shoulder of rock, and at this point the grade is steepest. More and more slowly the old car moved when it reached this point—there came from the steel and aluminum lungs a few consumptive coughs which racked the car from bumper to tail-light, and, as Stefan shifted quickly from second to low, the wheels almost stopped, and at the same instant a horseman reined quickly into the center of the road before them, a revolver pointing straight at the unprotected breast of the astonished Stefan.

"Stand and deliver!" cried a menacing voice that sent a delightful little shiver through the frame of her royal highness, the Princess Mary.

(To be continued)



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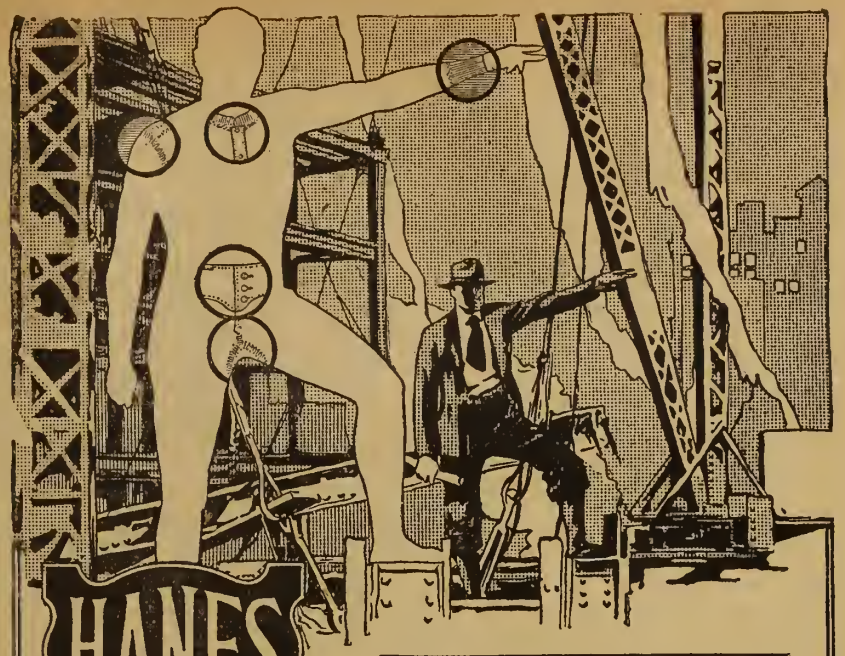

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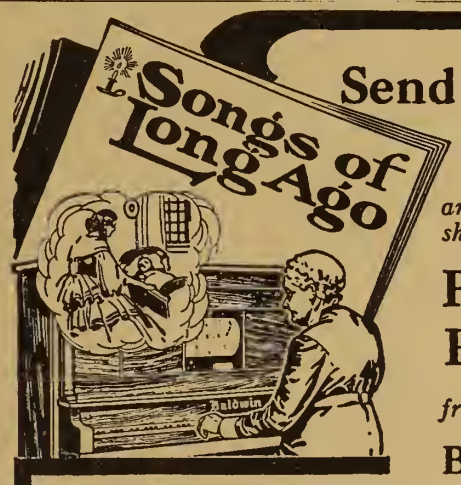

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P. O.....State.....

Big Duroc Jersey Sale

There will be a sale of purebred registered Duroc-Jersey hogs at the National Western Stock show in Denver during January, 1920, under the auspices of the Colorado State Duroc Breeders' association. Plans for the event were formulated during the State fair at Pueblo. It is indicated by the preliminary announcement that this will be a high class event. Only show stock will be eligible and the offering will be limited to individual boars and sows that typify present ideals of the best western Duroc breeders. Only one boar and two sows will be alloted to each consigning breeder and a culling committee will look these over and reject any animals that do not conform to the standard set for the sale. This committee has been named by the association. It is composed of C. F. Burke of the Blue Ribbon herd, Pueblo; Caldwell Martin of Edgemoor farm, Littleton, and Prof. G. E. Morton, who owns the Montair Farm Duroc herd at Fort Collins. This committee has backbone and the full sanction of the association to use its best judgment in admitting animals to the sale. Col. Fred Reppert will be the auctioneer in charge—which is another indication that there will be "class" to the sale. Nothing outside of Colorado owned stock will be offered. It will be the opportunity of the year for those intending to obtain foundation stock of the highest quality in pedigree and type, or for breeders who wish to improve the blood in present herds.

Tuesday of show week is the day set for this event; the hogs are to be judged on Monday.

Will Buy Idaho Seed Wheat

A carload of Idaho seed wheat will be purchased next spring by farm bureau members of Kittitas county, Washington, who wants to profit by the fact that Idaho seed is certified by law. Dicklow is the variety of wheat decided upon. Farmers in the Kittitas valley are becoming convinced, says County Agent W. L. Davis, that big yields can be obtained only through the planting of pure wheat. The county agent told the farmers that the state seed analyst of Idaho reported a yield of 97 bushels to the acre on a measured 16 acres, in the Twin Falls district, under conditions similar to those prevailing in the Kittitas valley.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24TH 1912, OF "WESTERN FARM LIFE," PUBLISHED SEMI-MONTHLY AT DENVER, COLO.—FOR OCTOBER 1, 1919.

State of Colorado, County of Denver. Before me, a notary public in and for the state and county aforesaid, personally appeared W. S. Edmiston, who, having been duly sworn according to law, deposes and says that he is the publisher of the Western Farm Life, and that the following is the best of his knowledge and belief a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Name of publisher—W. S. Edmiston, Denver, Colo.
Editor—None.
Managing Editor—A. T. Steinel, Denver, Colo.
Business Manager—None.

2. That the owners are:

W. S. Edmiston, Denver, Colo.
A. T. Steinel, Denver, Colo.

3. That the known bondholders, mortagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortages or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders and security holders, if any, contains not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholders or security holder appears upon the books of the company, as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect, in the said stock, bonds or other securities than as so stated by him.

W. S. EDMISTON,
Publisher.

Sworn to and subscribed before me this 25th day of September, 1919.

EDMONTE O. HAFFNER,
Notary Public.
(My commission expires March 14, 1920.)

If you like this magazine tell your neighbor about it.

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS, grandsons Missouri Queen No. 750, famous long distance layer, Missouri Ex Station. W. W. Goodwin, Route No. 2, Canon City, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF, NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

SEVERAL VARIETIES

THOROUGHBRED BUFF ORPINGTON AND S. C. White Leghorn Roosters; price, $2.50 each Mrs. Lizzie Knuth, Westcliffe, Colo.

BUFF LEGHORNS—R. I. REDS—BEST LAYers on earth; fancy cockerels, Mammoth Pekin drakes. I want your market poultry. Champney, 2057 South Broadway, Denver.

LANGSHAN

WANTED—WHITE LANGSHAN PULLETS OR yearlings. Write stating weights and prices. Bertha Bartels, Venango, Nebr.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—ONE REGISTERED JERSEY BULL Sure breeder. R. O. Darling, Rt. 1, Sedgwick, Colo.

CHOICE HIGH-BRED HOLSTEIN CALVES from heavy milkers, 6 weeks old, beautifully marked, $25 each, crated. Safe arrival guaranteed. Write Fernwood Farm, Wauwatosa, Wis

A CARLOAD OF REGISTERED YEARLING Hereford heifers; also this year's heifers; two yearling bulls and some extra good bull calves all good boned, good marked and best anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

FOR SALE—PIGS, CHEAP, FROM WEANING size up, big type (registered). Write F. L. Toliver, Fort Collins, Colo.

FOR SALE—A FEW BIG TYPE DUROC boars left by the wonderful Orion Cherry King. E. W. Brown, Mitchell, Neb.

FOR SALE—REGISTERED BIG TYPE DUROC Jersey hogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

BIG TYPE POLAND CHINA HOGS—SPRING boars and gilts for sale. Gad Barney, Haswell, Colo.

FOR SALE—JUNE DUROC BOARS, COLONEL-Uneeda breeding. Worth $100, but your check for $50 takes first choice f. o. b. Calhan. Horace Meloy, Calhan, Colo.

REGISTERED BIG TYPE DUROC JERSEY boars and gilts by Orion Cherry King XV and out of Defender sows. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

250 CHESTER WHITES—FALL AND SPRING boars and gilts, record, weanling pigs, pair not akin, state fair winners. Liberty bonds accepted at face. Earl Bloom, Bridgewater, Iowa.

SHEEP

FOR SALE—9 REGISTERED LINCOLN rams, 7 last spring lambs, the remainder 2 years old. Price $50.00 per head. Write T. M. Deal, County Agent, Fairfield, Ia.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

FOR SALE—FARM OF 320 ACRES—FOR particulars write Jason Carter, Cope, Colo.

CALIFORNIA FARMS NEAR SACRAMENTO for sale. Write for list. E. R. Waite, Shawnee, Oklahoma.

WANTED—TO HEAR FROM OWNER OF FARM or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33 St., Chippewa Falls, Wis.

WANTED—TO HEAR FROM OWNER OF good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

FARM AND CATTLE RANCHES—CHOICE list. If interested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis streets, Denver, Colo.

FOR SALE—MY IMPROVED 480-ACRE ranch; good location for sheep and cattle; a bargain if sold next 30 days. Write or see the owner. Geo. W. Worthan, Neiber, Wyo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

GARDEN AND FRUIT TRACT—ONE OF THE finest in Larimer county. 6 acres apples, cherries, alfalfa. Perfect water right; splendid improvements, close to Fort Collins. Price, less than cost of improvements. Vaplon and McCreary, Fort Collins, Colo.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine soil; worth $100 per acre in cultivation; on railroad; foreigners must have first naturalization papers; stamps for particulars. Homeseekers Information Bureau, Sacramento, Cal

THE COSTILLA ESTATES DEVELOPMENT Company offer you rare opportunities in irrigated lands under their irrigation project. Nicely improved farms in tracts from 80 to 320 acres at prices of $85 to $100 per acre on easy terms, close to railroad and a chance to get in before the big advance in prices which are sure to come in the near future. Write for full particulars and literature. W. A. Smith, General Agent, Costilla Estates Development Company, 531 First Nat. Bank Bldg., Denver, Colo.

88-A. FARM, $9,000, WITH 2 PRODUCING oil wells, netting owner $20 per month for oil; ½ mile to school, mile to village with electric cars, stores, church; 70 acres tillage, balance spring-watered pasture; wood, home-use; 50 apple trees; 2-story house, piazza 120 ft., basement, barn, poultry and hog houses. To settle estate, part down and balance easy terms. When there's oil on a farm one never knows what good luck the future may bring. Traveling instructions page 45, Strout's Fall Catalog, 100 pages, bargain 23 states, copy mailed free. Strout Farm Agency, 831 BA N. Y. Life Bldg., Kansas City, Mo.

FINE BARGAINS IN IRRIGATED LAND—Even as an investment this irrigated land near Fowler, Colo., will appeal to those who investigate it thoroughly. Based on experience in other irrigated sections of Colorado, the tracts offered at from $40 to $75 an acre will almost surely double or even treble in value in a few years. Tracts of from 10 to 160 acres can be had, but number of tracts is limited. This company is merely acting as agent for individual owners who will sell portions, so as to better handle increased water available under new reservoir being rushed to completion. Company itself has no long to sell. Landowners become members of the irrigation company. If you want some real land bargains, write at once or come out to Fowler. Real estate men are invited to write for particulars as to handling inquiries in their immediate neighborhoods. The Apishapa Consolidated Irrigation company, H. H. Knowlton, Sec'y-Treas., Box 337A, Fowler, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

98 PER CENT PURE ALFALFA SEED, HIGH germination, $11.50 bushel, sacks free. Buy now and get good seed. Meier Seed Co., Russell, Kans.

LUMBER

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

AUTO AND TRACTOR SCHOOLS.

THE DENVER Y. M. C. A. AUTOMOTIVE School guarantees satisfaction in teaching these trades—Automobile repairing; tractor operation and repair; Oxy-acetylene welding; vulcanizing and tire repair; starting, lighting and ignition; machine shop practice. 334 students last year. Tuition fees moderate. Practical work under seven practical instructors. Write today for illustrated booklet. The Y. M. C. A. also conducts splendid preparatory and commercial schools for young men.

BEE SUPPLIES AND HONEY

DELICIOUS NEW HONEY—10-POUND PAILS $1.25; 60-pound can, $11.50. A. A. Lyons, Fort Collins, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

GROCERIES AND SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. 5-lb. can Calumet baking powder, 90c. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

FURS

FURS SHIPPED TO ME BRING MORE MONEY in less time. Send a trial shipment now and if not satisfied furs returned. Tags and list free. E. E. Sargent, Delta, Colo.

Let Western Farm Life Service Bureau help solve your farming problems. All questions promptly answered by letter.

Livestock Field Notes

Mr. Geo. Lawser of Aurora, Colo., has for sale some dual purpose Shorthorns. His herd sire is a son of Maxwalton Stamp. The 12 cows he offers are all with calf from the herd bull. He also offers 2 past yearling heifers, 2 heifer calves and 4 bull calves. See his ad in this issue.

Mr. E. D. Hardman, owner of the Brae Side Farm at Pueblo, Colo., announces his winnings at the state fair at Pueblo this year as follows: First prize futurity litter of Durocs, also four first prizes and one special in open classes on the same litter. He announces some boars, bred sows and bred and open gilts for sale. Read his ad on our Livestick page.

Mr. S. A. Gray of Johnstown, Colo. is offering for sale his fine 6-months-old bull, Sir Tahmeroo Mercedes, the son of Tahmeroo Plebe Mechthildes who, at 4 years old, produced 25 pounds of butter in seven days from 478 pounds of milk; and for a thirty-day period made a record of 110 pounds of butter from 2,202 pounds of milk. He is also offering ten fine registered Holstein cows and heifers. Read his announcement on our livestock page in this issue.

Mr. Benedict, owner of the Wyldemere Farm at Littleton, Colo., has for immediate delivery some fine Duroc Jersey boars and gilts of this spring's farrow. This stock is from the famous Orion Cherry King stock, and is highly recommended by Mr. Benedict. He also has for sale a few bulls of the Milking Shorthorn variety. This herd won the grand championship milking Shorthorn bull and cow and sweepstakes for best milking Shorthorn females any age at the Colorado State fair, 1919. Read the Wyldemere Farm ad on our Livestock page of this issue.

YOUNG HOLSTEIN BULLS

Crescent Beauty Segis, Canary Sired by a son of King Segis Pontiac who had 101 A. R. O. daughters, and whose dam produced 37 lbs. of butter in 7 days. This bull's dam produced 18 lbs. butter at 4 years and 7 months. A fine individual—nothing but good blood back of him. Bull Calves With Equally Good Breeding

W. A. PURVIS Johnstown, Colo.

COL. H. C. JENNINGS

Pure-bred Livestock

AUCTIONEER

Also conduct Sales of Real Estate

534 17th St. Denver, Colo. Phone M-6870

BIG TYPE POLAND CHINAS

I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time the best I ever raised and good enough to get in the money at any show—$25 up.

GEO. R. GILMORE, Ft. Morgan, Colo

Boar Pigs For Sale

High class individuals of January and March farrow—will make exceptionally good Herd Headers. Prices in accordance with stock.

State Fair Winning Blood is mixed thru our entire herd. Inspection invited, or write

THE DEMING RANCH, Oswego, Kan

La Mariposa

The Carr W. Pritchett Ranch, Steamboat Springs, Routt County, Colo. Mountain bred Colorado Shortborns for sale. Herd Sire Loyal Stamp 494958, a grandson of Whitehall Sultan. Correspondence solicited.

Tahmeroo Piebe Meohthilde

10 FINE REGISTERED HOLSTEIN COWS AND HEIFERS

TAHMEROO PIEBE MECHTHILDE at 4 years and 1 day produced 25 lbs. of butter in 7 days from 478 lbs. of milk—for 30 days produced 110 lbs. of butter from 2,202 lbs. of milk.

I am offering her fine, straight 6-months-old son, SIR TAHMEROO MERCEDES. He is of excellent type, and is mostly white in color.

Write me your wants and I will try to supply you.

S. A. GRAY, Johnstown, Colo.

Wyoming 4th

L. G. DAVIS HEREFORDS

ANXIETY-BRED

Sires in service:

The great **BEAU CARLOS 2D 352001**, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

DUROC JERSEY BOARS AND GILTS

We have for immediate delivery some well-grown Duroc Jersey Boars and Gilts of this spring's farrow. They are of brilliant breeding from line-bred ORION CHERRY KING stock. We recommend this blood to our old clients who have had such success with Durocs bred by us.

For farmers who employ Milking Shorthorn cows we have a few choice bulls of the dual purpose sort that will improve your stock.

At the Colorado State Fair last September our exhibit won GRAND CHAMPION MILKING SHORTHORN BULL, GRAND CHAMPION MILKING SHORTHORN COW, and sweepstakes for best Milking Shorthorn females any age.,

Our herd is headed by unblemished Bates bulls—SENIOR BULL, BARON BATES 777290; JUNIOR BULL, ROYAL GLENSIDE 641519.

WYLDEMERE FARM

J. B. Benedict, Owner **Littleton, Colorado**

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, Soutb Denver Station, Denver, Colo., or visit the Farm, 5½ miles soutbwest of Denver on the Morrison Road.

HIGH CLASS JERSEYS AND DUROCS

The Western Home of the Majesty's

The name "Majesty" in a jersey pedigree, means production and beauty. Sybil's Gamboge, the bull of the bour, is a Majesty, and related to many in my herd, and to "Majesty's Feather Lad,' son of tbe show cow, Majesty's Feather Lass, 712.13 butter.

I have some extra fine young cows and heifers for sale. Have some extra fine bull calves, two out of half sisters to the great "Financial Sensation," the $60,000 bull. One out of Imported Cowslip's Sweet Bread, a R. of M. cow. Also others. These are extra fine calves, and my prices are right.

Two or three November gilts, by a son of Top Sensation. Write me.

A. M. McCLENAHAN, Greeley, Colorado

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

FOREST GLEN SHORTHORNS

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.

Elbert, Colorado

BOARS

Two Outstanding Herd Boars by Great Pathfinder
Two Outstanding herd boars by Victory
PRICED RIGHT

DR. F. T. DALY, **Cambridge, Neb.**

DUAL PURPOSE SHORTHORNS

12 Cows, 2 Past Yearling Heifers, 2 Heifer Calves, 4 Bull Calves

The cows are all with calf from my berd bull, who is a son of Maxwalton Stamp and grandson of Avondale International Champion, grandson of Imported Lucie.

Write for further particulars and prices.

GEORGE LAWSER **Aurora, Colo.**

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyo.
406 New Live Stock Exchange Building, Union Stock Yards, Denver, Colo.

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent **JAMES C. ADAMS, Salesman**

Milking Shorthorns

THE OTIS HERD

To Dalrymen:

Use a milking Shorthorn bull on your grade dalry cows and produce a good beef anlmal without loss of mllk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.

Pine Valley Farms

COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Durocs won 26 firsts and champions in the shows this fall. The Grand Champion, Burke's Good E. Nuff, again heads our herd, assisted by Big Cherry King, first at Pueblo and sire of all first prize futurity pigs and litters at Pueblo, 1918. Get the winning blood.

The Blue Ribbon Live Stock Co.

C. F. Burke, Manager,
Pueblo, Colo.

FOR SALE

I can show buyers 600 registered Herefords, also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding atock at bargain prices I bave been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

Straight and Polled Shorthorn Cattle

Valentine's Last X12316 452005 at head of beef herd. Claywood White 427350at head of milk type.

STATE INDUSTRIAL SCHOOL
Golden, Colorado

REGISTERED DUROC SPRING PIGS

Fine quality, smooth and well grown

LA BELLE RANCH

Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver

H. G. SQUIBB **AURORA, COLO.**

Glendale Stock Farm

Irvindale Rowdy Grand Champion Belgian Stallion Chicago, 1917, Denver, 1918 and 1919

Breeders of

BELGIAN HORSES

and

POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

BEAU ASTER

Registered Hereford Cattle

Prince Domino —499611 Sire of the Champion Futurity Bull and Heifer Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER

Holyoke, Colo.

DENVER HOLSTEIN HERD

Choice Bull Calves

By the sire of a 38 pound daughter, and out of dams up to 35 pounds.

Also a Few Females of Choice Breeding

M. E. PENROSE, Prop.

DENVER, COLO.

2055 Humboldt St. Phone Main 5713

WYNNEWOOD RANCH

Big Type Poland China Hogs

For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of botb sexes, including several of a litter from the Junior Champion Gilt, Denver Stock Show, 1919.

C. E. GORDON, Mgr., Overland, Colo.

William Upp

Breeder of

BIG TYPE POLAND CHINA HOGS—HERD HEADED BY BIG JUMBO, Missouri Prince, Cotton Wood King, and others.

Spring Boars and Gilts for sale.

Deer Trail - - Colorado

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH

Montrose, Colo.

There Is a Delco-Light Man Near You

No matter where you live, there is a Delco-Light man within easy reach of you.

This means much more to you than mere convenience in the purchase of a Delco-Light plant.

These men are trained men—They KNOW electricity as applied to farm use.

They can advise you as to the size of plant you should have.

They can see that your house and barn are properly wired—

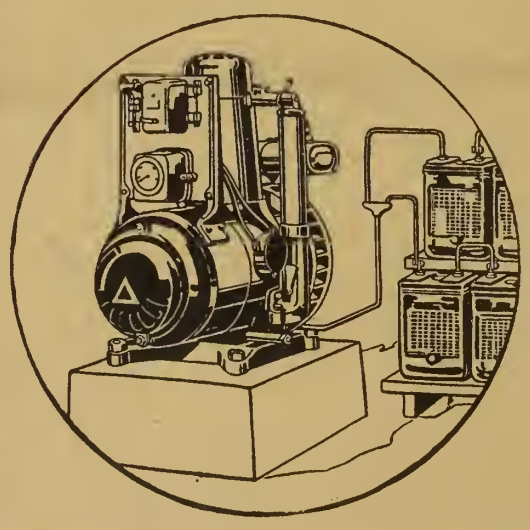
They can superintend the installation of the plant so that it will give you the most efficient and economical service.

They can tell you where and how to place your water system and what kind of a water system to have to meet your particular requirements—

They can give you intelligent advice as to the purchase and use of washing machine, churn, separator, milking machine and other appliances that you can operate with the electricity furnished by Delco-Light.

And—After the plant is installed they are always near-by to advise with you and see that you get full hundred per cent satisfaction out of its operation—

Delco-Light is lightening labor, bettering living conditions and actually paying for itself in time and labor saved in more than 75000 farm homes.



A complete electric light and power plant for farms and country homes, self-cranking—air cooled—ball bearings—no belts—only one place to Oil—Thick Plates—Long Lived Battery—RUNS ON KEROSENE.

DELCO-LIGHT

Distributor

BARNETT RANCH LIGHTING AND APPLIANCE COMPANY

1525 16th Street, Denver, Colo.

The Domestic Engineering Company, Dayton, Ohio

Makers of DELCO-LIGHT Products

UNIVERSITY OF ILLINOIS
DEC 3 1919

WESTERN Farm Life

Vol. XXI Denver, Colorado, November 15, 1919 Semi-Monthly

UTILIZING THE BY-PRODUCT OF THE DAIRY HERD

$15 Puts A Piano Into Your Home

PAY MODERATELY WHILE YOU PLAY—WE GUARANTEE TO PLEASE YOU

BARGAINS in lightly used pianos and playerpianos—all reflecting the SPLENDID IDEALS of our BIG MUSICAL WORKSHOPS.
ARTISTIC PIANOS, $150, $175, $200, $300. WRITE US the price and payment terms that will please you, your choice of make, style, wood, etc. We will return full particulars of instruments that will delight you.

UNUSUAL VALUES TO BE HAD NOW—WE TRUST YOU

THE KNIGHT-CAMPBELL MUSIC COMPANY
Denver, Colo.

TIRE PRICES REDUCED

5000 MILES GUARANTEE
Reconstructed for Durability

GOOD-WEAR Double Tread Tires represent quality, value, service and satisfaction, and are guaranteed for 5000 miles. GOOD-WEAR Tires do away with tire trouble. The fact that we have over 30,000 satisfied customers, speaks well for the wearing qualities and enduring powers of GOOD-WEAR Tires and Tubes.

Reliner FREE with every tire. Tubes are guaranteed fresh stock.

Size	Tires	Tubes	Size	Tires	Tubes
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32x3½	7.00	2.00	36x4½	11.50	3.40
31x4	8.00	2.25	35x5	12.50	3.50
32x4	8.25	2.40	36x5	12.75	3.65
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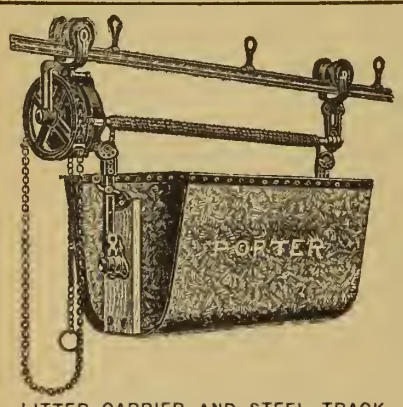

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State Tests Seeds Free

It is not too early for Colorado farmers to begin sending samples of seed to the State Seed laboratory at Fort Collins for testing. In previous seasons many have waited until almost planting time and the result has been congestion and loss of time when every day counts. Tests of all farm seeds for purity and germination are made free of charge. Samples sent in for testing should be addressed to the Colorado Seed Laboratory, Fort Collins, and the following information should appear on the outside of the container: Name of sender, address of sender, kind of seed, variety (if known), and lot number. Tests are made for both purity and germination unless otherwise requested. The following information from Mr. G. E. Eggington, state seed analyst, is of interest to both farmers and seed dealers:

"The attention of farmers and seedsmen should be called to the necessity of equalizing the work of the seed laboratory to prevent congestion prior to the seeding season, i. e., during the months of February, March, April and May. Too often a farmer prepares his seed bed and then submits his samples for test. Seeding season days are precious and if the laboratory is swamped with work during that period immediate returns are impossible. When the seed should be in the ground and getting a good start, it is merely being held until a test has been completed.

The germination test may require from five to twenty-eight days, depending upon the kind of seed. This time requirement alone should fully emphasize the need for and advantage of early testing. The fact that the seed laboratory does this testing free of charge should stimulate the sending of samples.

"The seed law does not regulate the sale of vegetable and flower seeds, but the importance of high vitality in such seeds should be of no less interest than the vitality of field seeds. All seeds to be used for seed purposes should be tested. The farmer should take nothing for granted. He should check the information on the seedsman's label by sending a sample to the seed laboratory."

Divide Shorthorn Men Meet

A live meeting of the Elbert County Shorthorn Breeders' association was held in Elbert on Friday night, Oct. 24. Plans for the showing of the stock of the association were discussed and arrangements made to take up with the Western Stock Show association the plan of showing the Shorthorns from this section together. It is estimated at this time that about three carloads of show cattle will be sent to the National Western from the Divide country.

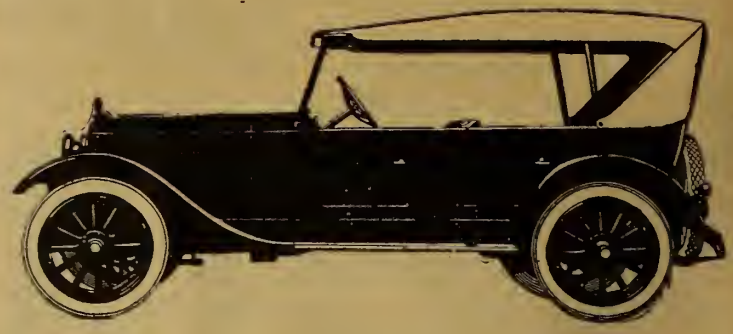
The association voted honorary membership to each of the boys and girls in the newly organized Shorthorn Calf club of the county. The hearty backing and co-operation of each member of the association was also assured the members of the calf club. The heifers for the club are being supplied by the breeders of this section.

W. H. Paul, who has recently sold his ranch near Eastonville, resigned as secretary of the association and J. Paul Jones of Elbert was elected to fill the unexpired term. Mr. Paul has taken an active part in Shorthorn circles in the Divide and it is with sincere regret that he is leaving the association.

A committee was appointed by President Allen Carnahan to take up with the Colorado & Southern railroad the question of improving the loading facilities of the Elbert yards. Arrangements are to be made so that the cattle belonging to the Divide breeders can be together at the coming Denver show. The association has asked Fred P. Johnson, general manager of the show, to meet with them at their next meeting.

The spirit of the meeting was one of co-operation and mutual benefit, the attitude that is helping the development of the Shorthorns in this country. The men are really pulling together and putting Elbret county on the map as a Shorthorn center.—H. L. Ford, County Agent.

HAVE YOU SEEN IT?



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Volume XXI | DENVER, COLORADO, NOVEMBER 15, 1919 | Number 22

Colorado Rural Schools Astonish Kansas Educators

FINE EXAMPLES OF CONSOLIDATION IN THE SAN LUIS VALLEY

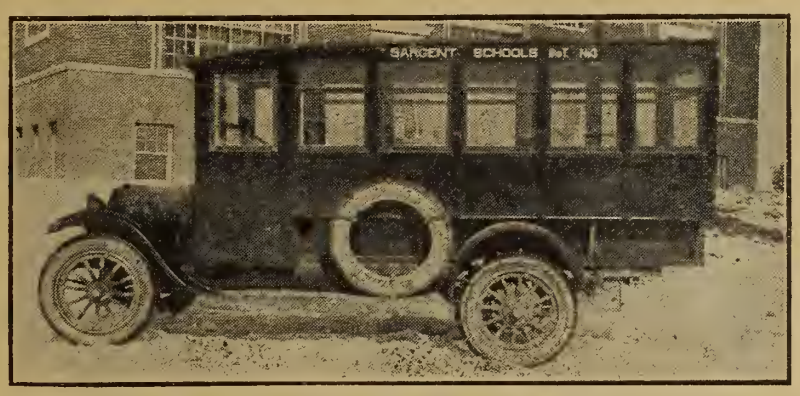
H. A. LINDGREN

Garage and Gym. Sargent School

TO Professor C. G. Sargent in charge of Rural Education at the Colorado Agricultural college is due the credit for the success of co-operation in Colorado in the forming of consolidated schools. There are now 87 of these schools in the state, taking care of some 300 districts where the one or two room schools were formerly in use. During the past year Prof. Sargent spent his vacation in Kansas, where he discussed the plan with a number of educators and showed them a moving picture of the work of the consolidated schools in Colorado. The plan so interested the Kansas people, that at Prof. Sargent's invitation, under the leadership of Prof. C. E. Rarick, professor of rural education at the Fort Hayes Normal school, they organized a party of educators, to inspect the work of the consolidated schools in the San Luis valley. The Kansas party was met at Monte Vista by a delegation of Colorado educators and clergymen on Sunday, October 19. The entire party consisting of sixteen Kansans and fifteen Colorado people, were taken to the Sargent school, where they attended the Community church service.

To those who are not familiar with the consolidated school system, a brief explanation here would be of interest. Rural educators have worked for some time to improve the conditions in the rural communities with the idea of supplying the need for educational, social and religious activities. The consolidated system was the result. The one room, poorly lighted and poorly ventilated school house which the children dreaded, was supplanted by the large consolidated school which took care of several school districts at one place.

This is what was found at Sargent. There was no town or village as was supposed, but simply a large, attractive school building surrounded by a teacherage of eleven rooms, a superintendent's cottage, a gymnasium and a parsonage. These buildings, except the parsonage, are on a ten-acre tract, which comprises the school grounds. The school itself is a two-story building over a large basement. The plant comprises a twenty-room building 48x60 feet. The auditorium, which is used for the high school and also for community gatherings, is large enough to accommodate close to 300 people. The gymnasium is a separate building of concrete construction. This is also a double story affair, the first floor being used as a garage, the second floor is used for the gym and is equipped with gymnasium floor, shower baths and is as up to date as can be found anywhere in the city. The entire plant is lighted by an electric lighting system, located in the main building. The smaller buildings are heated by a hot water system and the main building with steam.



Type of Auto-van Used in Transporting Pupils in the Sargent District

There are thirteen teachers, one of whom is an agriculturist and who gives instruction in manual training and in agriculture; a domestic science teacher gives instruction in that subject. There is running water in all of the buildings from an artesian well on the grounds. The children are taken to and from school in auto vans, each large enough to carry thirty pupils. The vans leave the school building at a designated time each morning, driven by teachers mostly, and go their particular rounds on schedule time. Each pupil catches the buss at the gate of his or her home. There is no time lost, as indicated by the fact that all the busses often arrive at the school within two minutes time. There are ten of the busses in the Sargent district at the present time. Their runs average from thirteen to twenty-two miles for the one way trip. There are 443 pupils of school age in the district. The enrollment at the school is 370, forty of whom are in the high school. The property valuation in the district is $3,000,000, with a tax levy of 5 mills.

Teachers receive from $80 to $150 per school month; in addition they get free rooms or house amounting to about $20 per month. Teachers driving busses get $25 per month extra. Superintendent George R. Young receives a salary of $2,500 and is furnished a residence with fuel, light, etc.

A Model Community Church

The church service attended by the party was most inspiring. Here the people in the entire community gathered, filling the auditorium. The Sunday school and church services were such that one felt at once that here was the real Christian spirit. People of eight demonstrations had met for worship. There was nothing that hinted of creed; all felt themselves a part of the service. The community church is under the leadership of Rev. D. E. Nourse, a man with a broad vision of community betterment. He devotes his entire time to this work. The church activities include a women's bible class of eighty-five members, men's bible class of sixty members, two senior young people's bible classes with an enrollment of sixty and a strong Christian Endeavor society.

The church is non-sectarian and its active members include persons who have met the requirements of the bible pertaining to the Christian life, viz.: repentance, confession and baptism; and who can whole-heartedly co-operate with the Christians of other denominations."

The above quotation is from the constitution. There are also associate members, consisting of persons who cannot, for conscientious reasons, withdraw from the church of their choice and who wish to have a church home and a place of worship.

The Sargent Community church tenets are brief, although of broad application to the needs of a rural district whose church population is almost exclusively Protestant. The church constitution reads as follows:

Preamble and Constitution

Whereas, there are resident in this community, members of a number of evangelical churches who desire to organize a community church for the purpose of affording religious privileges and opportunities to all resident evangelical Christians.

It is hereby agreed:

First: That all active members of all evangelical churches residing in this community who shall approve of such an organization do organize into a community church.

Second: Other persons who have accepted Jesus Christ as their Savior, and who desire to enroll themselves as members of the community church may be received into the church by a vote of the members thereof.

Third: The pastor of this church shall be a licensed or ordained minister, in fellowship and good standing with some evangelical church. In case a vacancy occurs in the pastorate all supporters of the work shall be privileged to vote in calling a new pastor.

Fourth: It is understood that this organization is effected in order that all members thereof and the community at large may co-operate in providing ample financial and moral support for maintaining a pastor and providing the necessary current expenses incident to its existence.

The financial support of the church and pastor's salary are provided for from voluntary contributions on the part of the residents of the school district, who are as unanimous in this as they are in support of the school work. No rental is paid by the church for the use of the school building, the feeling among the people being that school and church are part and parcel of the community movement. Rev. Nourse's salary is $125 a month.

After the church service the visitors were served luncheon in the building by the ladies of the community. The luncheon was such as can be served only by farmers' wives. Everyone present enjoyed the meal greatly.

In the afternoon a special meeting was held, which was addressed by ex-Gov. Ammons and State Superin-

(Turn to Page 24)

PLANT OF THE SARGENT CONSOLIDATED SCHOOL NEAR MONTE VISTA, COLORADO

Growing Winter Wheat by Summer Fallow Method

OREGON EXPERIMENTS CONTAIN LESSONS FOR DRY LAND FARMERS

E. R. PARSONS

DRY Farming Bulletin No. 1047, on the Raising of Winter Wheat by the Fallow Method and Some Hints on Blowing," just issued by the Bureau of Plant Industry, U. S. Department of Agriculture, confirms and indorses much that we have been writing about and recommending in Western Farm Life and is particularly timely at this period after one of our oft recurring dry spells, because it demonstrates to any that are discouraged with climatic conditions, that winter wheat may be raised by the fallow method even in real dry years, when the precipation falls as low as 7.68 inches.

Nearly all elements of chance, freak conditions, etc., were eliminated by conducting the experiments over a period of six years, and on a soil common to a vast expanse of territory.

The work was done at Moro, Oregon, in the dry farming, originally desert country between the Cascade mountains and Idaho, the State Experiment station co-operating with the Department of Agriculture.

Oregon has the Pacific coast climate as far as the Cascades, but after crossing these mountains going east, the climate resembles that of Nevada, Utah or Idaho and even Colorado except that the winters, although cold and snowy, are not quite so strenuous, and the July and August thunderstorms are mostly absent.

The driest of the six years during which the experiments were made had only 7.68 inches of precipitation and the wettest 14.68 and yet the best of the methods tried out averaged 30.5 bushels per acre, the average precipitation for the whole period being only 11.6 inches.

If these fellows on the sage brush deserts of Oregon can do this what ought we to do on a regular average of 14 and 15 inches and in some parts 18? The following table speaks for itself:

Time of Plowing	No Cultivation After Plowing Bu. per Acre	Harrowed Once After Plowing Bu. per Acre	Thorough Cultivation After Plowing Bu. per Acre
April 1	24.8	26.7	30.05
May 1	24.5	25.4	26.4
June 1	22.5	22.4	22.5

The best crop was obtained by early plowing of the summer fallow April 1 and by thoroughly cultivating afterwards. This is the principal lesson of this bulletin. The earlier you can plow in the spring the better for the winter wheat that you plant in August. In our part of the country where cloudbursts often occur and the water is liable to run off we advise disking and cross disking without lapping, which leaves ridges to hold the rainfall, and if the field is disked often enough to keep out the weeds and then harrowed smooth at planting time, it is usually well and thoroughly cultivated.

The bulletin goes on to say: "When satisfactory stands are secured winter wheat yields from 20 to 25 per cent more than spring wheat. When autumn rains are abundant good stands of winter wheat may be obtained on almost any kind of summer fallow. On the other hand, when autumn rains are scant it is much easier to start winter wheat on early plowed and well tilled fallow than on land that is plowed late in the season and left rough as the soil comes from the plow. One of the chief purposes of summer fallowing then should be the preparation of a seed bed that will make the sowing of winter wheat as nearly independent of the autmn rains as is possible.

"A renewed productiveness in the soil in the summer fallow is brought about by the decay of vegetable matter. In order to cause the maximum decay to take place the stubble and other vegetable matter must be incorporated with the soil in the early spring while the ground is yet moist, for moisture is very essential to decay. After the vegetable matter has been plowed under or mixed with the surface soil it is necessary to do enough cultivation to keep the land free from weeds. If allowed to grow, weeds use the moisture that is so necessary to decay."

The variety of winter wheat used in these experiments was Turkey red. The depth of plowing is not mentioned but in many of the great summer fallowing wheat districts of eastern Oregon it is usually 9 inches. Fallowing is an older thing in California, Oregon and Utah than it is with us. The writer became well acquainted with summer fallowing for wheat in California in 1884 and 1885 and what he found there in the way of dry farming gave him the nerve to start his dry farming operations in the cattle country of Colorado in '86.

When summer fallowing was first advocated in Colorado and adjoining states it was objected to on the grounds that the summer cultivation used up the humus. All cultivation uses up humus, but we have to cultivate just the same; every one knows the reasons. The answer to the submarines was not "keep your ships at home," but "build more ships." The answer to the fallow question is not, save your humus, but provide more of it.

Where a stack of straw is burned up more humus is destroyed than cultivation would use up on an ordinary farm in several years. The way to save the wheat fields and prevent the soil from becoming depleted as long as possible is to use the header and nothing but the header for harvesting purposes, and then plow under the tall stubble.

Some farmers have made a remarkable showing by dry plowing as soon as the crop is off instead of waiting to plow in the spring. This gives more time for the ground to settle and should work well when there is plenty of straw to plow under.

Another thing which will help our wheat fields is rotation. A farmer who raises wheat and nothing but wheat is never much impressed with the idea of rotation, but his crops will become smaller and smaller until he has to fall back on barley or oats and eventually even these will refuse to yield a profitable crop. The summer fallow will help to put off the evil day; but the only real help is plowing under humus, and rotation. In the districts with dry summers it is hard to know what crops to use since the late crops are impossible; but in our own country we can alternate with corn or sorghum and occasionally with beans, alfalfa, or sweet clover.

Advice on Soil Blowing

Farmers Bulletin 1047 also gives us some new wrinkles on blowing. It speaks of the light sandy loose soils which blow and the heavier loams which never blow. It is the fineness of the particles which allow blowing; roughly granulated soil and clods prevent it. It is stated that a soil that blows may be made nonblowable for awhile by converting it into a rye pasture for a year or two. The seed is planted either on the summer fallow, or run in on stubble with the disk seeder, and to keep up the stand fresh seed may be run in any time in the fall on any part of the field that needs it. The tramping of the cattle and the roots of the rye have a binding effect on the soil which creates a granular or small clod condition after plowing, which keeps it from blowing until after a season or two when it becomes fine again.

If any land has been worked into too fine a tilth and commences to blow, it can often be stopped by using the spring tooth harrow which will bring the small clods to the surface if there are any. The wind will often start blowing the plowed ground off a field if it is fine enough, commencing at one end or corner and working on a face the depth of the plowing. The best preventive is to cover the face at once with straw or manure and then run the disk harhow over it with the disks set straight.

Summer fallowed land that is cultivated with the disk harrow does not blow like smooth land. Some farmers use their plows without the moldboard which leaves the rubbish on top instead of being plowed under; this also helps.

The writer has also found that listed land is quite safe from blowing and even land plowed and left in the rough for the winter fallow; but where the wind is very bad listing is the best. All plowing, listing, disking or cultivation of any kind should always be done at right angles to the path of the wind.

The worst of this problem is to be found in the sand dune countries, which exist in several of our states. The sand blows from one man's ranch to another, or a whole sand hill may plant itself in a roadway during the night, or enough may cover the railroad tracks to delay trains for several hours. The only remedy for this is to find some form of vegetation which will cover the sand or bind it in some way or other, and this is a very difficult problem in places where selection is limited by drouth, but further east where there is more precipitation tree planting has given encouraging results, especially with the common pine and locusts. We can raise these trees also in the dry farming country, but to give them the requisite cultivation over a large stretch of country would be too costly for individual or local effort.

We are often asked what trees we recommend for a windbreak on the farm. Winter killing destroys more trees in our country than drouth and every locality differs in this respect. so the first thing to do is to discover what trees stand the winters the best in the neighborhood where it is proposed to plant them. Any of the following can be raised by dry farm methods and will furnish good windbreaks: the black locust, Russian olive, yellow pine, silver poplar, black walnut, elm, etc. The red spruce or Douglas fir is one of the most beautiful of the evergreens but cannot be raised very well on heavy soil. On the decomposed granite sandy and gravelly soils around Denver and on the Arkansas divide it does remarkably well.

High Altitude Farming

WARREN F. WILCOX

That there are large areas of the finest soil in the state lying at altitudes from 7,500 to 8,500 feet, that should be utilized for the growing of certain vegetable crops, is evidenced by the success of some who have tried it.

In Ouray county, a few miles from Colona, is one of the altitudinous farms operated by I. C. Maddux and son. This is a typical high elevated farm among the quaking aspens, where the soil is a deep black loam of magnificent fertility and great depth. There are on the western slope, especially in the vicinity of Ouray and Telluride, a great many of these high farms. Near Telluride are several high mesas where at 8,000 feet magnificent crops of barley are produced as well as timothy.

Mr. Maddux has specialized in vegetables, such as do not succeed so well in lower regions. His success with cabbage, cauliflower, Chinese lettuce, turnips, and similar crops is wonderful. He says the biggest cabbage last year weighed 22 pounds. The market does not like such big cabbage, in fact it begins to kick when they pass six pounds and balks short at 12 pounds, so in a region where they just naturally grow big, his problem is to keep them down within bounds.

The biggest turnip weighed 36 pounds and the largest rutabaga, 25 pounds. One radish tipped the beam at 15 pounds and it was crisp and tender clear to the center.

Mr. Maddux says that the drawback is for a market. He goes on to say: "If there were enough of us growing such stuff to make a center here and people found it out, we could load refrigerators cars and handle any amount. Minnesota and northern points ship hundreds of cars of rutabagas to southern points, mainly Texas. We can raise a much superior product with a shorter haul. We can simply raise the most perfect cauliflower ever seen. And there is not enough cauliflower grown to supply the demand. Horseradish is grown to perfection, the roots often weighing six pounds, and sweet, too, not hot. Rhubarb cannot be beaten. Strawberries do fine, ripening in August. Head lettuce attains perfection. Peas grow luxuriantly and are very sweat. Celery can be grown too and the quality is simply wonderful."

When Mr. Maddux went up to his place several years ago and opened up a coal mine, he started growing vegetables and the farmers from the valley who came up for coal, laughed at him, saying that they would not grow. Now those very same farmers come up to him in the fall and get vegetables, because they cannot produce such stuff in the valley.

Mr. Maddux says: "I am sure that these altitudes have a great future and the world is standing with its mouth open for such quality products as grow in these cool regions. For the good of the country all the good-lying soil between 7,500 and 8,500 feet should be reserved from the 640 acre grazing classification."

Time will come when these rich areas will be intensively farmed, producing the vegetables for which they are best adapted. There are no diseases or insect pests at these high altitudes. Once the world knows about it and transportation facilities are worked out, these altitudes will be producing thousands of cars of cauliflower, cabbage, rutabagas, etc., of the most delectable quality.

Herbert Sanstead's Pigs

In the account of the colorado State fair appearing in the issue of October 15, mention was made of the record of Herbert Sanstead of Sterling, a member of the Boys' Pig club of Logan county. Here we have the sow and pigs that started Herbert on the way to success as a pig breeder. He bought the sow from J. W. Brauer of Colorado Springs for $75. She farrowed a litter of eight and Herbert sold seven of them for $436. This sow was reserve champion of the State fair. The picture was taken by J. T. Tingle, Pig Club organizer for Colorado, at the Logan county fair.

If you like this magazine tell your neighbor about it.

Why Winter Protection For Bees Is Necessary

A WYOMING APIARIST SHOWS HOW THE HIVES ARE MADE SNUG

PROF. T. S. PARSONS

NO PLACE in the United States offers a better opportunity for bee keeping than the Bighorn Basin section of Wyoming. The wide, spreading fields of alfalfa and sweet clover which abound wherever there is water for irrigation offer the honey bee the finest facilities for honey production. Ten, twenty and thirty thousand pounds of honey in a season are not uncommon yields for Wyoming apiaries. A government report gives Wyoming fourth place in honey production in the United States. The production is much lower than it should be, however, on account of the poor management of the bees and the lack of winter protection is one of the principal causes of the low yield.

Elias Johnson of Lovell, known all over northern Wyoming as "Honey Bee Johnson," says winter protection for his bees has doubled his profits from honey. Mr. Johnson is the largest bee farmer in Wyoming and probably knows the bee business better than any other man. He has learned from experience the value of winter protection for his bees. Failure to provide winter protection caused a loss of 50 per cent of his colonies, while since he has protected his hives by packing he has had practically no losses.

Mr. Johnson has 400 hives of bees, from which he sold last year $8,000 worth of honey. He will do even better than that this year. His apiary is located on the back half of his residence lot in Lovell, where he has the bees under his supervision at all times. He has a good farm and a large flock of sheep, but his bees make him the greater profit. "Here," he says, "they have all out-of-doors to work in and I can see what they are doing." When asked if the report was true that he had sold $3,300 worth of honey from his hives in one year he said: "Yes, and more than that. They have produced $20 per hive this year." This is a large sum of money to make on a town lot, but Mr. Johnson says the lot only represents a place to set the hives. The bees work over a large area of country and no complaints are ever heard of their trespassing on the neighbors' fields.

Bees Out In December

The writer visited Mr. Johnson's apiary on December 5. It was a bright, mild winter day and the bees were out flying almost as thick as any day in summer. Their musical humming could be heard several rods away. The bees were busy removing the dead bodies from the hives and cleaning themselves in the bright sunshine. Mr. Johnson said it was much better for them to get out this way on an occasional warm day in the winter than to remain shut in. This getting out gives them a chance to void the feces that have accumulated in their bodies since they went into winter quarters in the fall. The feces is not voided in the hive, but accumulates in the bodies of the bees until they can get outside. It has been shown that heat is generated by the working of the bees in the hive, and this causes an increased consumption of stores. This in turn causes an accumulation of feces and often induces what is known among beekeepers as dysentery, and many bees are lost from this disease. If there are mild, bright days during the winter so that the bees can get out and rid themselves of the accumulation they will get along much better.

A Department of Agriculture bulletin says that the beekeepers of the United States lose at least one-tenth of their colonies every winter. This is the minimum loss. The loss is often increased to 50 per cent, especially in the northern states, where many beekeepers give their bees no winter protection. Often a beekeeper reports that he does not protect his bees and has never had any losses. That there are losses is well known, and it has been demonstrated that winter protection will reduce losses to one per cent or less.

Northern and central Wyoming have many bee farms that are producing good profits for the owners even under poor management. Government statistics for 1914 and 1915 show practically no protection for bees in Wyoming. A loss of colonies of 19.1 per cent is shown as against an average loss of 12.6 per cent for the United States. The yield of surplus honey per hive is high, however, being nearly 75 pounds for the state and an average of about 35 pounds per hive for the United States. Winter protection would increase the production very materially by preventing winter losses.

Mr. Johnson says that if the bees are kept in an environment such that the temperature of the air immediately surrounding them is 57 degrees Fahrenheit, or a little above, they are saved unnecessary labor and will eat less stores. If the hive is unprotected the temperature around the bees will often drop to the freezing point during cold weather, and it becomes necessary for the bees to generate an excessive amount of heat. When the bees are no longer capable of muscular activity they die. If there is winter protection the extra expenditure of energy is saved. A bee house or cellar, if properly constructed, makes excellent winter quarters for bees, but either one is expensive and necessitates a good deal of labor in moving the bees in and out.

Honey Bee Johnson's Bee Yard In Winter Rigging

Bees can be safely carried through the winter out of doors if the hive is insulated, so that the heat generated by the bees escapes slowly and the air in the hive rarely falls below 55 degrees. If there is inadequate protection the temperature cannot be kept so high and the bees will have to generate more heat. Thus the importance of giving the bees winter protection is readily seen. Mr. Johnson packs his hives in straw and tar paper. His method is to set two hives together side by side and to wrap them around with tar paper. The paper is extended a foot or more above the hives, forming a space that is filled in with straw or dry leaves. The paper is then folded down over the straw and a weight put on to hold it down. A small opening is left at the bottom of the hive for the bees to pass in and out. The hives are set on blocks about six inches above the ground and are banked up with earth to keep the wind from blowing under.

Mr. Johnson says he likes this method of winter protection better than any other. He says there are but two causes of death of individual bees or colonies in winter. These are inadequate stores and excessive heat production. The first cause of death can be guarded against by seeing that the colony has food enough to carry it through the winter, and the second cause is insured against by proper packing and insulation.

Mr. Johnson is also a believer in shade for bees and protection against the wind. The fruit and shade trees around his lot and the shrubbery in his garden afford shade and protection, while the rank growth of sweet clover in the fields and along the banks of the irrigation ditches afford a boundless supply of honey-making material. By far the largest part of the Wyoming honey is made from sweet clover. There are but few trees and flowers from which honey can be obtained. The sweet clover makes a white honey of the finest quality, equal to the white clover honey of the east, and brings the highest price on the market. From Mr. Johnson's point of view there is no farm enterprise that will produce a larger percentage of profit for the capital invested and the labor expended than a few colonies of bees, either on the town lot or on the farm. Indeed there is no industry that can be so easily regulated as that of honey production nor one that has greater possibilities.

What Will the Harvest Be?

DR. VERNON T. COOKE

In certain sections of Colorado it has been very dry this season just at the time crops needed moisture for their maximum development. The result was partial or even total failures in these sections. When moisture did come it was too late for the early maturing crops. However, the late rains, although of benefit to late crops, were a detriment to those who were too busy or through lack of competent help, were unable to prevent the weeds growing. The weeds utilized the moisture in the soil and put the land in such condition that to sow it to winter wheat made failure a foregone conclusion, unless the unexpected happens—namely, an unusual supply of late fall or winter moisture.

It has been very dry in some parts of Colorado for the last three seasons. The crops of 1917 were pretty good as a whole, not from the precipitation of that season, but the combination of what moisture was in the soil from the 1916 season and what fell in 1917. The year 1918 was dry and had no reserve moisture to help the crops, and 1919 has been the same, which means our lands do not contain much reserve moisture now.

In some sections this fall the first sowing of winter wheat came up and the soil dried out. A second sowing has been planted, and if enough moisture comes, will no doubt germinate. However, here enters the question: Will the plants have enough moisture to carry them through a dry winter and dry conditions early in the spring?

I can show anyone many acres of land sown with winter wheat, which has never been really plowed properly, where weeds cover the ground, where owners have paid $4.00 an acre to have it plowed and which is not even in as good condition as a thorough double disking should put it in, and this is sown with winter wheat. I know of land that has been sown where a blind man can trace the wheat with his fingers by following the grains upon the soil! Also where the winter wheat is just covered with dirt and not even put into the moist soil. This does not apply to any one particular section. There are many conditions like the above.

Talk about gambling—there would be no such thing as gambling if the odds were against the gambler as they are against so many farmers in getting a crop next season from winter wheat sown under such conditions. Lest I be misunderstood, I wish to state that some men who know better and have the means to do better work are following the above methods—the line of least resistance. With some it is a business just now to get a growing crop, which next spring, before the soil dries out, they can show to men acquainted with our climatic conditions, as a very promising crop, which crop helps its main object, namely, selling the land; more often than not at a high figure. If the apparently promising crops fail, which they are likely to do, then the new settler becomes discouraged and "knocks" the country.

It takes some people a long time to learn the lesson that although they may get a crop now and then without doing good work, in the long run poor preparation does not pay.

Dry farming is a successful proposition when properly carried out. Conservation of moisture is the keynote of success. Failure through poor methods is the trump card for the opponents of dry farming to play, and they will use it.

So many people try to get something for nothing, and, unfortunately, farmers are somewhat like gamblers—they are willing to try again and take one more chance, with this difference, though—every succeeding dry season makes more chances against them.

Why not try proper methods, if only on a small scale, to prove to one's own satisfaction that this country can give maximum crops year in and year out if we will only do what all really successful businesses do: Do what we have to do at the right time and to the best of our means and ability. Land today is too valuable to play with, and those farmers who gamble with nature will lose out and will have to make room for those who realize the importance of doing their work as near right as intelligence will allow.

Holmes' Shorthorn Sale

A sale of registered Shorthorns is announced by Mr. J. K. Holmes at Center, Saguache county, Colorado, on Thursday, November 20th. Forty head of bulls and heifers, the pick of the young stuff in this herd, are to be offered at public auction. Mr. Holmes' cattle are of excellent breeding and this sale offers farmers who want purebred stuff a chance to select animals for herd foundation, and ranchmen a good opportunity to pick herd bulls for range use.

Official Green Book

The Stockmen's Official Green Book for 1919 has just been issued by the Denver Record Stockman press. This is Volume 5 of a useful handbook which should be in possession of every farmer and ranchman in Colorado. It contains all state stock laws, conveniently arranged and re-codified down to October, 1919. There is also a directory of the purebred breeders of the state and of all stock associations. Copies may be had by addressing the Denver Record Stockman Publishing Company, Denver, Colorado. The price is 50 cents, postpaid.

Too Many Handles

"Oh, dear!" exclaimed the volunteer farmerette, gazing in despair at the cow, "I wish someone would tell me which handle to pull to get the cream."

Western Potato Show

Potato districts of seven states are to take part in the Western Potato show, which is to be held at Denver the week of January 19 to 24, at the same time as the National Western Stock show. The classification list recently issued by the committee in charge of the show indicates that the exhibition will be open to all potato growers in Colorado, Utah, Idaho, New Mexico, Wyoming, Montana and Nebraska. For the last named state the list refers to the potato districts of western Nebraska, where conditions approximate those of the mountain region.

Successful potato shows have been held in some of the northern potato growing states, notably in Wisconsin, where the industry has been given a tremendous impetus as a result of a competitive showing of market and seed stock. Growers in that state look upon their work in the same way that a breeder of livestock does on his. They are taking an interest in developing and improving their product, from seed to market. Rocky Mountain growers, located in a region which is the natural habitat of the potato, feel that the eastern shows do not give them an opportunity to visualize their local problems through exhibits, consequently the idea of having a strictly western show was conceived, and the event planned for January is to be the first of what will undoubtedly become an annual exhibition. The best experts in America will be secured as judges and there will be men of national prominence in Denver to address the growers. The Colorado State association will hold its annual meeting at the time of the show and growers from surrounding states will be invited to attend the sessions and get the benefit of discussions and lectures.

Entry blanks may be had on application to D. W. Thomas, Secretary Agricultural Bureau, Denver Civic and Commercial association, who is in charge of details. County agents in all potato districts will be informed of plans and they can give information to growers who wish to make exhibits. The classification list shows that the premiums will be worth while, ranging from an interstate championship trophy worth $150, district trophy at $125, sweepstakes for individuals in several classes at $100, down to smaller cash figures and ribbons.

Division A, state exhibits, will be open to the following intermountain states: New Mexico, Wyoming, Nebraska, Montana, Utah, Idaho, and Colorado. They will be judged on quality, quantity and arrangement and will compete for the interstate championship of $150.

Division B, district exhibits, will be open to any potato district of any section of the competing states listed above. They will be judged on quality, quantity and arrangement and will compete for the district championship of $125.

Division C, individual market exhibits, will be open to any potato grower in any one of the competing states. Following are the principal varieties which will be accepted: Downings, Ohio, Pearl or Peoples, Russett Burbanks or Netted Gems, Bliss Triumphs, Irish Cobblers, Brown Beauties, Red McClures or Perfect Peach Blows and Rose Seedlings. Other varieties will be accepted, but will be classified by the judges according to the classification in U. S. Department of Agriculture Bulletin 176, issued by the bureau of plant industry.

Cash prizes are offered for each one of these varieties, first prize being $10.00, second prize $6.00 and third prize $4.00.

Division D, individual seed exhibits, will be open to farmers and to potato growers in any of the competing states listed above and will be accepted on the following principal varieties: Downing, Ohios, Pearl or Peoples, Russet Burbanks or Netted Gems, Bliss Triumphs, Irish Cobblers, Brown Beauties, Red McClures or Perfect Peach Blows, Rose Seedlings.

First, second and third prizes are offered for each one of these varieties, first prize $10.00, second prize $6.00, third prize $4.00.

A special trophy valued at $50 is offered by Mr. Lou D. Sweet for the best individual seed exhibit of Burbank potatoes.

A special trophy valued at $50 is offered by Mr. W. D. Tidwell for the best display of seed potatoes of any of the above standard varieties.

Division G, potato club exhibits, will be open to the Boys' and Girls' Potato clubs of Colorado only. Premiums will be offered for the best marketing exhibit displayed by a member of the Boys' and Girls' clubs and for the best seed exhibit displayed by a member of the Colorado Boys' and Girls' clubs. The premiums shall consist of first-class seed purchased by the committee in charge of the potato show and furnished to the winners.

Division E, dry land exhibits, will be open to potatoes raised in any of the dry land sections of the competing states, $100 trophy will be offered for the best dry land district exhibit. Class premiums in both seed and market dry land potatoes will consist of, first $10; second $6; third $4.

A sweepstake prize of $100 shall be offered for the best marketing exhibit at the show. This is open to any individual exhibit showing any accepted variety from any one of the competing states. A sweepstake prize of $100 shall also be offered for the best seed exhibit, open to any variety and to any grower from any one of the competing states.

Entry blanks will be furnished upon application to the secretary of the Western Potato show, Agricultural bureau, Chamber of Commerce building, Denver, Colo. No entry fee is required on exhibits. Uniform containers will be furnished by the potato show officials for all individual marketing and seed exhibits.

Colorado Farmers' Congress

The Colorado Farmers' congress will meet at Fort Collins December 15 to 19 inclusive. Preparations are being made for a strong session which will include group gatherings of the State Dairymen's association, State Bee Keepers' association, the Rural Life conference, and other bodies of farmers. Director H. T. French of the College Extension department, who is secretary of the congress, announces that there will be speakers of national prominence and a program of practical topics of the day that will interest every farmer.

No session was held last winter on account of the influenza epidemic. The lapse of time since the last session should prove an incentive to all farm organizations to send delegates, as there are many problems pressing for discussion and solution. Further details regarding the program will be given in the issue of December 1.

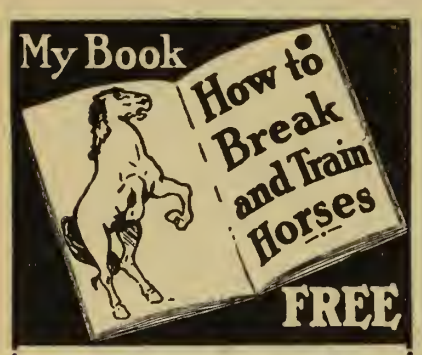
Care of Farm Machinery

The time will soon be at hand when the major portion of the farm machinery will be laid up for the winter, and it is a matter of considerable importance as to whether this expensive equipment will be well cared for, or left out in the weather until next spring.

All machinery should be housed for the winter, and beside this there should be a thorough inspection given each machine before it is put away. All broken parts should be noted and repairs ordered now, so that there will be no delay when the machine is again needed. All bearings and working parts should be well cleaned and then oiled to prevent rusting. All loose bolts should be drawn up tight, and minor repairs made at once.

If it is impossible to house the machinery, precaution should be taken against undue exposure to the elements. Machines should be well covered with a canvas, after being oiled, or a wood frame covered with tarpaper provided to cover the working parts.

A little care at this time will do away with a great deal of trouble in starting out next season.—Missouri College of Agriculture.



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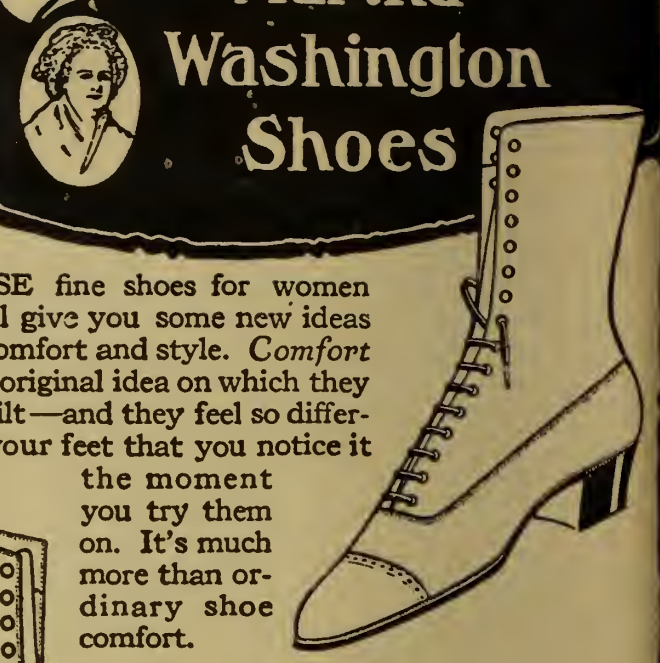
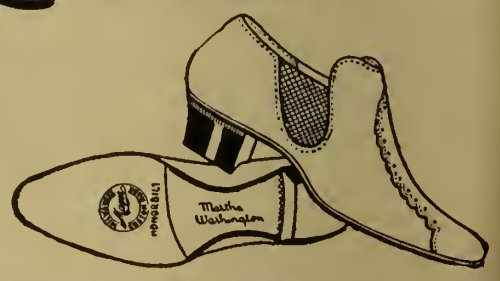


THESE fine shoes for women will give you some new ideas about comfort and style. *Comfort* was the original idea on which they were built—and they feel so different on your feet that you notice it the moment you try them on. It's much more than ordinary shoe comfort.

AND Martha Washington Shoes give you comfort without a sacrifice of style. All the latest styles are included in this line—high and low cut, lace and button. You will notice they have an excellence of detail that gives them the stamp of quality. They wear as well as they look and feel. Martha Washington Shoes are built on honor!

BEWARE of imitations. The genuine have the Martha Washington name and Mayer Trade Mark on the shoe. If your dealer doesn't handle them, write us.



This shoe has been widely imitated. Look for the name and trade-mark on the sole or label in the top.

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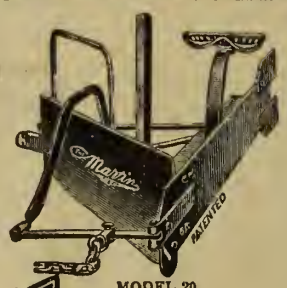

MODEL 20

When carried on in the usual manner—plow, scraper, pick and shovel—ditching is a tough job. Many thousands of the country's best farmers have found an easy, quick and economical way. The purpose of this ad is to get in touch with those who still dread the job.

The "MARTIN" is the easy way

It does the work of many men; it does a better job in far less time. It is a simple, all-steel, reversible and adjustable implement, built to last a lifetime. Works in any soil, wet or dry, hard or soft, on hillside or level. Has many other uses other than ditch-making and cleaning.

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H.R.H. the Rider

ROMANTIC ADVENTURES OF A PRINCE, A MAID, AND A HIGHWAYMAN

By EDGAR RICE BURROUGHS—Author of Tarzan of the Apes and Other Tarzan Tales

(Copyright by Edgar Rice Burroughs)

THE PRECEDING CHAPTERS

Time: About 1912. Place: A little kingdom in the Balkans.

Characters: Prince Mary of Margoth, who doesn't want to marry Prince Boris. Prince Boris of Karlova, who doesn't want to mary Princess Mary. The king of Margoth, Stroebel, his chancellor; the king of Carlova, Kantchi, his chancellor, who have arranged the marriage to heal the hereditary enmity existing between the two kingdoms. Carlotta, Mary's maid. Alexander Polensk, Nicholas Gregovitch, Ivan Kantchi—three guardsmen, friends and companions of Prince Boris. Gwendolyn Bass, who wants to marry Hemmington Main. Hemmington Main, a journalist of New York, who wants to marry Gwen. Ahner J. Bass, New York millionaire, who fully approves of the match. Mrs. Bass, ambitious for a title in the family, who doesn't approve. The Rider, a common or garden stick-up man, with mediaeval trimmings.

Things moved quickly in New York. Mrs. Bass, determined that her daughter should not marry Main, whisked her off for a tour of Europe, with Hemmington, backed by Ahner J., in hot pursuit.

In the little kingdom in the Balkans, however, things were more complicated. Boris, while riding through the forest to meet his three friends at an isolated inn, was held up by the Rider, but managed to overpower and take him prisoner. He marched him before him to the inn and there Boris was seized with his great idea. He had that day received orders to proceed to Demia, the capital of Margoth, there to meet the Princess Mary and formally ask for her hand, but this he was determined not to do. So he determined on the coup that would defeat his father's plans for a diplomatic marriage to the Princess Mary, who was equally determined not to be forced into an alliance with a Karlovian, whom she had never seen but had been described to her an an ungainly boor. The next scene finds Boris and his hoon companions at Peter's wayside inn, drawing tales of adventure from the captured Rider's lips.

The Rider accepts Boris' challenge to become prince for a week and the prince takes the highwayman's place, to avoid the formal betrothal staged for the court of Margoth. The Rider now in prince's togs, meets Princess Mary, who, however, has also resorted to disguise and is made up as an old hag, much to the chagrin of her father, the king, who determines to punish her by confinement. She escapes in the night. In the meantime the Prince, now posing as the Rider, meets Hemmington Main at a hotel in Margoth and agrees to capture Mrs. Bass and Gwendolyn and pretend to hold them for ransom, so that Main may rescue them. The prince sets out in chase of an auto containing two women, thinking they are the millionaire's wife and daughter, but captures instead Princess Mary and her faithful nurse.

CHAPTER VIII

The horseman was directly in front of the car. Stefan was both quick-witted and courageous. One single burst of speed and both horse and man would be ridden down. The gears were in low, the car was just at a standstill. Stefan pressed his foot upon the accelerator and let in the clutch. The car should have jumped forward and crushed the life from the presumptuous bandit: but it did nothing of the sort. Instead, it gave voice to a pitiful, choking sound, and died.

"Get out!" commanded the brigand.

Stefan set the emergency-brake and climbed down into the road. He had played his last trick—there was nothing left to do but obey. Princess Mary was beside hi malmost as soon as he touched the ground.

"Don't let him know who we are," she warned in a low whisper.

Carlotta followed her mistress, and as she took her place beside her she clasped the latter's hand in hers. The robber dismounted and approached them. and for a moment examined his captives intently.

"One is young and beautiful," was his mental comment; "the other middle-age, with grayish hair," and then, aloud: "Mrs. Bass, you and your daughter will kindly re-enter the machine."

Princess Mary gasped, and squeezed Carlotta's hand. He took them for the Americans! Princess Mary could have danced, so elated was she. So long as the bandit was ignorant of her true identity, the chances of trapping him were greatly enhanced, and, too. while the ransom for a rich American's daughter might be large, that which he would demand for a princess of royal blood would be infinitely greater.

She wondered if this could really be the notorious Rider, this quiet-voiced man, who held open the car-door for her and assisted Carlotta and herself back into the car. She had always pictured the Rider as a low and brutal type of man, ignorant, unlettered, boorish; but this bandit had spoken to them in the purest of English. Could it be that the Rider was an American or an Englishman? If so, he would speak the common language of Karlova and Margoth in the low venacular of the underworld, if he spoke it at all. She would try him.

"To whom," she asked in her own tongue, "are we indebted for this little surprise? Can it be that we have been honored by the famous Rider?"

The man laughed.

"You have been honored more than you can know, mademoiselle," he replied. "Yes, I am the Rider; but you need have no fear if you do as I ask—I only kill those who disobey me," the last in a very fierce and terrible voice.

Princess Mary felt a tremor of nervous excitement—a delicious little thrill—run up and down her royal spine. Ah, here was romance! Here was adventure! She wished that she could remove his mask—she would like to see the fearures of this redoubtable brigand, who was the terror of two kingdoms—the scourge of the border. Doubtless. she thought, the revealment would prove most unpoetic—a pock-marked face, brutal features, the lines which crime and vice stamp indelibly upon the countenances of their votaries. On second thought, she preferred that he remained masked, for, even though he had answered her in as good Margothian as her own, she could not believe that so low a fellow could fail to reflect in his persenal appearance his degraded associations and environment.

And now the Rider turned to Stefan. "My man," he said, "we are about to effect an exchange. For the honor of driving your mistress and her daughter I shall relinquish to you my faithful steed. Be careful of him—he possesses a pedigree which fills four large volumes and runs back to the royal stud which the great king presented to the Emperor Diocletian after the victories of Galerius in Persia. When you are through with him return him to the royal stables of the King of Karlova, from which he was stolen. Mount, stefan, and ride back to Demia."

The royal chauffeur hesitated. The Rider raised his revolver until the dark hole of the muzzle was on a line with Stefan's diaphragm.

"Hasten, Stefan," he admonished, and Stefar hastened, knowing delay would not help his royal mistress.

(Turn to Page 15)

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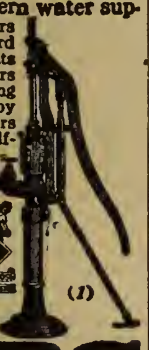

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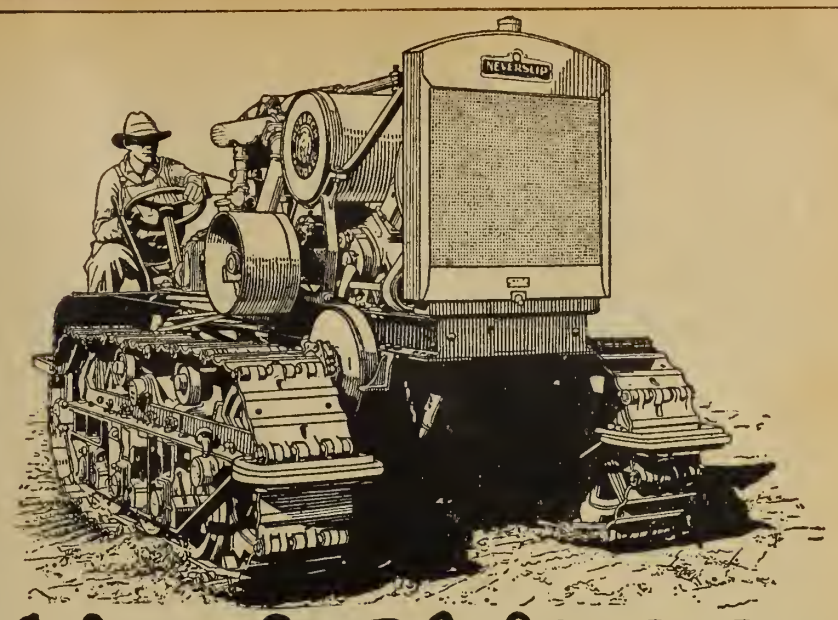

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MONARCH Tractor

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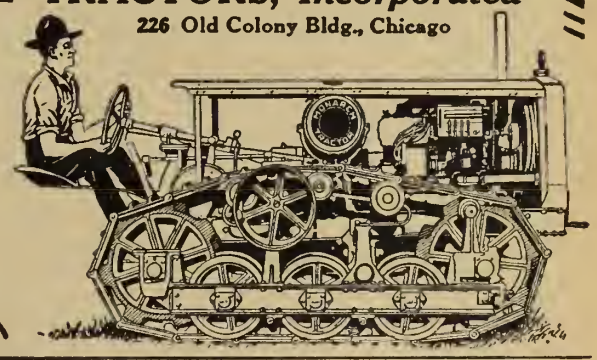

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Western Farm Life

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Our Rural School Problem

Are you a resident and taxpayer of a small school district where a young woman just out of high school is expected to give YOUR children the fundamentals of an education? Are you a party to the arrangement by which this inexperienced young woman is hired at the rate of $65 a month for six or nine months to teach all the grades from the first to the eighth? And if so, do you really believe that this is education? Do you believe, right down at the bottom of your heart, that your children are getting the right sort of a start? Do you not know that they will be handicapped for life by a lack of proper training and instruction in their formative years? How about your own schooling? Have you not felt that conditions in your youth were such as to make your maturer years more difficult by reason of a lack back there in the district school? And you who had greater advantages than your children have, what right have you to expect them to succeed in the battle of life, with its strenuous modern demands unless you give them as good a start as you had?

These questions must occur to thousands of farm fathers and mothers. Fortunately for Colorado, and several other western states, they are being answered by the consolidation of school districts. In Colorado an especially strong program of consolidation is being carried out under the able and aggressive leadership of Prof. C. G. Sargent, head of the Department of Rural Education, Colorado Agricultural college. On another page of this issue will be found an inspiring account of the way in which the farmers of the San Luis valley have discarded the old one-room school in favor of the modern educational plant, superior to schools found in many cities.

It is well that this work has been undertaken by the Agricultural college. Responsibility for rural progress devolves upon that institution; and there can be no real progress that does not begin at the source and fountainhead of the community, child life. One thing is necessary, however, before the Agricultural college can help us with this problem, and that is action by the fathers and mothers of the rural districts. This question is vital to our future national development; we may no longer shirk our duty to the oncoming generation.

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Sweet Clover Plus Manure

A farmer writing about sweet clover as a source of fertility says: "The manure-spreader is good as far as it goes, but it never gets far enough, because we haven't the manure." He makes the point that, lacking barnyard manure, our hope for fertility lies in growing more sweet clover, with its nitrogen-gathering power and its tremendous root growth, as a source of humus. All of which is true—as far as it goes.

It is not the fault of the manure-spreader that it fails to get to the end of the long rows in the field. Lack of livestock on the farm explains that. We might have ever so large a field of sweet clover, growing luxuriantly as a source of pasture, hay and fertility, and yet fail to get the complete benefit of the crop. The plant fertilizes the field on which it grows, but it needs to be fed on the place in order to spread its benefits over all the fields through the manure. Sweet clover has an advantage over alfalfa in that there is no temptation to sell the forage it produces. A ready market for alfalfa too often means a loss of its benefits as fertilizer, except in the rotation.

Every farmer knows that he cannot go on indefinitely taking off crops and putting nothing back, without robbing himself and posterity. Farming is about the only business where men still attempt to do this very thing, the reason being that it can be done for a few years at an apparent profit. The time comes in the life of every farm when the land cries out against robbery, and it is then that we must face the problem, both through the manure-spreader and by means of fertilizing crops, plus the livestock to convert the crops into meat and leave us the by-product to haul out upon the land. The longer that day is put off the harder it will be to bring back the soil, so why wait? Why not tackle this problem before the fertility begins to diminish?

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Value of the County Agent

Farmers have long since realized that the county agent is an indispensable factor in community development from the material as well as the social side of rural life. Not all business men have come closely in touch with the work and here and there we find men, whose judgment regarding their own line may be unerring, questioning the validity of public support of county agent work. An editorial recently appearing in the Trinidad (Colo.) Chronicle-News should be called to the attention of such doubting business men with good effect. In some localities, also, opposition to the work has come from county commissioners on the ground that it favored a particular class. This is a narrow view, for, in the last analysis, we are all dependent upon agriculture. The Chronicle-News says:

One matter in which the farmers of Las Animas county and the citizens generally are deeply interested is that of maintaining and promoting in every way possible the highly efficient work of the county agriculturist. Verily it was a perfect day for this county when the services of a trained, experienced and competent county agent were employed and the agricultural industry has progressed further and gone ahead faster because of the tireless energy and capable work of the county agent than it, without doubt, ever could have done without.

As one of our most prominent and influential business men said yesterday, any one of a multitude of movements in behalf of the farmers and farming that the county agent has carried out has more than repaid the taxpayers of the county for the paltry outlay of money for the upkeep of this department. The benefit that the farmers as a body have received from the work of the county agent stands as indisputable evidence of the need of such service.

It is unnecessary to enumerate here what these achievements have been, but they have been many and varied. The Dairy Cow Development company project is one that has given marked impetus to the dairy industry. The successful warfare on all sorts of crop pests is another. The organization of farm clubs and a county farm bureau is another. The bringing of the farmers together in a co-operative body for their own welfare and mutual advantage fundamentally is an achievement worth while, and the present county agent has devoted himself in and out of season to the task of aiding and encouraging the farmers in every material way.

No recommendation to the county commissioners carries a more enthusiastic endorsement than that of providing adequately for the maintenance of the county agent's work. The county agent has become a necessity and to hamper the work in any way or cripple it or tie it up would be to minimize one of the biggest assets that this community has ever known.

Let Western Farm Life Service Bureau help solve your farming problems. All questions promptly answered by letter.

Some Remarks on Fertility

Editor Western Farm Life:

I have just read "Doubling Your Farm" by Gordon Kent, Pine Cliff, Colo., in October 1 issue of Western Farm Life. Mr. Kent is undoubtedly one of the 6-inch farmers of which there are many, but he differs from a great many 6-inch farmers: he wants his six inches well manured. That is certainly one way to double production but it is a hard and slow way. A farmer with 160 acres of worn out land might in course of time get it so its production would double, but by that time his age would have doubled too. The farmer that would have to reclaim 160 acres of depleted land with manure only, would be in the same boat as was the girl that was studying to be a school teacher. Her chum told her before she would study to be a school teacher, she would marry a widower with children. She replied, "So would I, but where is the widower?" Where is the manure to enrich 160 acres with? The limitations of the manure spreader are too well known. By the time the spreader would get to the further end of 160 acres, the near end would be exhausted again. The manure spreader is all right as far as it gets, but it never gets far enough because we haven't the manure.

Mr. Kent can double the production of 160 acres of depleted land in two years by seeding the land to sweet clover. It will not take over a week to seed down 160 acres and if seeded real early in the spring, the very first season he will be farming more than six inches of his land. The second season he will be farming from two to three feet of his land and will then be farming the mineral deposits below the original six inches and the atmosphere above. Two-thirds of our atmosphere is nitrogen and this when sold as nitrates costs money. He will get several tons of this free, also lime, potash and phosphorous from below. It was there a long time before he got it. He owned it but never made use of it. With sweet clover he is getting all the fertility and being well paid while getting it. Sweet clover if sown early with a nurse crop of barley, oats or wheat, will make him the best fall pasture he ever had to fatten his stock for the winter. The nurse crop he can cut for hay and the second season he will have tons of the very best of hay, or pasture enough for three head of cattle per acre if the season is normal. There is some wrangling done about the white and yellow varieties of sweet clover. I have tried out both varieties to my own satisfaction, so I want to say to those that have silos. Plant the white (Melilotus Alba), but for hay and pasture, plant the mammoth yellow (Melilotus Officinalis). In cutting this variety for hay pay no attention if you are told that some sweet clover has to be cut for hay before it blooms. This applies to the white variety, which is from two to three weeks later in blooming, and on account of its woody coarseness must be cut long before it blooms.

You will also be told that sweet clover when cut for hay, must be cut from 6 to 8 inches high, this again has reference to the white variety. The yellow ought to be cut just as low as is alfalfa, but never cut it until it is in full bloom and shock it as green as the mower can cut it. However, it ought to be dry when cut and dry when shocked. It is the easiest hay to cure there is, and for making milk, cream and fat there is nothing like it. Also for honey from the bloom. You will get as much fertility from the one variety as you will from the other.

A great many people have an idea that in order to get fertility it ought to be plowed under. This is a mistake. This would interfere with bringing up the minerals below and bringing down the nitrogen from above. Sweet clover is a biennial, which can only be kept at work for you about a year and a half; then it dies, and must be let alone until it dies. Most of the fertility you get is from the roots. These roots it is estimated by some of the experts, weigh from twenty to thirty tons per acre. It is from these roots you get the depleted soil filled with nitrogen and humus. It is the roots that leave cavities in the soil to fill up with moisture holding fertility that these roots furnish, for they decay as quick as cabbage. A worn out farm in the near future ought to be a disgrace to any community. Sweet clover furnishes feed and fertility in the quickest and easiest way possible.—J. D. Kaufman, Kalispell, Mont., R. 1.

The Branding Iron

"A Brown Beauty with a pink eye" isn't a Filipino society note, but a Western Potato show varietal description. They raise 'em in the San Luis valley.

✦ ✦ ✦

If the coal strike is settled and the railroad strike doesn't materialize, and the flu doesn't recur, the Colorado Farmers' congress will meet at Fort Collins December 15 to 19 inclusive.

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A potato crop which is 50,000,000 bushels short of 1918 and a bean crop 6,000,000 bushels short leaves little of comfort for the consumer to anticipate during the winter months.

✦ ✦ ✦

The press is anxiously inquiring: "What would happen if the farmers struck?" Don't worry, the farmer is a level headed individual. He has never been known to cut off his nose to spite his face.

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The Western Potato show will be one of the attractions in Denver during the week of the National Western Stock show, January 19 to 24, 1920. Like the stock show, it will be educational in character, calculated to build up the twenty-five million dollar potato inlustry of the Rocky mountain states.

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Kansas recently organized a State Farm bureau, as an outgrowth of the county farm bureaus. The functions of the state organization, so an official announcement states, "will be largely investigational and educational." This is the basis of the Colorado Farm bureau, organized last spring, and it seems to be the line that most other states are following.

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It is remarkable how the old world is getting right down to brass tacks. The great war seems to have had the effect of arousing antipathy against sham in any and every line. The latest manifestation of a desire for truth comes in the determination of the producers and dealers in wool for national legislation that will forbid the sale of shoddy as wool. Success to them. It will be the salvation of the sheep industry when wool is sold as wool and shoddy for what it is, namely re-worked wool. Then the man who buys a suit of clothes, or the woman who buys goods for a garment, will get what they pay for and the wool producer will find his calling a surer one.

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A subscriber writes asking that his subscription be discontinued because "our crops are poor and we don't feel able to take it." Now one might argue that the farm journal is an absolute necessity and that even crop failure is not a good reason for discontinuance. This letter, however, came from a tenant, undoubtedly working under a one year lease. For such a farmer one crop failure is a calamity. The solution of the problem is up to the land owner. If he fails to solve it drastic legislation will be necessary to enforce a farm leasing plan that takes three factors into consideration—the owner, the tenant, and the nation. Short term leases are the most destructive factor in modern agriculture.

Rosen Rye

Up to date there has been 1,000 pounds of the Rosen rye brought into this county and disposed of. This is the finest seed that was ever brought into this section of the state, which will no doubt make a wonderful increase in yield in the next two or three years. In many cases this rye yields twice as much as the ordinary strain.—Laramie County (Wyo.) Farm Bureau News.

Comment by Farmer Putnam

OUR MISSOURI FRIEND HAS A QUEER DREAM ABOUT A STRIKE CALLED BY THE FARMERS

WELL I had a funny thing happen to me the other night. I was a settin' at the table after Josephine had cleared away the dishes, and tryin' to read by the coaloil lamp. You know we hain't been able to put in no electric light plant yet, but I'm expectin' as soon as I sell a invention I made up to git money enough from the patent rights to retire and go to town. But I ain't a-goin' to tell you-all about that invention. It's a secret and nobody knows it exceptin' Josephine, and she don't believe thar's anything to it. Well that ain't what I started to tell. I was a-settin' by the table tryin' to read about the coal strike andsoforth, and I got all riled up over it. I got to thinkin' that maybe us farmers better go on strike too; everybody else is gittin' their wagis raised but us and I reckon we got as good a right to quit work as anybody else. The constitution of these here United States guarantees every man the right to work or not and I been tryin' to take advantage of my constitutional right not to work fur some years, but I never could git no results alone. It's organization we need; us farmers has got to stick together and do like them labor unions —stop work when the union heads tells us to, whether we got any pussonal grievances or not.

I tried to git up a argymint with Josephine over it, but she snapped me off with: "Oh, shet up Tom; you never done a honest day's work since I married you. Nobody'll miss you when you strike; go ahead and lay down your tools and let somebody farm as knows how."

Not bein' able to git up a conversation with her I turned back to read my paper and by and by I reckon I dozed off to sleep. Anyhow I was in a meetin' of the Farm Burro. The president was rappin' fur order and he sez:

"Fellow farmers the time has come when we has got to stand up fur our rights. Them city people has been a-liven' offen us farmers long enough. It's time we was showin' our sperit and refusin' to be the goat. This here meetin' has been called to take a strike vote. What is the pleasure of the meetin'?"

Isaia Holdemback was the first man on the floor and he sez: "Let's adopt resolutions, strong resolutions."

Chairman: "Isaia, you're out of order."

Isaia: "I know I am, Mr. Chairman, I been turribly out of order ever sence the prohibition law was passed."

Chairman: "Set down, let somebody talk that knows somethin'. Farmer Putnam, what have you to say on the subject? We want somebody to talk that's got some sense."

After handin' me that bokay I couldn't refuse that thar gatherin' the benefit of my advice and I sez: "Gentlemen I move we appoint a committee to draw up a set of principles settin' forth what us farmers thinks and then we foller that up with a strike vote and all stick to it if it's favorable. I feel the need of a little rest anyhow, from my strenuous labors on the farm and in the farm magazine. My hands gits so I cain't hardly hold the pencil any more to write, and milkin' and plowin' and doin' other manly labor is a gittin' too much fur me."

So the chairman appointed a committee to make up them resolutions which we adopted as follers:

Whereas, the farmer has been downtrod by both capital and labor and had to keep right on feedin' both sides to the quarrel without gittin' a just return fur his time and labor and,

Whereas, we're darn tired of workin' while the rest of the world is enjoyin' coal strikes and other luxuries inflicted on us by the fight between capital and labor, therefore be it

Resolved, that in protest ag'in them intolerable conditions us farmers here in convention assembled also declare a strike to begin at milkin' time on the mornin' of November 1st, and be it further

Resolved, that we refuse to do another lick of work or produce another pound of food until them town folks gits together and settles their troubles.

When the chairman put them resolutions to a vote we all voted fur the strike and adjourned, each of us goin' home to put the strike in motion.

On the mornin' when the strike was to go into effect I went out to the cow barn and addressin' the critters which was waitin' fur me to milk 'em, I sez: "Ladies, I have a solemn duty to perform. This here is notis that the farmers of this here community has called a strike and hereafter you might as well just dry up your udders, because they ain't nobody goin' to milk you till the strike is settled and goodness knows when that'll be. It don't pay to milk you nohow. Feed's too high and the hours of the dairy farmer is too long and the weather's gittin' cold, so I'm goin' off to town and join a labor union and go huntin' or fishin'.

Then I went over to the hoss barn and takin' old Nigger's head in my hands and givin' him a lump of sugar I sez: "Nig you black Arab rascal, eat that lump. It's the last sugar you're goin' to git. I'm goin' to turn you outen your stall and you kin loaf in the paster all you want to. You needn't come back to the stall fur any oats, because thar ain't a-goin' to be none here fur you. The farmers has decided to strike and that means we don't work till our grievances is settled."

Next I went to the corral where I keep my bull and I sez: "Segis, Old Boy, you cost me a thousand dollars and you've brought me three thousand dollars worth of good calves in the last three years. It's a shame to turn you out, but I cain't help it, the farmers has decided to strike and that means no work, so you better git right out an' shift fur yourself. Thar won't be nobody to give you grain or silage. Thar's a lot of alfalfa in the rack and you kin eat on that with the cows till it's gone and then git what paster thar is the rest of the season. The water'll keep runnin' as long as the windmill goes round and you won't starve. Have a good time, the place is yours and nobody to bother you."

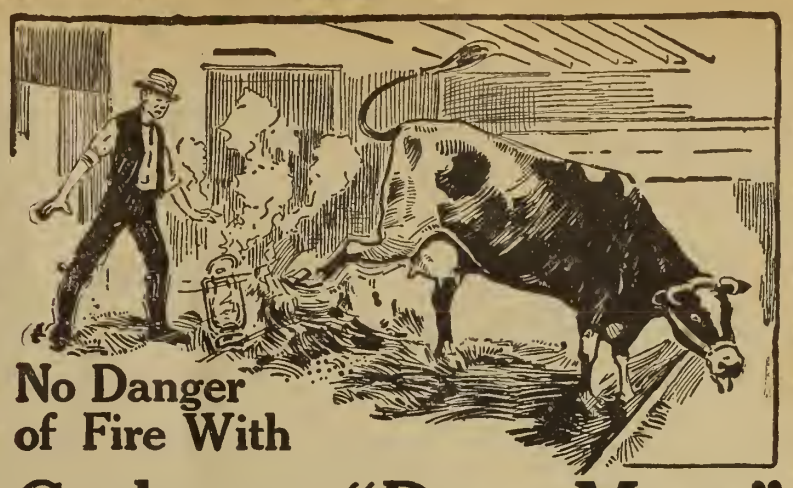
Then I went to the granary where I had my seed stored fur plantin' and a poured coal oil over it and set a match to the buildin'. In a few minutes thar was a big bonfire and the neighbors come runnin' over to put it out, but I sez:

"Folks, don't bother about puttin' out the fire. I'm on strike. I'm goin' to show them city folks that they cain't live withous us farmers. This here ranch is goin' out of the production business from top to bottom and I'll hold out till the cow's come home."

Next I went over to a plowed field that the boys was gittin' ready to drill wheat in, and I had 'em change the wheat seed to salt, and told 'em to drill the salt in in close rows, so's the ground wouldn't produce even a Russian thistle.

Then I had the boys rig up the silage blower and force a lot of potato spray into the top so's to pizen all the silage. Then I throwed a lot of spoiled meat to the hens and I knowed they wouldn't produce no more eggs after eatin' the stuff which would kill 'em off in a few hours. I turned the hogs loose to spoil the rest of the garden that was left over from summer, blew

(Turn to Page 22)



No Danger of Fire With

Cushman "Does More"

Electric Light Plant

The great Chicago fire was not the only one caused by a cow or a horse breaking a lantern. Many a farmer's barn has gone up in flame for the same reason, with serious loss of grain and live stock.

No danger like that to dread constantly when you have Cushman Electric Light. A turn of a switch and you have clear, bright, safe light in any part of the stable, hay mow, stalls, grain bins, etc.

Makes the Farm Work Easier and the Home More Cheerful

Plenty of good light means better work and better spirits on the part of everyone. What is the use of spending most of the winter in semi-darkness, when the world is full of electricity? All you need do is to install a Cushman Plant to generate it

The Cushman always makes a hit, because it does more for you than any other outfit.

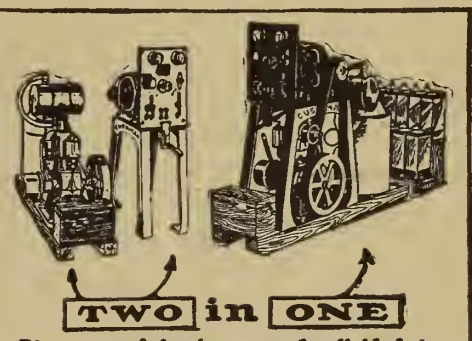
It does more because it gives you Light, Lamp-Socket Power and Portable Engine Power in one plant.

It does more because there is less vibration with a belted outfit like the Cushman, and consequently fewer adjustments, fewer repairs and less service.

It does more because the same engine—the 4 H. P. Cushman All-Purpose Engine—may be used for work all over the farm, or be attached to binder, potato digger, corn binder or other machines.

It does more because other machinery may be run from clutch pulley of engine at the same time the batteries are being charged by belt over flywheel.

If you have a Cushman 4 H. P. engine, you already have the power for a Cushman Electric Plant.



Picture on left shows outfit divided into power plant and light plant.

Picture on right shows complete unit plant for electric light service.

Cushman Electric Plants are built in various sizes to meet various needs. They reach you fully charged and ready to run. Send for free Electric Lighting Book.

Cushman Double Cylinder Motors are the highest grade and most useful engines built for farm work. They do not wear unevenly and lose compression. Equipped with Throttling Governor, Carburetor, Friction Clutch Pulley and Water Circulating Pump. 8 H. P. weighs only 320 lbs.; 15 H. P. only 780 lbs.; 20 H. P. only 1200 lbs. Write for free Light Weight Engine Book. 303

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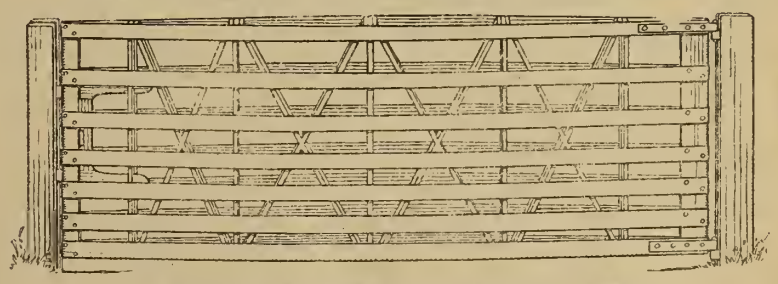

A CHILD CAN OPEN IT, BUT A BULL CAN'T

The Master Farm Gate has a patented panel construction which makes sagging and bending impossible. It is made of white spruce aeroplane wood with seven ¾ x 3½-inch panels to a side. These panels are bow shaped, with crossed and upright bars between, giving the gate exceptional strength and resiliency.

It is hung on specially patented hinges and swings both ways.

A specially prepared black paint is applied by dipping. This process fills every crack and crevice, giving a lasting coat which sun or rain can't penetrate.

The gate is made in 12, 14 and 16-feet lengths, and shipped complete with hinges, hangers and a patented double latch.

GOOD, LIVE AGENTS

Wanted Everywhere. **Write for Particulars**

The Master Farm Gate Co.

714 Equitable Building **Denver, Colorado**

A Splendid Livestock Exhibition

STRONG COMPETITION AT DOUGLAS COUNTY FAIR

Douglas county has been an important factor in meat and milk production ever since the pioneer days of Colorado. Therefore, a visitor to the county fair at Castle Rock expects to see a good exhibition of dairy and beef cattle. This fall's fair, however, had in addition to strong classes in that line, also a fine showing of hogs and several pens of sheep, besides the usual array of general crop and household arts exhibits. In the dairy division there was the usual rivalry between the Holstein and the Milking Shorthorn men, with some remarkably good specimens of both breeds.

Two of the Milking Shorthorn Winners in Bonvue Farms herd

Notable in this line was the $5,000 Holstein bull calf brought into the county some months ago by N. R. D'Arcy of Parker, who is building up one of the finest herds of the black and white in the state. This calf, Sir Ollie Homestead Pontiac Segis (254738), was bought from Arden farms, St. Paul, Minnesota. From the standpoint of breeding it would be hard to pick a youngster as a future herd header that makes a better showing, and those who saw Sir Ollie at Castle Rock congratulated Mr. D'Arcy on his sound judgment in investing in a bull of this class. J. T. Tingle of the Agricultural college, who judged the livestock, declared that the people of Douglas county had a right to be proud of possessing Holstein blood of such quality. Sir Ollie pulled down his first grand championship. He is making an early start as a show bull and his owner has every reason to expect him to be equally as good as a breeder, when he reaches the proper age. He is ten months old.

R. P. Lamont, Jr., of the Perry Park ranch, Larkspur, brought in some of his fine cattle. He handles principally Herefords, but also has a small herd of registered Holsteins, having picked up some good ones at sales during the last year. On his Holstein cows he won first and sweepstakes, first on heifer one year and under two, besides the championship on Hereford bull.

In the Milking Shorthorn class there was a good showing from local herds and one outside exhibtor, the Bonvue farms of Golden, with a string of ten of their prize animals. These high producing dual purpose cows attracted much attention, the exhibit including such individuals as Oxford Annie, a 1,500 lb. cow with a record of 8,313.9 pounds of milk and 332 lbs. of butterfat; Honora of Edgewood with 8,461.4 pounds of milk and 349.81 pounds of butterfat to her credit. In all, three cows, three heifers and four young bulls were shown by Bonvue farms.

It was in the Douglas county cow testing association that a Milking Shorthorn made the best record over all breeds for cost of production, and the farmers are naturally interested in the type that is advertised as dual purpose. Many of the Douglas county farmers combine beef and milk production, using a milking strain bull as herd header. Others go at it from the dairy standpoint, selecting Shorthorn cows of dairy conformation and using registered bulls of Bates blood in the effort to fix the type, without sacrificing the market value of the bull calves for veal. J. P. McInroy of Larkspur has an outstanding herd of Milking Shorthorns, selected for dairy type, and his exhibit included the grade cow that stood at the head of the testing association for low cost of production.

The sheep division included a pen of four April ewe lambs and one registered buck of the Hampshire breed, shown by J. C. Higgins, who has a flock of forty high-grades on his farm, running them in fenced creek bottom pastures. Mr. Higgins says sheep ought to be a part of every well balanced farm. H. B. Metzler had a fine exhibit of registered Shropshires, and Evelyn Blunt showed Hampshire grades.

The hog show was better than anything ever seen at a Douglas county fair, including Poland Chinas, Durocs, Berkshires and Hampshires, every breed having some outstanding individuals. Here the Boys' Pig club members showed against adult breeders, dividing the honors. The same was true in the Shorthorn calf classes, where the club members made a fine showing, winning a number of blue

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Keep in mind when buying a tractor that upon the ignition system depends the performance of the motor, and no engine, however perfect, can deliver its maximum power UNLESS the spark from the magneto is hot enough to produce INSTANT and COMPLETE combustion of the carbureted gas within the cylinder.

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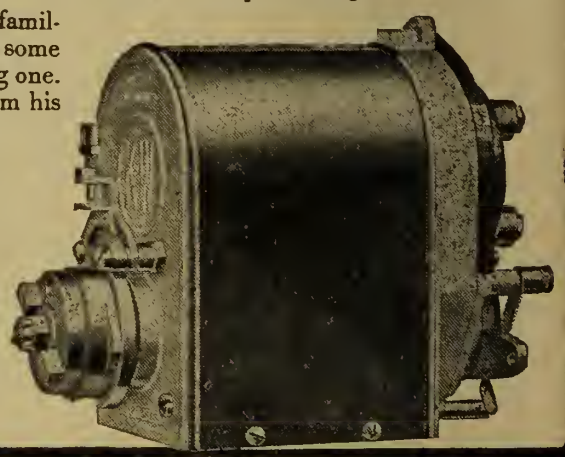

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ribbons in competition with their elders.

In the agricultural exhibits the noticeable thing was the great variety of feed crops, especially the corn grown principally for silage. The altitude of the Douglas county farming district varies from 6,000 to 7,000 feet, necessitating short season corns, such as Parsons White Australian, Swadley, Colorado Yellow Dent, and other standard varieties grown for many years in the county and developed to a point of drouth and frost resistance that is little short of marvelous.

Sudan grass and cane made a strong showing in the line of cultivated hay crops, and there was alfalfa from the sub-irrigated bottoms, and the usual array of small grains, including wheat, oats and barley.

The potato exhibits were largely from the Cherry district, which is noted for quality of dry farmed spuds for both seed and market purposes.

The exhibit of manual training and shop work made by the pupils of Prof. McMurdo of the Douglas county high school, attracted a great deal of favorable comment, because of the evident proficiency of the pupils in handling tools and learning to do the practical things. This is one of the schools benefiting by the Smith-Hughes appropriation in co-operation with the federal government. Douglas county's high school was the first county high school in the state. It was built under authority of a legislative enactment for which ex-Governor Ammons, at that time a state senator, was largely responsible. Agriculture has been one of the branches for a number of years and the school has always maintained the ideal of its founders, which was to serve both the urban and rural population of the county.

In every department of the fair the hand of an efficient county agent was apparent. Mr. L. J. Wormington, who acts in that capacity for Douglas county, has the uited backing of the Farm bureau and of the Fair association, which is largely composed of farmers. Stormy weather on the opening day and again on the third day interfered somewhat with teh attendance, but the second day found more than 2,000 on the grounds, enjoying the exhibits and a fine program of sports and races. There is space only for publication of the livestock awards, which were as follows:

Beef Cattle

Hereford bull two years old, R. P. Lamont first. Hereford cow three years old, Henry Lowell first. Shorthorn bull three years old, J. P. McInroy first. Shorthorn bull two years old, Andrew Nickson first. Shorthorn bull under one year old, Clinton Whittier first. Shorthorn cow three years old, Andrew Nickson first. Shorthorn heifer one year old, Andrew Nickson first and second. Shorthorn heifer under one year old, Clinton Whittier first; Andrew Nickson second. Sweepstakes, bull, any age, Andrew Nickson. Cow, any age, Andrew Nickson.

Holstein Friesian

Holstein-Friesian bull under one year old, N. R. D'Arcy first and second; R. P. Lamont third. Holstein-Friesian cow three years old, R. P. Lamont, first. Holstein-Friesian cow two years old, R. P. Lamont first. Holstein-Friesian heifer one year old, R. P. Lamont first; Harold Cherne second. Sweepstakes, cow any age, R. P. Lamont; bull any age, N. R. D'Arcy.

Milking Shorthorns

Bull two years old and over, J. P. McInroy first. Bull one year old, Bonvue Farms Co. first and second. Cow four years old, Bonvue Farms Co. first and second. Cow two years old, Bonvue Farm Co. first. Heifer one year old, Bonvue Farms Co. first. Heifer under one year old, Clinton Whittier first. Sweepstakes, bull any age, Bonvue Farms Co. first.

Feeder Steers

M. L. Cozad first; Joe Hagg second. Best twenty heifers, breeding, Rich Dillon. Best twenty Shorthorn heifers, Joe Hagg first; E. G. Seidensticker second. Grand champion breeder heifers, Rich Dillon.

Swine Awards

Poland China—Boar over one year, Herb Stewart first. Sow over one year, Herb Stewart first and second. Sweepstakes: Sow, Lester Winsky; boar, Herb Stewart; sow over six and under twelve months, Lester Winsky first; Ray DeWitt second.

Berkshires—Boar, L. Cox first; Lemons second. Sow six months, L. Cox first. Boar, any age, L. Cox. Sow any age, L. Cox.

Hampshires—Sow over six months; Ivan Cozad. Sow under six months, M. L. Cozad. Sow any age, Ivan Cozad.

Duroc Jersey—Sow over six months and under twelve, Joe Gerber first; Ray DeWitt second. Sow any age, Joe Gerber. Grand sweepstakes: Boar any age, any breed, Herb Stewart; sow any age, any breed, Lester Winsky.

Horses

Registered Percheron stallion, R. P. Lamont first. Belgian mare, Charles Briscoe first; Simon Ehmann second. Belgian suckling colt, L. Cox first. Draft team, R. P. Lamont first; Simon Ehmann second. Sweepstakes in stallion and mare classes, R. P. Lamont.

Sheep

Shropshire ram any age, H. B. Metzler first. Hampshire ram, J. C. Higgins first. Hampshire ewe, Evelyn Blunt first. Best pen of four, J. C. Higgins first. Best flock, J. C. Higgins first. Sweepstakes: Ram any age, H. B. Metzler first; ewe any age, Evelyn Blunt.

The Club Awards

Best Poland Chila gilt, Lester Winsky first; Clarence Hutchinson second; Margaret Flierl third; Kenneth McLain fourth; Curtis Carmean fifth.

Best Duroc Jersey gilt, Joe Gerber first; Ray DeWitt second; Willie Bally third; Tom Swank fourth; Paul Mausolf fifth.

Sweepstakes club gilt, Lester Winsky.

First Year Sewing—First, Eva Shiveley; second, Crystal Ellis; third, Grace Conrad; fourth, Mary Ellis; fifth, Margaret Stewart.

Best Apron—First, Irma Barrett; second, Nino Ellis; third, Anna Barrett; fourth, Pearl Best; fifth, Nellie Keehn.

First Year Cooking—First, Cornelia Wilkins; second, Ermel McLain; third, Nina Ellis; fourth, Alice Anderson; fifth, Nancy Lewis.

Calf Club Work—First, Fred Noe; second, Frankie Noe.

Club Potatoes—First, Eugene Cervi.

Utilizing Forest Trees

In Long Meadow, Park county, Colorado, located at an elevation of 8,200 feet, Mr. J. M. Jacot several years ago dug up 100 wild blue spruces ranging between 5 and 10 feet in height and planted them to form a shelterbelt and as an ornamentation behind his ranch house. Seventy-two of the trees have survived and all except two or three look perfectly vigorous. He planted the trees as early in the spring as the frost would permit. His success shows what is possible with even wild seedlings and saplings, which do not submit to transplanting as readily as nursery-grown stock.

The shelterbelt, lying north of the home and barns, will not only add to the comfort of the family and the livestock, but will increase the attractiveness of the ranch, a factor which adds value also to the place in case the owner should sometime desire to sell. Shelterbelt comfort and added value with slight expenditure of time or money are matters too often overlooked.—W. J. Morrill, Colorado State Forester.

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Camels are unusual; in fact they're unlike any other cigarette you ever smoked. That's because they're an expert blend of choice Turkish and choice Domestic tobaccos, producing a quality that meets your taste as no other cigarette ever did.

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WE are talking to you, Mrs. Farmer. And we want to help you. You have the meals to get for the men folks on wash day the same as every other day—and there are the children to be looked after as usual, as well as your regular housework and chores. Even without these added tasks, the family wash is usually enough to break any woman's back and to wear her out generally. Working in the fields and around farm machinery makes dirty clothes—as you well know.

An **International Kerosene Engine**—1½-h. p. size—will take the hard work and backache out of the family wash for you as well as removing all of the dirt just as efficiently as you could do it yourself. You need a power washer and one of these little engines just as much as your husband needs a mower or grain binder. He doesn't cut the hay and grain with a sickle or scythe—modern machinery has taken the hard work and backache out of these tasks for him. So you are certainly entitled to an engine and power washer to do as much for you.

And between times the engine will churn the butter, turn the cream separator, shell corn for the chickens, turn the grindstone, pump water, saw wood and handle other chores, saving work for the whole family. Write for a descriptive catalogue so that you can show your husband just the engine you want. There are three sizes—1½, 3, and 6-h. p.

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Dairying and Hog Raising

H. A. LINDGREN

All letters regarding commercial and technical features of dairy farming and hog production promptly answered. Address all communications to Dairy Department, WESTERN FARM LIFE, Denver, Colorado.

Get Rid of Hog Lice

Probably no other feature, in connection with raising of hogs, is neglected more than the hog lice problem. The farmer is busy much of the time and fails to give this matter his attention. Hogs badly infected with lice do not thrive, and it often requires as much as one-half more grain to produce the same gains, than if the hogs are kept clean.

Hog lice are easily detected by the eggs which are really seen on the hair of the flank and back of the ears. The eggs hatch in 12 to 14 days' time. This fact should be borne in mind in treating hogs for lice. The sprays or oils applied do not affect the eggs, but kill the live lice. It is, therefore, important that a follow-up treatment be given in 12 to 14 days' time. After this, watch developments closely for any reappearance of the pest.

There are several remedies that are effective in ridding hogs of lice, one of the very efficient ones being the common crude oil. This is especially effective, in that it stays in the hair and on the skin for a considerable length of time. It may be applied with a brush or used in a dipping vat. When used in the latter manner, the vat should be filled with water to the desired depth, then pour on the surface about a 2-inch depth of crude oil. The oil floats on top of the water and as the hog passes through the vat is completely covered with oil.

There are various appliances, such as hog oilers, which help greatly in keeping down the lice. Some of these are manufactured and can be purchased on the market. There are others that the farmer can make himself. Wrap a post with old sacks and keep them saturated with oil. This is a very simple appliance, but works quite satisfactorily, as the hogs will rub against it many times during the day. Mr. L. W. Sweitzer of Delta, Colo., placed a can of crude oil in the crotch of an apple tree. He placed one end of a hemp rope in the oil and wrapped the rope around the tree. The oil soon saturated the rope, and kept it in that condition as long as the oil lasted. This was a very satisfactory rubbing post. Some keep the floor of the hog pens sprinkled with some remedy for hog lice. This assists in destroying the breeding place for lice.

This matter needs close watching in order to keep out the trouble and increase the profits in pork production. —H. A. L.

Community Meat Curing

A few years ago considerable was said concerning small meat packing plants over the country. A number of these were started and the greater number of them failed because they could not stand the strong competition they had to meet from the big interests. They were often unable to get the support from the farmers themselves in these enterprises. Whenever a plant started, they had to meet the strong cut in meat prices made by the big interests in the particular localities. This did much to discourage the idea among the farmers. There is no doubt but that the rural communities are in need of some such plants, not so much with the idea of taking care of outside trade, but rather to take care of the demand for meat in the immediate vicinity.

There are many farmers who cure their own meat and which has a high quality. There are others, however, who are not nearly so successful in putting out a high class article and as a result, they sell their hogs and buy the high priced meats. For these people, it would be far better to take their hogs to a man who can cure pork satisfactorily, and allow him so much for the work. This is being done in various sections. A man, who has had experience in curing meat, does the work for so much per hog, the amount depending on the work done. The meat is cured and returned to the farmer. This plan could be enlarged upon and made to be of practical value to an entire community. It would not require a great deal of equipment for a man to handle this work. He should have a working room, vats, barrels, small stove or furnace and possibly a meat grinder and a smoke room. After he had demonstrated his ability to cure meat satisfactorily, the people would be willing to let him have their meat to cure. It may be worked even farther than this. People living in the towns would find it much more economical to buy the dressed hogs and have them handled in this way.

This plan is workable and will tend to assist in solving the high cost of living and also create a market for a part of the hogs at home. Think this over. Any one who has the ability to cure meat will find it a profitable undertaking, and little capital is required.—H. A. L.

Utilization of Waste Products

On very farm, no matter what the system of farming may be, there are waste products that may be in some form or other utilized as human food. Where potatoes are a main crop, there are culls that are often allowed to rot in the field, after marketable potatoes have been picked up. Few farmers seem to realize the real value of cull potatoes for producing pork. Repeated experiments have shown that potatoes reduce the cost of producing pork very materially. It requires 600 lbs. of raw potatoes and 400 lbs. when cooked to replace 100 pounds of grain.

Cull apples have a very fair value for hog feeding in reducing the amount of grain required to produce gains. They are always fed raw. Such other waste as cull vegetables and roots are a great help in producing economical gains. When grains are grown there is bound to be more or less shattered out during the harvesting process. This should be taken care of by the hogs. They will gather it up and convert it into cheap gains. Of course, fencing is necessary in order to take care of this, but it is usually worth the expense when the production of pork is taken into consideration.—H. A. L.

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"I wouldn't trade my job and my work for any other line of work in the world, and I want to thank you for making it possible for me to advance so rapidly."

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Louis Burleigh, Gordon, Neb., wrote:

"I have been running a tractor most of the time since I finished the course at your school; also have done some outside repairing.

"It has helped me very much in making money. I paid for my time and expenses in one week after I returned home and started work.

"I could get all the repairing I wanted if I had the time, but we have two cars, gas engine and tractor, so you see it keeps a person busy to keep them in shape and drive a tractor.

"I like this mechanical work fine, and would recommend the Lincoln Auto & Tractor School to anybody who is interested. It is sure the school for good training."

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This is the school where you get individual personal instruction by experts—where in a few short weeks you can really understand mechanics and be able to operate and care for any make of Tractor, Truck, Auto or other engine-driven machinery.

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Business is politics. The right kind of business man pays his taxes, supports civic enterprise, stands for law and order, refuses to pay toll to grafters, and altogether represents the backbone of justice. — Dr. Frank Crane.

The quiet-looking boy at the foot of the class had not had a question. The teacher looked at him severely, and asked:

"In what condition was the patriarch Job at the end of his life?"

"Dead," was the reply.

Grand Champion Holstein Bull Utah State Fair

Downing's Pontiac Butterman, one of the herd sires used by the Garmesa Farms, Fruita, Colorado. This animal has an excellent record as a show bull. He has won a large number of grand championships in Colorado and other western states, as well as in the east. He was first and grand champion aged bull at Hotchkiss, Montrose, Grand Junction and at the Utah State fair this year. His dam has a record of 720 pounds of butter in a yearly test and he has six A. R. O. daughters.

American Guaranty Co.'s Sale

The American Guaranty company of Hooper, Colo., conducted their first annual hog sale at their farm near Hooper on Tuesday, Oct. 21. The farm is owned by the American Guaranty company people of Columbus, Ohio. It is their aim to make of it a hog ranch and to raise hogs of good quality for the needs of the valley. County Agriculturist Sauder of Saguache county, assisted these people in the selection of 115 sows. They are mating these with several excellent boars of good breeding.

They offered some 250 head of unregistered stuff in pens of 8 to 23 head. These sold to the valley buyers, one man buying more than half of those offered. There were about 75 head of registered pigs besides. The feeder hogs, or the unregistered ones, brought 18 and 20 cents per pound, while the registered pigs averaged around $10 per head.

The offering was all spring pigs. The main criticism regarding the offering was that they were undersized for their age. This was due to the lack of grain for feeding. Had the pigs been fed from 1 to 3 per cent of grain with the pasture they had access to, it would have been to the seller's advantage. The blood lines on the farm are of the best and should be given the feed to make them develop. This is often a difficult matter in certain sections. However, even a small amount each day is a great advantage.

The registered pigs were in small pens, one litter to a pen. The gilts were sold separately. In this connection, it is of advantage to a breeder in conducting a purebred hog sale, to segregate the outstanding individuals in a litter and sell them separately. Buyers often want a boar or gilt for breeding purposes and will gladly pay more money for a good individual. The bulk will usually sell just as well with these out and more will be realized for the better ones. The company has a most excellent opportunity to produce good breeding stock and with a solution of their grain producing problem will be able to take advantage of it.—H. A. L.

Norris' Holstein Sale

There was a fair sized crowd of dairy farmers at the A. S. Carter ranch near Henderson, Colo., October 27, to attend the sale of registered Holsteins owned by W. A. Norris of Fort Morgan, and prices averaged well on the mature stuff. Farmers paid from $250 to $600 for producing cows of good breeding and the bidding was lively at that. The average on cows was $405 and on the entire lot of registered cattle, calves included, $356. Among the buyers were K. Kato, a Japanese dairyman of Brighton. W. C. Sauer & Son of Lort Lupton, A. F. Borgman of Longmont, G. H. Keifer of Arvada, all of whom picked pedigreed animals of splendid breeding.

Preceding the sale of registered cattle a large number of grades were disposed of, prices ranging from $120 to $150 on the cows and $75 to $100 on the young stuff.

Carl Hall acted as manager of the sale and the auctioneer was Col. G. M. Banks.

Junior Champion Farmers

Calvin Pease of Weiser, Idaho, won more prizes in judging than any other one club member who contested in the judging contests at the state fair. He took first in pig judging, first in judging beef cattle, first in judging potatoes, third in judging dairy cattle, third in corn judging and fifth in sheep judging. Gay Robertson of Nezperce, the only girl who entered the stock judging contests, took second on dairy cattle.

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SAVES EVERY CALF with but one vaccination.

Do not be misled by cheap imitations claimed to be "just as good" or "the same thing."

Reliable products are always subject to imitation, therefore be sure you find this trademark on every bottle you use. IT IS YOUR PROTECTION.

Price, 40c per dose; for 10c additional per dose we issue a written guarantee against loss from Blackleg. Comes ready to use in 5, 10, 20, 45 and 90 dose bottles. Our special-made syringe, $2.50. Free booklet on request. Order from our nearest office.

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Mrs. Reynard Used to Milk Until 11 O'Clock at Night

"WE lost the price of our Perfection several times over last Spring due to field work that was delayed and crops we had to plant again," says Mrs. C. T. Reynard. "It took so much time to milk by hand that we couldn't take care of the fields properly and we were too tired anyway."

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The wolf is very cunning. Both timber and prairie—the latter is known as "coyote," have a keen sense of smell and can detect man-scent unless great efforts are made to destroy it. Cold, stormy nights are best for results. Most catches are made during blizzards. While professionals are willing to wait, with all their skill, nights for success, the beginner rarely exhibits that patience which is so necessary for pelts. He must examine the sets every day to see that they are just right—and then wonders after they have passed inspection, why no furs are captured. The methods of the real "wolfer" are different. He arranges his traps to the best possible advantage; leaves nothing to chance and then does not approach the spots closer than necessary to see that no wolves are caught. The novice must bear these facts in mind, along with others, if he wishes to get the pelts.

First of all, traps must be clean. Smoke over some green material or boil in lye and water. Do not handle afterward with the naked hands. Use gloves, the palms of which have been coated with beeswax and then smeared with trail scent. For snow sets, whiten with lime and water.

Notwithstanding the obstacle in catching the wolf, most beginners can get the fur bearers provided he uses the proper care. For the timber variety there is one set which rarely fails. It is made as follows: Scoop out a shallow excavation for the trap and fastening. The latter ought to be a heavy stone or stump; never iron or other metal. Bury both, having the trap on top the object to which the chain is fixed. Under the pan put a wad of cotton, wool or grass. Next use fine earth and cover the set thoroughly. Then put a layer of dry sticks or weeds and, last of all, some leaves or grass. Light this, making a small fire. Into the flames feed chunks of meat sfeared with bait. Continue adding fuel until there is a quantity of ashes. The odor of the scorched flesh and scent will attract wolves for long distances. An animal digging into the ashes for the attractor is almost sure to spring the set and get caught.

Coyote trappers in level country haul out a load of manure away from a dwelling and heap it into a mound. The next move is to conceal a trap in the top, covering carefully. Then a few drops of Abraham lure splinkled about completes the arrangement. Wolves in passing are almost sure to climb the mound.

Traps placed in trails may also be used to good advantage. They must be located carefully and properly concealed. All boot marks and similar should be eradicated. In fact some professionals go so far as to spread a canvas upon which to work and gather up superfluous earth and material that may look out of place, provided it was left. These experts often take the pains to use the paw of a dog or wolf to make tracks over the trap. Therefore, the beginner can understand how important it is to have everything just right when after wolves.

Frequently sets are made near carcasses upon which the fur bearers have been feeding. Just before a snow is the best time, using powdered manure for covering whenever it may be had. When horses, cattle or sheep are the bait, sufficient usually is handy for the purpose required.

With sets of this kind, it often happens that the wolves will approach the carcass. As soon as this is found, endeavor to locate the exact spots which the animals pass in circling. At the end of a week or so, pull up sets near the bait. Get the fur bearers used to feeding on the flesh again. Then carefully put traps at the spots which the animals circled before. Usually, provided care is used wolves will pay little attention. Wait until sure the animals are not disturbed by the sets a distance from the carcass. Then one or two traps in about the same position as the arrangement in the first place; that is, close to the steer, horse, sheep or other bait. The first visit of the fur bearers may enable them to detect the sets as they did in the past. They will circle, watching the spot from which they imagine danger. In so doing, a wolf may spring one of the traps which has been placed a distance from the "draw."

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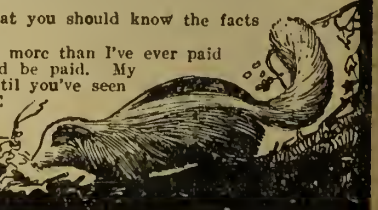

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"H. R. H., The Rider"

(Continued from Page 7)

The Rider watched the chauffeur until the latter had covered several hundred yards of the road toward Demia, then he climbed into the driver's seat and started the car once more upon its interrupted journey.

As they passed the road leading to Vitza, and the princess realized that their captor was keeping to the Roman road in the direction of the border, the gravity of her predicament was borne in upon her. At first she had viewed the affair as one might view a pleasurable adventure which broke the dull monotony of existence; but as the minutes passed and gave her opportunity for reflection, she saw all too plainly the grave dangers of her position. Her one thought now was of escape, and the wild nature of the country through which the road passed, together with the many steep ascents, which often brought the car almost to a dead stop, offered her every hope of success.

And so it was that near the summit of a particularly bad grade, while the chugging of the exhaust and the grinding of the gears obliterated all lesser sounds, the two doors of the tonneau opened simultaneously. The Princess Mary leaped lightly out upon the right, and Carlotta essayed the same feat upon the left. All would have gone well, and their escape doubtless been assured, had Carlotta been favored by the advantages of an American education, which teaches one many things that may be found in no textbook, or in the curriculum of any college.

But Carlotta's education had been sadly neglected, in some respects at least, which may account for the fact that she stepped from the slowly moving car with her face to the rear. The result was only what might have been expected, and Carlotta, to avoid the wheels, rolled quickly to one side, and just far enough to come within the range of the tail of the bandit's left eye. It was just a glimpse he got of something moving in the road behind him; but it was enough to bring his head around and reveal to his view the scrambling figure of Carlotta as she staggered to her feet and bolted down the hill in the direction from which they had just come.

Another glance showed the brigand that the tonneau was empty. The car stopped with a jerk, and almost in the same instant the Rider was in the road, his revolver in his hand, and his quick eyes piercing the night for a sign of his escaped prisoners.

The Princess Mary, crouching close to the rocky side of the cut through which the road passed at this point, saw the car stop, and, guessing that their escape had been discovered, turned and ran after the fleeing Carlotta.

She had covered but a few yards when there came from behind her a sharp, peremtory command to halt. The Princess Mary, unaccustomed to obeying commands of any nature, ignored this one. It was repeated once, immediately followed by the report of a shot. The Princess Mary came to a dead stop, and turned upon her pursuer. Her little chin was high in air, her eyes flashed, but her lower lip trembled just a trifle as she faced the man who now came running up.

"How dare you!" she cried. "How dare you fire upon—" And then she hesitated. For the moment she had forgotten that she was only Miss Bass, of America.

Carlotta, turning at the sound of the shot, came quickly back to the side of her mistress. The bandit looked at the two, and even in the darkness Princess Mary thought that she detected the shadow of a smile beneath his black mask.

"I am very sorry, Miss Bass," he said, "but really you mustn't try that again—it's awfully dangerous, leaping from a moving car. Permit me," and he offered his arm to escort her back to the machine.

The girl ignored the little gallantry, and very stiffly and haughtily walked back up the hill, while the bandit followed at her elbow. He made her take the seat beside him this time, while Carlotta resumed her place in the tonneau.

"It will be safer thus," he explained. "I should hate to have you risk your life again in an attempt to escape, and I can watch you better here. You'll have to act as hostage, you know. I'm sure your mother won't try to get away again as long as I have you safely beside me. Hadn't you better put this robe around your shoulders, the night air is a trifle chill," and he turned and attempted to place the robe for her.

"I do not wish a robe," snapped the Princess Mary. "You will kindly confine yourself to your proper role—that of brigand and captor. You will get your ransom money, and in the meantime you will oblige me by not speaking to me—I have no desire to converse with a thief and a murderer."

"You mustn't be too hard on me, Miss Bass," expostulated the Rider; "I haven't killed any one for a week, really. You can't imagine how hard times have been, and the last one not only bled all over me, but when I came to empty his pockets I found that he didn't possess the price of a bottle of good wine. You have no idea, Miss Bass, how discouraging this business is at times."

Princess Mary shuddered. The fellow was a hopeless brute. Carlotta, in the tonneau, trembled. What, oh! what would the man not do to them when he discovered that they were not the wife and daughter of the rich American? He could never get a royal princess off his hands without jeopardizing his head, and Carlotta was convinced that he would murder them both and bury their bodies in some mountain ravine to hide the evidences of his guilt when he should discover the terrible mistake he had made.

The Rider, after several ineffectual attempts to draw the princess into conversation, desisted, and in silence the little party sped onward toward the mountains which form the natural boundary between Margoth and Kariova.

At a point just beyond the frontier the bandit turned the car into a narrow wagon-road, where it was hidden from the main highway by a screen of trees and undergrowth. The road upon which it stood was little more than an opening among the trees. Once it had been used as a wood-road, but since the King of Karlova had forbidden the further cutting of timber in this district it had been unused by others than the Rider and his disreputable following.

A few yards from the Roman road the car was brought to a stop. The bandit extinguished the side-lights and the head-lights, and, turning to the captive at his side, announced that they would be compelled to complete their journey on foot, as no machine could travel the rough and precipitous trail ahead of them.

"You expect me to walk?" she asked icily.

"Unless you prefer to be carried," he replied.

"I shall neither walk nor be carried," she announced.

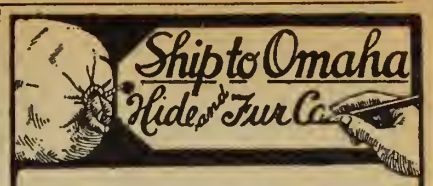
"Yonder," said the Rider, pointing through the darkness amid the surrounding trees, "is a little mound of earth. Beneath it lies a misguided lady who refused to walk. Unfortunately she was too heavy to carry. I can carry you; but in the mean time your mother might escape and lead the gendarmes to my hiding-place; so, if you refuse to come with me, I shall be compelled to kill your mother and carry you."

Carlotta felt the cold shivers run up and down her spine. Princess Mary turned upon the Rider.

"You beast!" she exclaimed.

"You will walk, then?" he asked suavely.

Upward through the impenetrable blackness the three stumbled. Even the Rider seemed to know the path none too well, and the princess could not but wonder at his obvious ignorance of the way. Often he stopped and examined the ground beneath by the rays of a small pocket flash-lamp, and twice they were compelled to retrace their steps



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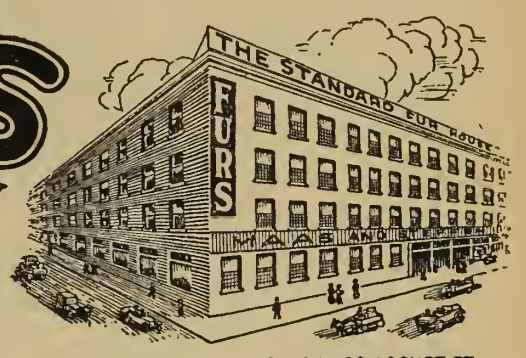

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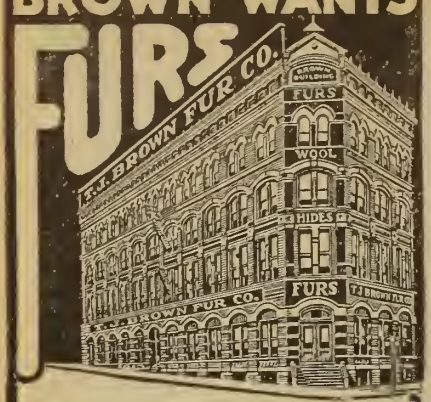

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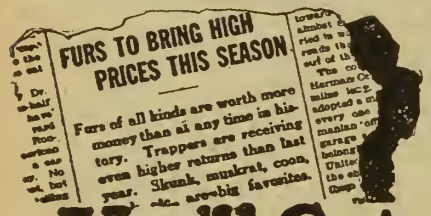

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when it became evident that they had lost the trail.

Romance and adventure were commencing to pall upon the Princess Mary. Her back and her legs ached.

CHAPTER IX

Klein's Plight

When, earlier in the day, Prince Boris of Karlova had been released for a few hours from the appalling ceremonies of royal hospitality, and was alone in his apartments with the faithful Ivan, Nicholas and Alexander, he had begged of them to save him from a repetition of the frightful experiences of the morning.

"I'd rather go to the gibbet," he growled.

"Which you would doubtless grace to advantage," replied Ivan. "Each of us has his appointed place in the universal scheme of things—yours is not the throne."

The prince scowled, and then, after a moment's silence: "At least, I make as good a prince as that hideous little half-wit does a princess."

"Granted," exclaimed Ivan with a grimace. "If Boris could but see what was destined for him! Thank the Lord he was spared the ordeal, for he is such a good-natured fellow that he might have acquiesced out of pity for her, and brought a toothless idiot to the throne of Karlova. As it is, our little substitution may save Karlova from a war with Margoth, since there is little likelihood that His Majesty Alexis III will be overkeen to have you for a son-in-law, and so will view with relief your indifference to his royal daughter. If Boris himself had come, things would have been different. Alexis could not have but looked with favor upon him, and his refusal to marry the Princess Mary would have resulted in precipitating the long-brewing war—not, however, that we would not welcome a war with these contemptible Margothians."

"I am not interested in history," growled the crown prince. At present I am interested in but one thing, and that is to get as far away from that frightful state dinner at Klovia as possible."

"You wished to be a prince, my friend," Nicholas reminded him, "and state dinners are a part of the penalty of being a prince."

"I have had all of this prince business that I care for," replied the other, scowling. "Get me out of here. Get me back to Peter's Inn, and let me go my way. I am sick of seeing people laugh at me behind their hands, and even openly, as they did in the streets this morning. If you do not get me out of here, I will reveal the truth to the King of Margoth before I am an hour older."

The three noble conspirators saw that the man was in earnest. They were far from loath to humor him, since they themselves had felt the sting and the burden of embarrassment since they had entered Margoth in his company.

It was Alexander Palensk who first suggested a feasible plan of scape from the impossible in which the levity of the true Boris had placed them all. It was, in short, to wait until dark, and then hurry away on the Roman road for Sovgrad, after sending word to Alexis at Klovia that Prince Boris had been taken suddenly ill with what appeared to be a mild attack of ptomaine poisoning.

And thus it was that the pseudo prince and his two companions rode out of Demla under the cover of darkness that very evening, while Ivan Kantchi made his way to Klovia with the excuses of his royal master to the King of Margoth.

It was evident to the young noble that Alexis was far from displeased to be rid of his gauche guest, and as a result Ivan could not resist the temptation to bait the Margothian ruler.

"It is evident, sire," he said, "that the charms of her royal highness, Princess Mary, have captivated my prince, and I trust that I may be the bearer of the glad tidings to him that his suit is looked upon with favor by both your majesty and her royal highness."

For a moment Alexis III was silent. It was apparent that he labored under the stress of powerful emotions which he would have gladly hidden; but at last indignation got the better of diplomacy, and he blurted out his true feelings to the friend and confidante of the Karlovian prince.

"My God, sir!" he cried, "do you think for a moment that I would give the hand of my daughter to the ill-bred boor who disgraced my capitol today, to the monkey who was the laughing-stock of all Demia?"

Ivan Kantchi forgot for the moment the truth of the other's statements. He thought only of the affront that had been put upon the name of his friend and prince. His face went white, and he straightened very siffly as he replied in a cold, ironic tone:

"By leaving thus under the cloak of simulated illness, Prince Boris but endeavored to spare you the knowledge of his true sentiments—sentiments which were shared by all those Karlovians who looked upon the Princess Mary today. Do I make myself quite plain, your majesty?"

Alexis III flushed, rose from his chair, and without another word turned his back upon the ambassador of the Karlovian prince, and left the apartment.

Ivan shrugged and turned away toward the door that had opened to admit him to the presence. As he passed out of the palace, his lips formed a sentence in which at least one word was repeated several times—a word which sounded like "war."

For a matter of half an hour M. Klein awaited the pleasure of the little Princess Mary of Margoth; but, receiving no summons and hearing no sound from the chamber beyond, he at last ventured to knock upon the door of the tiny room into which the princess had herself ushered him. There was no response to his knocking, which he repeated at intervals for several minutes.

M. Klein became more and more perturbed in spirit. He still hesitated to turn the knob and enter the apartment of her royal highness without first obtaining permission, but at last he grew desperate. The knob turned beneath his fingers, he pressed outward with increasing vigor, but the door did not open M. Klein was a prisoner. It came to him with the sudden shock of an unexpected douche of cold water, and it made him tremble all over and gasp, too, as the water might have.

For a moment or two he stood looking dumbly at the blank panels of the door. Knowing the Princess Mary as he did, he was quite positive that the imprisonment was not a matter of chance; but what would the king say? At the thought M. Klein went white, and commenced to beat vollently upon the door, shouting in the mean while at the top of his voice. There was no response.

The afternoon waned and darkness came. M. Klein was exhausted by his vain efforts at attracting attention. The little, grated window had proved too high for him to reach, and had only served to admonish him of the flight of time as the afternoon light which it shed within his tiny prison waned and faded into blackness of night.

The secretary became frantic. His calls for help rose finally to wild shrieks. He pounded upon the door. He kicked it, and continually he cursed himself for a silly ass in thus permitting a slip of a girl to put him in so ridiculous and dangerous a position. The king would never forgive him—he would be lucky if Alexis did not throw him into prison.

For the twentieth time he leaped for the grating of the window above him. His fingers caught and held. He drew himself up until his face was at the opening, and then he opened his mouth and gave vent to a piercing scream for help.

Below in the courtyard a sentry pacing to and fro heard the wild cry. Instantly his own voice rose in a sharp summons for the non-commissioned officer of the guard. The scream was repeated as a sergeant came upon a run from the guardhouse.

"Who calls?" cried the sentry.

M. Klein's fingers were relaxing their hold upon the grating. He had only time to cry, "Princess Mary's apartments!" before they slipped and let him drop back to the floor of his prison.

But the sergeant had heard, and so had the sentry, and a moment later an officer of the guard, followed by a score of armed men, were dashing through the corridors of the palace to the suite of the Princess Mary.

And here they permitted no courtly

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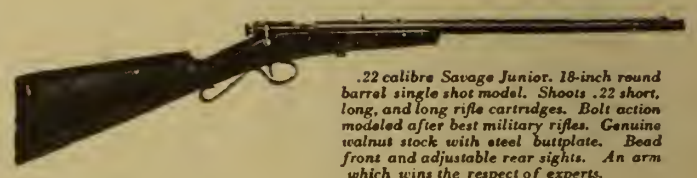

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etiquette to detain them, but, throwing open the doors, bolted into the forbidden precints of the royal apartments. A moment later M. Klein was released, and, bundled into an automobile, was speeding toward Klovia, his heart in his mouth, and his brain awhirl with the stupendous fact that the Princess Mary had fled the royal palace.

At about the same time Stefan, mounted upon the abandoned horse of the highwayman, was spurring along the Roman road into Demia. Through the streets of the ancient capital he raced, regardless of gendarmes and speed laws, upon his way to Klovia and his king.

Alexis III, relieved of the embarrassment of his royal guest, was giving himself over to the pleasures of the society of his own nobility, when a very much excited and disheveled young man dashed unannounced into the banquet-hall, throwing aside and upsetting a couple of guardsmen who had thought to interrupt his impetuous progress. To the king's side the young man made his way, while the guardsmen, picking themselves from the floor, pursued him.

"Klein!" exclaimed the king. "What is the meaning of this?"

"Oh, pardon, sire!" cried the excited secretary, falling upon his knee. "It is awful!"

"What is awful?" demanded the king, rising.

The guests, too, rose from their seats. The guardsmen, seeing now who their quarry was, halted beside the kneeling Klein. The king extended his hand and lifted the trembling secretary to his feet.

"Quick, man!" he cried. "What brings you here? What has happened?"

"The Princess Mary!" sobbed the overwrought secretary. "She has run away. She locked me in a closet, and then she ran away."

A poorly suppressed titter ran around the banquet-room. Even the king smiled.

"I cannot say that I blame her, Klein," he said; "can you?"

The secretary rose, dumfounded. He had expected the wrath of his sovereign to be poured upon his head, and instead he found anything but anger in the aspect and the tones of the king.

"She would have been no Margothian princess had she willingly consented to mate with that Karlovian swineherd," said Prince Stroebel, who sat at the king's right. "Even I would rather have war with Constans of Karlova than see our beloved princess wed to the impossible boor whom we had among us this morning."

"I am glad that you have come to your senses, Stroebel," said the king, and then, turning to his secretary: "Come, Klein, don't look so down-hearted. We forgive you. Her highness has doubtless gone to Vitza—she always goes to Vitza when she is angry with me. Inform Captain Polnik that it is our wish that he ride at once to Vitza and see that her highness has arrived safely."

CHAPTER X

A Proposal

The king was still speaking when an officer of the guard entered the room hastily and approached the ruler.

"And now, what, Polnik?" asked Alexis, looking up at the white face and startled eyes of the officer.

"My God! your majesty," blurted the guardsman. "It is awful! Stefan has just ridden in with the most frightful news of the Princess Mary—"

Alexis leaped to his feet. His face was as white as that of the soldier before him.

"What has happened?" he cried in a hoarse voice. "Quick, man! Tell me." And then, his eyes chancing to glance in the direction of the doorway, he espied Stefan leaning, wide-eyed, against the frame. "Here, Stefan!" he called. "Come here, man, and tell us your story."

Hatless, dust-covered and trembling, Stefan staggered across the room, where he would have fallen to one knee before the king had not the latter deterred him with an impatient snap of his fingers.

"Your story, Stefan!" demanded Alexis. "What has happened to the Princess Mary?"

"The Rider, sire!" cried Stefan. "The Rider held us up upon the highway, and at the point of a pistol drove me away. Then he entered the machine and, taking the wheel himself, rode off with her highness and Mlle. Cariotta. It happened just before we turned from the Roman road into the Vitza way. I mounted his horse, sire, and rode here as fast as the beast could go. That is all, sire!"

"God knows it is enough!" cried Alexis.

(To be continued.)

Eat More Lamb

During the war many changes in habits of individuals with regard to their eating were made. One of these changes is at present doing much to keep up the cost of living. The consumption of lamb has fallen off to such an extent that there is some difficulty in disposing of lambs for feeding purposes. Wool prices are staying up because there is such a demand for it in making clothing. On account of the lack of market for lamb, sheep raisers are going out of business. This is reducing the supply of wool and keeping up the price so that woolen products are out of reach of the average wage-earner. A campaign to eat more lamb is being staged. People would do well to eat mutton at least two times each week. Should every meat-eating family observe this, the demand for mutton would increase to such an extent as to stimulate production of sheep and increase the supply of wool.—H. A. L.

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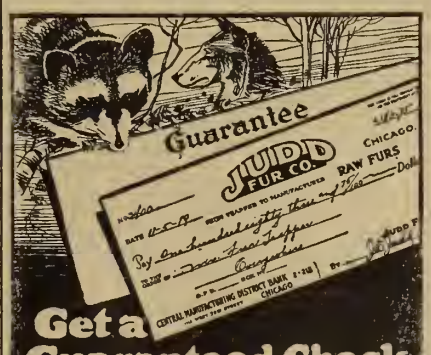

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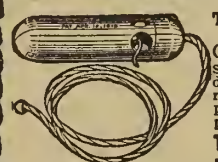

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Song for November

While skies glint bright with bluest light.
Through clouds that race o'er field and town.
And leaves go dancing left and right,
And orchard apples tumble down;
While school girls sweet, in lane or street,
Lean 'gainst the wind and feel and hear
It's glad heart like a lover's beat,
So reigns the rapture of the year.

Then ho! and hey! and whoop hooray!
Though winter clouds be booming,
Remember a November day
Is merrier far than mildest May,
With all her blossoms blooming.

While birds in scattered flight are blown
Aloft and lost in bosky mist,
And truant boys scud home alone.
'Neath skies of gold and amethyst;
While twilight falls and echo calls
Across the haunted atmosphere,
With low sweet laughs at intervals,
So reigns the rapture of the year.

Then ho, and hey! and whoop hooray!
Though winter clouds be booming,
Remember a November day
Is merrier far than mildest May,
With all her blossoms blooming.
—James Whitcomb Riley.

Thanksgiving, of course, it comes this month, and we'll do it, one and all. Every Thanksgiving is always a little better some way than the one last year, and we'er willing to be a little extra joyful that day anyway.

There is a particular individual privilege which each Thanksgiving brings to each one of us. The beautiful and the good that life has given to you, and there is something no matter how many hardships have come also, only you can be thankful for, for only you know how much they mean. That's your Thanksgiving and you have robbed yourself if it is not done.

Did you ever find yourself hunting for a quotation about Thanksgiving among the English authors? The joke is on you for that day is so distinctly American that an English poet wouldn't know if if he met it on the street.

And I am afraid that the old New England fathers who began the custom for us at any rate of being so very thankful on one especial day would think that present day American poets make more of the feast which celebrates it than the thanks which thought of the feast.

Solomon puts it very wisely something like this:

"My son eat thou honey for it is good; and the droppings of the honey comb which are sweet to thy taste; but, it is not good to eat too much honey."

And then Riley's well-known small friend puts it just as wisely and with a little easier humor in lines that all youngsters like to quote.

A Gustatory Achievement

Last Thanksgivin' dinner we
Et at Granny's house an' she
Had ist like she allus does,
Most an' best pies ever wuz.

Canned blackburry pie an' goose
Burry, squashin full o' juice,
An' rozburry, yes, an' plum—
Yes, an' churry pie, um-yum!

Peach an' pumkin' too, you bet,
Lawzy! I kin taste 'em yet.
Yes, anl custard pie an' mince!
An' I ain't et no pie since.

Cherry and Cranberry Pie

Perhaps, if Riley's small boy had had to appeal to a present day grandmother, we would have found her saying, "The idea, ruin a child's digestion with that mystery of mysteries, a mince pie? Even if we could believe the packers and afford it we know pies that are much better after a real turkey dinner."

Now this present day grandmother may mean a pie something like this: Take equal parts of canned cherries and uncooked cranberries. Add sugar to taste. Line a pie tin with crust and fill with fruit and juice. Sift one tablespoon of flour over top and add one small piece of butter. Cover with crust and bake. A very little lemon or almond flavoring may be added if desired. But at any rate here is a delicious fruit pie that has the proper tang and not quite the improper dyspepsia of mince pie to add to Thanksgiving dinner.

What Mary Wants

Dear Sarah:

Last Sunday as I sat in church trying to decide whether to listen to the minister, or plan a new hat and reading hymns while I decided, these lines just rose up out of a page and hit me in the face.

Our years are like the shadows
On sunny hills that lie;
Or grasses in the meadows
That blossom but to die.
A sleep, a dream, a story,
But stranger quickly told;
An unremaining glory
Of things that soon are old.

Well my hat and the minister both went into the ditch of oblivion as far as I was concerned, and all the "things" of my past week's struggles rose up to confront me. Nellie's dress that wouldn't look quite up to date, the dinner I gave with butter patties instead of bread and butter plates, because there weren't quite enough of the latter to go around, etc., etc.

And I wound up as all females are prone to do this time of year with visions of department store counters and Christmas shopping. Having visited one of these said stores in Colorado Springs this past week on some very necessary buying and viewed with wondering eyes the piles of this fall's coat and dress and nondescript garment materials, and the right now style of tablecloth and bedcovering and dish, and up-to-morrow make of perfumed and toilet water bottle, those last two lines came back to me with a mighty force: an unremaining glory of things that soon are old! How many of them there are and how we do strive to load our friends up with them at Christmas time!

It's the same old struggle every Christmas to find something that someone needs, wants, hasn't had and yet can never do without again. Not that I want my gifts either "from" or "to" to last forever. I'd like to give something again next year, but the utter satisfaction of knowing that you found something that "just suited" even if the article itself only lasts a week, leaves a joy that remains to shake hands with next December. Now if you don't help me out and tell me what you're thinking of for everybody and what you might think of, I'll turn to the "what a woman of sixty would look like" column in the Ladies' Home Journal and send you an ear trumpet sure as shooting!

Now John abominates this sort of letter; he much prefers learning the effects of the weather in the back pasture, how many pounds the pigs gained last week, exactly the state of the children's health and the possibilities of lectures at the school house. As I don't intend to say a word about any of those topics, I shan't even tell him I wrote you.

Don't tell me, Sarah, that I ought to have listened to the minister. Just think what a sermon I've got out of those two lines and how I've passed part of it on to you.

We're coming over for Thanksgiving, of course, as I told you joyfully in the last letter, and this letter is only an overflow. It will simply prepare you for the questions I expect to ask. Lovingly,

MARY.

A Literary Gentleman.

"Colonel Brown seems to be very literary," remarked a visitor to the Brown household to the negro maid, glancing at a pile of magazines lying on the floor.

"Yas, ma'am," replied the ebony-faced girl; "yas, ma'am, he sholey am littery. He jes' naturally littahs things all ovah dis yere house."

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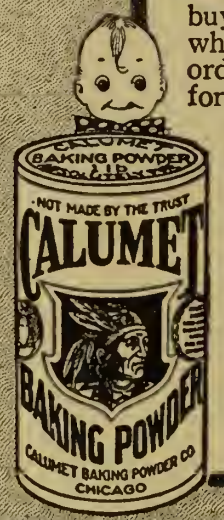

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Waist 3027, Skirt 3004—For home or business wear this costume is very acceptable. The waist made from pattern 3027 would be nice in linen, madras, crepe, washable satin or flannel. The skirt developed from pattern 3004 is just the thing for plaid and check suiting, for serge, corduroy, gabardine or volle. The waist is cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 will require 3½ yards of 27-inch material. The skirt is cut in sizes 22, 24, 26, 28, 30, 32 and 34 inches waist measure; 2½ yards of 48-inch material will make a 24-inch size. The width at lower edge of skirt with plaits extended is 2½ yards.

3021—A Smart Utility Coat. This style is good for wool, velour, plush and other pile fabrics, two-toned combinations, double-faced cheviots, corduroy, polo cloth and tweeds. The belt may be omitted. Cut in sizes 34, 36, 38, 40, 42 inches bust measure. Size 38 will require 6½ yards of 52-inch material.

3029—A Pretty School Frock. Linen, gingham, percale, seersucker, serge, poplin and voile are suitable for this model. This dress slips over the head, but skirt and waist may be finished separately. The sleeve in wrist length, has a band cuff. In shorter length it is finished with a shaped cuff, turned back on the sleeve. Cut in four sizes: 8, 10, 12 and 14 years. Size 10 will require 4 yards of 36-inch material.

3009—Becoming Dress for Mother's Girl. This is a good style for gingham, lawn, percale, gabardine, serge, silk or velvet. The pockets and belt may be omitted. The sleeve in wrist length is good for cool days, while the short sleeve is a graceful and comfortable style. Cut in sizes 4, 6, 8 and 10 years. Size 8 will require 2¾ yards of 36-inch material.

2672—Easy-to-Make and Practical Apron. Good for seersucker, gingham, drill, lawn, percale, sateen and alpaca. There is nothing cumbersome or uncomfortable about this style. Cut in sizes: small, 32-34; medium, 36-38; large, 40-42, and extra large, 44 and 46 inches bust measure. Size medium requires 4 yards of 36-inch material.

3006—Serviceable House Dress. For this design, linen, gingham, seersucker, drill, lawn, dimity, serge or gabardine could be used. The sleeve may be finished in wrist or elbow length. Cut in sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 6½ yards of 36-inch material. Width of skirt at lower edge is about 1¾ yards.

2662—An Ideal Slumber Garment. Your little boy or girl will be very snug and comfortable with a sleeping garment like this model. It is good for cambric, crepe, flannel or flannelette. The leg portions may be gathered in knicker style or finished loose at the lower edge. If the long sleeve seems too warm or uncomfortable, the shorter sleeve will be just right. This style is made with a full back. The garment closes at the center front. Cut in six sizes: 2, 4, 6, 8, 10 and 12 years. Size 6 will require 3⅝ yards of 36-inch material.

All patterns 15c each

3031—Pretty Frock for the Little Miss. This is a model very becoming to "tiny girls." The fullness of the dress below the yoke portion may be smocked or shirred. The sleeve could be finished without the trimming cuff, as the pattern provides a band cuff. Gingham, seersucker, lawn, repp, poplin, batiste, dimity, also gabardine, voile and silk. Cut in sizes 2, 4, 6 and 8 years. Size 4 years will require 3 yards of 27-inch material.

24 Tons of Silage on Acre

P. M. Gladhart of Salubria community, Idaho, has reported to the Washington county farm bureau a yield of 30 tons of sunflower ensilage on an acre and a quarter of subirrigated land. This is a yield of 24 tons to the acre. More than 40 silos have been and are being constructed in Washington county this summer and fall. The Butterfield Livestock company has constructed a pit silo 44 feet deep and 25 feet in diameter. It was excavated and plastered on dirt walls as completed.

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Every pair is extra strongly reinforced at points of hardest wear. Legs are full length; tops wide and elastic; sizes are accurately marked. Soles and toes are smooth, seamless and even. The Durham dyes will not fade.

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Profitable Farm Poultry

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries to Poultry Department, WESTERN FARM LIFE, Denver, Colorado.

Why does mother want to leave the farm? She gets plenty to eat, has the best bed in the house, Dad takes her to church every Sunday and to town twice a month; she gets all the egg money and spends it just as she wants to, for groceries; has company every Sunday afternoon and has enough exercise to keep her healthy. She has a churn and washing machine that are run by the gas engine, a cream separator so there is no churning to do, no threshing outfit to cook for, and a telephone, so what's the answer?

Here it is in two words: the pump and the kerosene lamp. And again the old hen is here to help out—not with the question of the pump, which we can safely leave to the home demonstration agent. But the lamp, for science has decreed that Mrs. Hen can be 100 per cent efficient only under the white light, and what farmer's wife will be satisfied with a lesser performance? And if the electric light is needed, the old man, sooner or later, will have to see to it. Once the wires reach the hen-house, why not the dwelling? And with water and button lights in the house there will be less longing for the town.

A few years ago (it may have been five or forty—either is but a short span in our long career) when we first saw the matter mentioned, we did not credit the plan of poultry-house lighting with all that was claimed for it. We have seen so many sparrows and summers that one swallow does not mean spring to us; so any claim made for any new departure from the old and tried is always discounted a good big per cent. So many factors contribute to any obtained result that it seems presumptuous to attribute all the success to any one of them.

We have had electric lights in our poultry house for three years; have turned them on to keep the hens up late and turned them on to get them down early. What the benefit has been I am not prepared to say, as we have never had enough fowls to make up check pens, nor the time to give the experiment to make sure of our ground. To credit the lights with the increased egg production because more eggs were laid this year, when lights were used, than last year, when no lights were used during the same period, is foolish; so we have gone slow on believing all we have heard and read along this line, although we have always felt that benefit must result from the longer day, more exercise and more feed.

But when a man like Jas. E. Rice of the New York State College of Agriculture gives the results of his experiments, I am willing to sit up and take notice, for Mr. Rice is slow to jump at conclusions, and his conclusions are usually based on long experience and much hard work.

In Reliable Poultry Journal of October, Mr. Rice says:

"The principles involved in our use of artificial illumination are not mysterious. On the contrary they are quite self-evident and easy to understand. For example, it is easy to realize that the domestic hen, when kept in this locality, meaning central or northern New York, is out of her natural habitat and she is held here in what amounts to captivity. This fact hardly needs discussion. We know that the original domestic fowl was a native of the tropical zone and climate. For centuries, for ages, she was accustomed to practically a twelve-hour day and a twelve-hour night, on the average. These birds, having been developed under those conditions, possessed organs that were based on at least twelve hours of daylight, meaning in particular their digestive organs. Man picked up these fowls and carried them north to points like Ithaca, N. Y., where during five or six months of the year they have, on the average, a nine-hour day and a fifteen-hour night, also vice versa.

"When brought north, these fowls were limited in choice as to what to do. About the only chance they had was to go on functioning the best they could and, as time passed, to adjust themselves slowly to the changed conditions of climate, length of day, etc. Such adaptations mean slow progress. Spring time breeding was continued, with little or no attention to winter egg production. These birds from the south simply adopted new habits, but did not change their physical form. When winter arrived, with the long, cold nights, they tucked their heads under their wings and ceased to lay till spring came with its longer days and warmer weather. They just hibernated or practically so, and waited for more favorable conditions.

"First—and until recently—man relied mainly on feeding and special breeding to get these hens to lay in the fall and winter. Good housing and proper feeding will help, also breeding for egg production, based on vigor, high individual records, etc., but the response to all these efforts was not enough—did not make the keeping of layer-flocks on a commercial basis a profitable venture during the short-day period of the year, from September 1st to the following March 1st, taking the north temperate zone as a whole.

"Now we come to this recent use of artificial lights to lengthen the workday of the hen or to equalize her time of work and time of rest in each twenty-four hours and the results are astonishing—are truly revolutionary. They promise great things for the poultry industry on commercial lines and may well cause the speculators in storage eggs to 'sit up and take notice,' to use a common expression. Not only are commercial plants to be greatly helped, but the benefits of this use of artificial illumination apply proportionately to farm flocks kept for egg production and can be utilized in the small back yard plant where a main object is to secure a liberal yield for the family table in the season of high prices. These remarkable results, however, need to be approached with a degree of caution, especially by investigators who are relied on for constructive facts and sound advice. What this remarkable innovation may do in the case of the breeding values of our best birds, remains to be demonstrated. In other words, we have here a breeding problem as well as one of quantity of illumination and increased egg production."

In every case, both as regards hens and pullets, the birds "under lights," meaning those helped out by artificial light, laid better during October, November, December, January and February than did the "no light" check pens, and the lighted pens in every case also laid more eggs during the following August and September—at the end of the test year, which is another period when new-laid eggs are scarce and therefore bring considerably higher prices than during the flush egg season, represented by March, April, May and June of each year.

Next Prof. Rice displayed two lighting charts of even greater interest. One showed the effects of "cutting off the lights suddenly." In this case the birds were given artificial lights on the twelve-hour basis for a number of weeks, then without warning the lights were taken away, throwing the birds back on an eight or nine-hour workday, the rest of the twenty-four hours being spent by them on the roosts because of darkness. Going a step further, after these same fowls had thus been treated to a sudden test of the short, natural day in midwinter, they were again "given the lights" and the other of these two charts showed the result of this experiment, "as a further proof test." Referring to the two special charts, Prof. Rice said, in substance:

"Here, indeed, is a remarkable showing. Back in school when we were studying arithmetic, the teacher used to insist that we must prove each problem. That is what we have aimed to do in these two experiments. It is a poor rule that will not work both ways. If the use of lights brought on this remarkable increase in egg production, all other factors being identical or practically so, then the taking away of the lights should have a contrary effect—and surely it did!

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P-6

By Chart No. 1 of these two you will note that when the lights were shut off, the egg production of this pen, which was so remarkably high for that season of the year, quickly dropped off to practically nothing—did this within three or four days.

"Next, we gave these same birds the lights again, doing so after a period of about two weeks, and you will note that they began promptly to respond again. Notice here by Chart No. II that they did not get all the way back, as regards high percentage of production, but that they did wonderfully well—did far better than the check pens that were not under lights. This sudden shutting off of the lights undoubtedly meant a tremendous physical shock. These birds had adapted themselves to conditions that were nearer right for them. Then suddenly we changed those conditions. Nevertheless, when again given the lights they responded nobly; therefore it may be said that we tried 'both ways' and in each case obtained the same logical results."

Starting With Poultry

Being a reader of your valuable paper, and wishing to know how I may be able to procure some government plans and specifications for building poultry houses and also an incubator and brooder house, I am writing you for the desired information. I intend to specialize in chickens. I am a homesteader and know there is money to be made in raising poultry if carried on properly. I wish to start right.—V. M., Moffat county, Colorado.

We think you are on the right track; to get started right and to make a business of the hens is pretty certain to bring in a good profit. To make the old hen shift for herself and live on the leavings does help some in supplying the table, but makes little interest on the investment and is certainly not gratifying. Under separate cover we are sending you some bulletins which will undoubtedly be of help to you.—W. E. V.

Don't Feed Mouldy Wheat

Answer to E. McG., Eagle County, Colo.

It would not be advisable to feed mouldy wheat either to hogs or chickens. Digestive disturbances are almost sure to follow such use of grain that is mouldy to any extent.

For Dry Farm Pasture

I have 480 acres in cultivation divided into four fields comprising 120 acres each, in wheat, summer till, forage crops, and the other 120 I need for pasture. I keep about twenty head of cattle, but since the range is about gone, will have to furnish my own pasture. Will you kindly tell me just what you think is the best thing to sow for next year's pasture, how to prepare the ground and where to sow? I prefer a crop that dies not have to be cowed every year.—H. M. S., Weld county, Colo.

For pasture I should plant either rye or sweet clover. The former may be sown in the fall and pastured before the holidays as soon as it stools. It will last from one to three years if always pastured down and not allowed to head. The stand should be renovated by disking in a little seed every fall in the bare places. If you convert the 120 acres you have in forage crops into pasture, all you will have to do will be to run in the rye as soon as possible with a disk planter, or else sow it broacast, disk it in and then harrow smooth. Deep plowing is not necessary for rye except when planted for a grain crop. Sweet clover makes a rich pasture, but it is more trouble to start. The ground should be plowed as deeply as possible in the fall, fined down in the spring and planted in late April or May. It can be pastured when well established. Will last two years or much longer if reseeded or allowed to reseed itself and afterwards harrowed. In New Mexico and states south of us, where the heaviest rainfall is usually in the summer months and winters milder than ours, both sweet clover and alfalfa are often successfully started by planting in the later summer, but in our latitude spring planting averages best.—E. R. Parsons.

Dairy Farm Lease

I would like to have the rule for renting out a fruit and dairy farm, I to furnish everything, including hogs.—T. R. B., New Mexico.

Where the landlord furnishes everything, the usual division is for the tenant to get one-third of the proceeds from sale of crops and milk, the balance going to the landlord. This arrangement would apply also to the increase in the dairy herd and in hogs. Of course, a good deal depends upon what you mean by "furnishing everything." In some cases the farm equipment is not sufficient to properly operate it, and thus more labor is necessitated on the part of the tenant. In such cases the division must be made more favorable to the tenant. Under what is known as the "half-and-half" system, which is largely in use in dairying sections, the landlord furnishes land, buildings, the greater part of the seed and fertilizer and one-half of the productive stock, such as cattle and hogs, while the tenant furnishes horses, machinery, one-half of the productive stock, part of the seed and fertilizer. Stock is fed from the hay and grain on the farm owned by both, and where feed must be bought the cost is shared equally by landlord and tenant. By considering the details of these two plans you will probably be able to figure out a fair basis of share arrangements with your tenant.

Value of Beet Tops

What can I pay for sugar beet tops for milk cows, when bay is selling at $15 and $20 a ton and how is the best way to buy them—by the ton, acre or load? Also, how is the feeding quality of this roughage?—W. E. S., Mesa County, Colo.

Mr. Asa C. Maxson of the Great Western Sugar Co. reports that beet tops in the Longmont section are selling at $10 to $12 per acre for pasturing off in the field. It is customary to buy the tops by the acre. The ordinary crop of beets will yield 7 to 8 tons of tops per acre. At Brighton, Colorado, Frank Sherart found that when his beet tops were gone, he attempted to keep up the milk flow in his dairy herd by feeding grain. The milk dropped from 55 gallons to 35 gallons as soon as the beet tops were gone. He cares for them by curing them in small piles in the field. After curing, they are hauled in and placed in larger stacks. He starts feeding carefully, as the cows are apt to overeat at first. He feeds them hay with the tops. Dairymen consider the dried tops as valuable as a grain ration in keeping up the milk flow. This, of course, applies to the average herd. Beet tops are considered by Henry to be half as valuable for feed as the root itself. This would make the green tops about one-third as valuable as hay. Dried tops would have a higher food value.—H. A. L.

Concerning a County Road

I and my brothers each own a quarter section in Sedgwick county, Colo. The county has built a road on the section line and we were never asked to deed this land for road purposes. Can the county take such action without a deed or compensation to the owner of the land? —B. A. V., Nebraska.

Section 6545 R. S. Mills Ann. provides that petitions must be filed to have the county commissioners make a road, or the commissioners must condemn the land for road purposes. The commissioners have the right under the statutes to declare a section or township line on the public domain a public highway. It is possible that the commissioners made this declaration some time ago. I would suggest that your subscriber make an investigation at the office of the county commissioners that will give him the exact condition of affairs.—Hamlet J. Barry, 724 Equitable Bldg., Denver.

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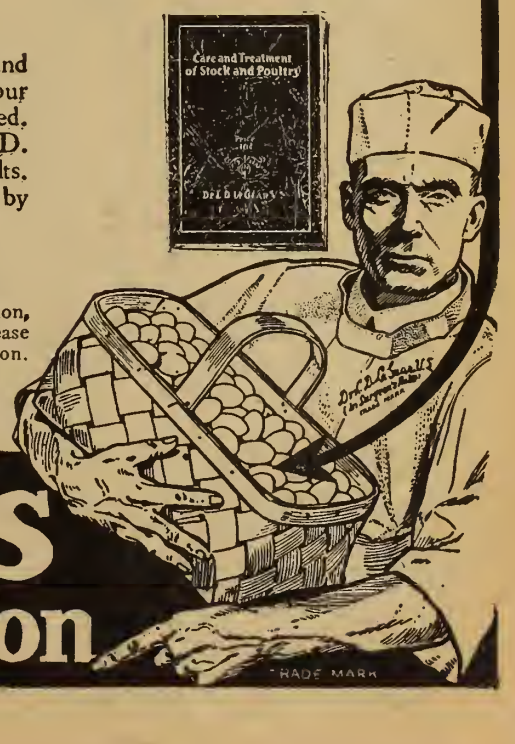

Dr. LeGear's Poultry Prescription

Comment by Farmer Putnam

(Continued from Page 9)

up my auto truck by settin' fire to the gasoline tank, hit my dog in the head with the axe, dropped a ounce of prussic acid in the well and started to kick Josephine in the ribs. Just then somethin' wet hit me in the face and I woke up and found the strike over! I picked up the dishrag that Josephine had throwed from the sink and wipin' the water from my face I sez:

"Woman, what does this mean? What have I done now?"

"I'm sorry if I hurt your feelin's Tom, but I had to do somethin' des perit to wake you up. Fust you started to snore and you kept gittin' louder and louder till you roared like a fire engin, and by and by you begin to talk like you was orderin' people around. Air you sick at your stumick? Did you eat too much ag'in?"

I told her all about my dream and she sez: "Tom, you ought to write that dream for Western Farm Life. It sounds just like this here miner's strike. I reckon them miners has grievances, so have us farmers, too, but that don't give us no right to shut off food from the innocent, nur them a right to make the country freeze. Tom, do you reckon them labor leaders could run the wimmin like they does the men? You know what I'd do if I was a strikin' miner's wife? I'd go to the mine and say: Boss let me have a pick. My husband is a coward. He wants to work but is afraid of the labor leader; I'll take his job. I don't want no baby to be cold in them tenements, nur no grown pusson to suffer because some feller livin' in luxury in Indianapolis calls me out on strike!"

Josephine sez if I dreamed more and wrote less this here page would be a heap more useful.

Thomas Jefferson Putnam.

LA MARIPOSA

The Carr W. Pritchett Ranch, Steamboat Springs, Routt Co., Colo., has for sale at this time 12 fine bulls from 9 to 20 months old. Sired by LOYAL STAMP. Priced right. Great-grandsons of Whitehall Sultan.

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A few choice young Boars and Gilts for sale.

You will find no better blood lines anywhere.

Priced Right

I. L. MATHISON Ft. Morgan, Colo.

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

FOR SALE—S. C. W. LEGHORN COCKERELS, grandsons Missouri Queen No. 750, famous long distance layer, Missouri Ex Station. W. W. Goodwin, Route No. 2, Canon City, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express pre paid first and second zones. C. R. Harrington, Lecompton, Kansas.

BARRED PLYMOUTH ROCKS—BOTH LIGHT and dark, winners at State Fair and national Western, excellent layers, a fine bunch of cockerels, at $4 and $5 and up, a few hens and pullets. Chester Blunt, Route 1, Greeley, Colo.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

RHODE ISLAND REDS

NICE LOT OF FINE ROSE COMB RHODE Island Red Cockerels and pullets at money-saving prices. Geo. F. Wright, Kiowa, Kansas.

BRAHMAS

FOR SALE—THOROUGHBRED LIGHT BRAHma Cockerels, from prize winning stock. Best in the west. Prices reasonable. E. Grosser, 2240 Perry, Denver, Colo.

SEVERAL VARIETIES

BUFF LEGHORNS—R. I. REDS—BEST LAYers on earth; fancy cockerels, Mammoth Pekin drakes. I want your market fresh eggs. Champney, 2057 South Broadway, Denver.

COLUMBIA HATCHERY—ESTABLISHED 1911. Send us your orders for cockerels; 14 different varieties, also Mammoth Bronze Turkeys, White turkeys, Pekin and Indian Runner ducks and drakes. Write for price list. P. O. Box 1102, Denver, Colo.

TURKEYS

GIANT BRONZE TURKEYS, SIRED BY TOM weighing 25 pounds at five months; Bird Bros. famous exhibition "Goldbank" strain. Well marked toms at $10, $12 and $15. Pullets at $8 up, all on approval. Geo. F. Wright, Kiowa, Kansas.

IDEAL MAMMOTH BRONZE, GOLD BANK strain. Parent stock, 40 pounds, tom 22 pounds; hens, November prices; last year toms, $15; May toms, $10; hens, $7.50. Laura Ulom, Lamar, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—10 HEAD HIGH GRADE HOLstein cows and heifers. Geo. A. Mayes, Cuchara Camps, near La Veta, Colo.

A CARLOAD OF REOISTERED YEARLING Hereford heifers; also this year's heifers; two yearling bulls and some extra good bull calves all good boned, good marked and best anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HOGS

FOR SALE—A FEW BIG TYPE POLAND China spring boars of a 900-lb. sow and a 1100-lb. boar. W. J. Peterson, Seibert, Colo.

FOR SALE—PIGS, CHEAP, FROM WEANING size up, big type (registered). Write F. L. Toliver, Fort Collins, Colo.

FOR SALE—A FEW BIG TYPE DUROC boars left by the wonderful Orion Cherry King. E. W. Brown, Mitchell, Neb.

FOR SALE—REOISTERED BIO TYPE DUROC Jersey hogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

BIG TYPE POLAND CHINA HOGS—SPRING boars and gilts for sale. Gad Barney, Haswell, Colo.

FOR SALE—JUNE DUROC BOARS, COLONEL Uneeda breeding. Worth $100, but your check for $50 takes first choice f. o. b. Calhan. Horace Meloy, Calhan, Colo.

REOISTERED DUROCS—WE ARE MAKING A specialty of some good registered boars at farmers' prices. Have also some fine show prospects; write us. The Blue Ribbon Live Stock Co., C. F. Burke, Mgr., Pueblo, Colo.

REGISTERED BIG TYPE DUROC JERSEY boars and gilts by Orion Cherry King XV and out of Defender sows. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

250 CHESTER WHITES—FALL AND SPRING boars and gilts, record, weanling pigs, pair not akin, state fair winners. Liberty bonds accepted at face. Earl Bloom, Bridgewater, Iowa.

GET YOUR HERD BOAR NOW—I HAVE SEVeral registered big type yearling Duroc boars, litter mates to Willow Grange Chief, first prize winner at Pueblo State Fair, sired by 1918 Grand Champion, that I will sell at attractive figure. Also younger gilts and boars of prize-winning strain. Write me what you want and I will take care of you. J. N. Caldwell, Willow Grange Farm, Littleton, Colo.

SEEDS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WILL BUY PURE SEED, 500 POUNDS WHITE hulless barley, 200 Kirsh millet, 100 Sudan grass, 500 Colordao stock pea, 100 winter veteh. Frank Duff, Casper, Wyo.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

FOR SALE—FARM OF 320 ACRES—FOR particulars write Jason Carter, Cope, Colo.

WANTED—TO HEAR FROM OWNER OF FARM or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

CALIFORNIA FARMS NEAR SACRAMENTO for sale. Write for list. E. R. Waite, Shawnee, Oklahoma.

IF YOU WANT TO SELL OR EXCHANGE your property, write me. John J. Black, 33 St., Chippewa Falls, Wis.

WANTED—TO HEAR FROM OWNER OF good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

FARM AND CATTLE RANCHES—CHOICE list. If interested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis streets, Denver, Colo.

FOR SALE—MY IMPROVED 480-ACRE ranch; good location for sheep and cattle; a bargain if sold next 30 days. Write or see the owner. Geo. W. Worthan, Neiber, Wyo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Oive description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

WE HAVE 4,000 ACRES OF BOTTOM LAND in grass and sweet clover to lease for winter pasture. Can divide to suit. The Arkansas Valley Sugar Beet & Irrigated Land Co., Holly, Colo.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine soil; worth $100 per acre in cultivation; on railroad; foreigners must have first naturalization papers; stamps for particulars. Homeseekers Information Bureau, Sacramento, Cal.

FINE STOCK FARM FOR SALE—140 ACRES bottom land ranch. Good 4-room Adobe house; all under high woven wire fence, 40 acres in alfalfa, balance wild hay. Cuts 150 tons of hay; fine stock shelter and warm springs. Irrigated with ample water from early appropriation. Price $110.00 per acre. Reasonable terms. W. E. Vaplon, Fort Collins, Colo.

BIG LAND SALE—NEAR DENVER—30,000 acres being closed out by trustee at forced sale under order of court; rich soil; good water rights; good title; your chance to select a good farm on small cash payment and ten yearly payments for balance—all within 10 to 40 miles of Denver, and all near good railway towns. Come or write the Trustee immediately for literature. Chicago Title & Trust Co., Trustee, 701 Ideal Bldg., 17th and Champa Streets, Denver, Colo.

THE COSTILLA ESTATES DEVELOPMENT Company offer you rare opportunities in irrigated lands under their irrigation project. Nicely improved farms in tracts from 80 to 320 acres at prices of $85 to $100 per acre on easy terms, close to railroad and a chance to get in before the big advance in prices which are sure to come in the near future. Write for full particulars and literature. W. A. Smith, General Agent, Costilla Estates Development Company, 531 First Nat. Bank Bldg., Denver, Colo.

NORTHEASTERN NEW MEXICO OFFERS EXceptional opportunities for diversified farming. Level lands, productive soil, raising wheat, corn, oats, sorghums, beans, alfalfa, etc. Splendid grazing lands. Healthful, ideal climate, rainfall ample, altitude, 5,200 feet. Land prices from $15 to $30 per acre. Write for new booklet giving agricultural facts. We are interested only in the development of this section and have no land for sale. Address Earle G. Reed, Agricultural Agent, Colorado & Southern Ry., Room 713, Railway Exchange Bldg., Denver, Colo.

ATTENTION STOCKMEN—WE HAVE TWO stock ranch bargains. Just what you are looking for; each ranch comprises 320 acres deeded land with substantial improvements and large acreage under irrigation, and in alfalfa, timothy, clover hay, unlimited outside free range, with 4,000 acres of leased land under fence for fall pasture. These ranches are located three miles apart, 125 miles from Denver. Good shipping point, big money makers. Prices $12,000 and $13,600 on good terms. See us at once for these. Reynolds, Covey & Reynolds, 625 Exchange Bldg., Denver, Colo.

CATTLE RANCH LAND—6,880 ACRES IN solid body; adjoining shipping station on two main line railroads in Arkansas valley, 20 miles east of Pueblo, Colorado; not fenced, not improved; several fine springs, also crossed by large irrigation canal; 500 acres subirrigated and can be irrigated by pumps; high tension power line alongside of land to furnish power. By buying about 300 acres along the river adjoining fine shade and shelter can be had; 2 miles away is a fine irrigated alfalfa district. This is the making of the finest ranch in Colorado. Price, $12.50 per acre, reasonable terms. Chas. O. Elwood, Owner, 701 Ideal Bldg., Denver, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

THOUSANDS U. S. GOVERNMENT CENSUS and Railway Mail positions now open. Men, women, 18 up; $1,100-$1,700 year. Common education sufficient. Write immediately for list positions. Franklin Institute, Dept. M171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

LUMBER

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

BEE SUPPLIES AND HONEY

DELICIOUS NEW HONEY—10-POUND PAILS $2.25; 60-pound can, $11.50. A. A. Lyons, Fort Collins, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TYPEWRITER

GOOD TYPEWRITER FOR SALE CHEAP—Free trial, easy payments if wanted. Write Bertha Payne, Shawnee, Kansas.

HAY

2,000 TONS PRAIRIE AND SWEET CLOVER hay for sale. Prices and terms reasonable. The Arkansas Valley Sugar Beet & Irrigated Land Co., Holly, Colo.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

GROCERIES AND SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. 5-lb. can Calumet baking powder, 90c. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

MACHINERY

FOR SALE—Fordson Tractor with 12-inch gang plow, nearly new; only $750, part terms. Claude Givan, Englewood, Colo. Phone Englewood 295R2.

BIG-TYPE

REGISTERED

DUROC-JERSEY HOGS

QUALITY STOCK

GREEN ACRE FARM

6TH AND WADSWORTH

DENVER, COLO.

H. W. J. EDBROOKE, Owner

BOARS

Two Outstanding Herd Boars by Great Pathfinder
Two Outstanding herd boars by Victory
PRICED RIGHT

DR. F. T. DALY, Cambridge, Neb.

REGISTERED DUROC SPRING PIGS

Fine quality, smooth and well grown
LA BELLE RANCH
Home of Cherry Chief, 1918 Grand Champion, Pueblo and Denver

H. G. SQUIBB AURORA, COLO.

FOREST GLEN SHORTHORNS

Choice strains of healthy, rugged, useful cattle. Write your wants or come and see them.

CORNFORTH LIVE STOCK CO.

Elbert, Colorado

DUAL PURPOSE SHORTHORNS

12 Cows, 2 Past Yearling Heifers, 2 Heifer Calves, 4 Bull Calves

The cows are all with calf from my herd bull, who is a son of Maxwalton Stamp and grandson of Avondale International Champion, grandson of Imported Lucie.

Write for further particulars and prices.

GEORGE LAWSER Aurora, Colo.

Wyoming 4th

L. G. DAVIS HEREFORDS
ANXIETY-BRED

Sires in service:

The great **BEAU CARLOS 2D 352001**, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

Choice Offering of

Poland China and Duroc Jersey Sows

Bred and Open

Young Shorthorn, Hereford and Holstein Bulls at attractive prices.
Hampshire Ram Lambs by Imported Ram.
Two-year-old Cotswold Ram. Winner at Denver.

Write for prices and descriptions

ANIMAL HUSBANDRY DEPARTMENT

State Agricultural College, Fort Collins, Colorado

I Am Offering FOR SALE

this fine young bull, James Pontiac DeKol Ormsby.

He is a fine outstanding individual from one of my producing advanced registry cows.

WM. A. PURVIS,
JOHNSTOWN, COLO.

JAMES PONTIAC DEKOL ORMSBY

FIRST ANNUAL HOG SALE

40 Registered Duroc and Poland Sows, Guaranteed to be Safe in Pig. 12 Registered Boars.

BOULDER-LARIMER COUNTIES BREEDERS' ASSOCIATIONS

Hold this sale jointly in the Stock-Judging Pavilion at the State Agricultural College, Fort Collins, Colorado.

ALL A-No. 1 INDIVIDUALS

Inspected by competent committee from each county.

Friday, December 19, 1919

JERSEYS

Western Home of The Majesties

We have a yearling bull by Majesty's Oxford Combination, out of an Imported cow, in R. M., solid color, a corking good calf, will make an attractive price on for quick sale.

Also a January calf, sired by a 700-pound butter bull, out of a R. M. daughter of Count Majesty, that is hard to beat; very low price to move at once.

A few good Duroc gilts, either bred or open. Write me your wants, please.

A. M. McCLENAHAN **GREELEY, COLORADO**

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 6½ miles southwest of Denver on the Morrison Road.

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE BRED AND REGISTERED

Hereford

BULLS and HEIFERS

1 car 2-year-old bulls.

130 head yearling registered and pure bred bulls.

Several cars yearling heifers, 2-year-old heifers and cows.

Good Bone, Colors and Markings

Write or phone us for prices

715 E. and C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

SPECIAL BARGAINS

Duroc-Jersey

10—A Great Offering Of Young Boars—10
Fit prospects for herd headers. The kind that grow big.

Sired by
Defenders Orion
Financial King
Greatest Wonder

Out of
Colorado State Fair
Prize Winning
Dams

Can You Beat This Breeding?
Also One Yearling Registered Guernsey Bull
Prices within the reach of Farmers and Good Breeders

STONEMOOR FARM HERDS

W. L. STONE & SON **PUEBLO, COLORADO**

Milking Shorthorns
THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Our Duroc Herd has won over 1500 ribbons including 75 Championships.

Heading this great herd are Burke's Good E. Nuff Again, a Grand Champion in Colorado and heaviest Duroc by official weight at National Swine Show, Omaha, 1917; Big Cherry King, sire of all first prize futurity winners, Pueblo, 1918; and Blue Ribbon Sensation that we paid $1,000 for at nine months old.

Write us for prices on farmers' boars, bred sows and some great show prospects.

The Blue Ribbon Livestock Co.

C. F. Burke, Mgr. **Pueblo, Colo.**

FOR SALE

I can show buyers 600 registered Herefords. also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding stock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

Glendale Stock Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion
Chicago, 1917,
Denver, 1918
and 1919

Breeders of

BELGIAN HORSES

and

POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

BEAU ASTER

Registered Hereford Cattle

Prince Domino —499611 Sire of the Champion Futurity Bull and Heifer Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER

Holyoke, Colo.

WYNNEWOOD RANCH

Big Type Poland China Hogs

For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of both sexes, including several of a litter from the Junior Champion Gilt. Denver Stock Show, 1919.

C. E. GORDON, Mgr., Overland, Colo.

William Upp

Breeder of

BIG TYPE POLAND CHINA HOGS—HERD HEADED BY BIG JUMBO, Missouri Prince, Cotton Wood King, and others.

Spring Boars and Gilts for sale.

Deer Trail - - Colorado

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH
Montrose, Colo.

Colorado Rural Schools Astonish Kansas Educators

(Continued from Page 3)

tendent of Schools Mary C. C. Bradford. During this session the Kansas people were introduced.

A meeting of the Christian Endeavor and church was attended in the evening after which the visitors were taken to Monte Vista for the night. On Monday the day was begun with a breakfast at the La Veta hotel, given by the Commercial association of Monte Vista. Superintendent Momyer gave a short talk, as did Pres. J. N. Fuller of the Monte Vista Consolidated school board on the work of the schools here. The Monte Vista district comprises sixty-four square miles. The school enrollment is seven hundred, with twenty-nine teachers. A new high school and junior college is being built in Monte Vista at a cost of $60,000. Money for these schools is raised by bond issues.

The School in Operation

From Monte Vista the party was again taken to the Sargent school to inspect the school in operation. Here they were met by a party of men from Center with autos to convey them to a trout dinner and inspection of the Center Consolidated school now under construction. This is a large two-story building of brick and concrete. There are twenty-two rooms in the building, including an auditorium which will seat seven hundred people, a gymnasium the same size as the auditorium, shop rooms, class room, domestic science rooms, hospital and offices. This will be heated by steam or hot water. This building would be a credit to any of the state institutions. The bond issue for this is $125,000, voted practically unanimously. A trip was made from here to Del Norte where the plans for a school costing $95,000 were learned of. In this section the consolidation comprises eleven districts. When the vote was taken to decide the matter, there were 246 votes for and 4 against consolidation. This is the strongest indication of the feeling of the people.

Other points visited were the schools of Hooper, Mosca and LaJara, each place having similar schools to those of Sargent, but not all so large. All of these schools use the auto busses to carry the children.

The consolidated schools are a marvel to those who visit the section. The people believe in the movement and are willing to pay the small additional tax levy to get the schools. It does away with the small dreary schools and gives in their place a pleasant, comfortable building with all of the advantages of the city schools. It requires less teachers than under the old district plan. It brings more people together for social activity and thereby creates more interest in community efforts.

The Kansas delegation visited these schools with the sole purpose of gathering information regarding the work of the consolidation system. They came from sections where there is interest in consolidation and returned home fired with the idea and planning to put forth every effort to establish such schools in their various sections. The following made up the Kansas delegation: Emma F. Wilson, county superintendent Finney county; E. N. Demitt, member school board, Holcomb, Kansas; A. R. Towles, county commissioner and representing school board of district 6, Finney county; E. J. Dumond, former superintendent of schools, Garden City; Mrs. Alta Millick, county superintendent Rush county; Miss Mabel Parker, principal Alton high school, Osborne; Miss Bertha Yoxall, county superintendent, Osborne county; Miss Emma Bigge, county superintendent, Rooks county; S. J. Hibbs, merchant, school board, Alton; Superintendent A. D. Hass, Plainville; F. C. Frevert, Hollyrod, member school board; Phillips Louthan, county superintendent Mitchell county; H. Coover, county superintendent, Ellsworth county; Prof. W. L Smith, department rural education, Emporia; Mrs. M. M. McKinney, county superintendent, Sheridan county; Prof. C. E. Rarick, head of the department of rural education, Fort Hays Normal school, who was leader of the party.

Much of the success of this trip is due to the work of Miss Hedrick, county school superintendent of Rio Grande county. She carefully arranged for the transportation and entertainment of the visitors.

Superintendent George R. Young, the able superintendent of the Sargent school, assisted greatly by furnishing his vans and trouble car and in arranging for a close inspection of the work carried on at the school.

The Colorado delegation was comprised of the following: Prof. C. G. Sargent, C. V. Williams, in charge of vocational training in eleven western states; L. F. Gary, in charge of state vocational training work for Colorado; ex-Gov. E. M. Ammons; State Superintendent Mrs. Mary C. C. Bradford; Miss Mable Campbell, in charge of home economics in Smith-Hughes work; Mr. Shrieber, assistant in rural educational work; J. S. Calkins, member state board of agriculture; President A. A. Edwards, state board of agriculture; Inez Johnson Lewis, superintendent El Paso county; Mrs. Charles A. Lory, Fort Collins; Miss Hedrick, county superintendent Rio Grande county; Mrs. Baker, county superintendent Pueblo county.

Never Touched Him

An old gentleman was being shaved by a barber who had evidently become unnerved by the previous night's dissipation. Finally he cut the gentleman's chin. The latter looked up at the man reproachfully and said:

"You see, my man, what comes of hard drinking."

"Yes, sir," said the barber, consolingly, "it makes the skin tender."

Power For Pull

Horse power should go all for pull—not for overcoming the friction of poorly lubricated axles.

Mica Axle Grease helps pulling by keeping friction down. It fills the little uneven pores and seams in the axle that would otherwise increase the load—gives that hard, bright surface that helps easy going. Made of the finest grease stock and powdered mica.

THE CONTINENTAL OIL COMPANY
(A Colorado Corporation)

MICA AXLE GREASE

This is the Car you Have Waited For

You will give the new Cleveland Six a real welcome when it comes to your community, for it is just the kind of a car that so many people want and need.

The Cleveland Six sets a new standard in the light car field. It brings new character and quality in a low priced car.

A beautiful car to look at, seating five persons in perfect comfort, it has power to take the loaded car flying over hills, power to take it through mud roads when others stall and stop.

Men famous for their success in the great automobile industry, men experienced in the design and building of the finest cars, are the men who conceived and developed and are now manufacturing in large numbers the new Cleveland Six. Their skill and sincerity are built into this car.

Nearly two thousand good dealers have contracted to sell the Cleveland Six. One of these dealers is somewhere near you. Write for Catalogue and the dealer's name today.

Five Passenger Touring Car . . . $1385
Three Passenger Roadster $1385
(F. O. B. Factory)

CLEVELAND AUTOMOBILE CO., CLEVELAND, OHIO

$1385

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DEC 20 1919

WESTERN FarmLife

Vol. XXI Denver, Colorado, December 1, 1919 Semi-Monthly

FYVIE KNIGHT II, GRAND CHAMPION STEER AT THE 1918 INTERNATIONAL

THIS remarkable Angus was bought by Wilson & Company, Chicago packers, for $2.50 per pound, the highest price ever paid for a beef animal. The carcass was shipped to France and presented to President Poincare, for use at the banquet given the Allied Peace Delegates. This was the first time that frozen beef was ever served at a state dinner in France. Socially, the event was important, because the guests included President and Mrs. Wilson, and the great dignitaries of European countries. Commercially, it meant much to the American beef producer, for the fame of that dinner has spread to all the nations of Europe. It is a natural conclusion that if American frozen beef is relished by the heads of the world's greatest democracies it should be equally acceptable to the proletariat.

Fyvie Knight II. was calved February 20, 1917. He was sired by Blackbird Prince IV. and was out of a daughter of the dam of Fyvie Knight, the Angus steer that won the grand championship for Purdue at the International in 1908. At that time Dean J. H. Skinner, of Purdue, went home and bought the mother of the prize winner. She produced some excellent individuals, among them the mother of Fyvie Knight II.

Dean Skinner says that any farmer could have fed Fyvie Knight II. He did not have a nurse cow. His mother supplied him with all the milk he ever got. He was made the grand champion of all steers at the International by cracked corn, oats, barley, oil meal, clover hay, silage and a very limited amount of mangels. Jack Douglas, the man who fed him, says: "We gave the calf about all the grain he cared for from the time he began to eat. Most of the time the mixture of ground corn, barley, oats and oil meal was fed. A small amount of cooked barley was fed during the last summer. A limited amount of silage was given and some clover hay, the aim being to get him to take as much grain as he would."

The steer came into the arena weighing 1,350 pounds.

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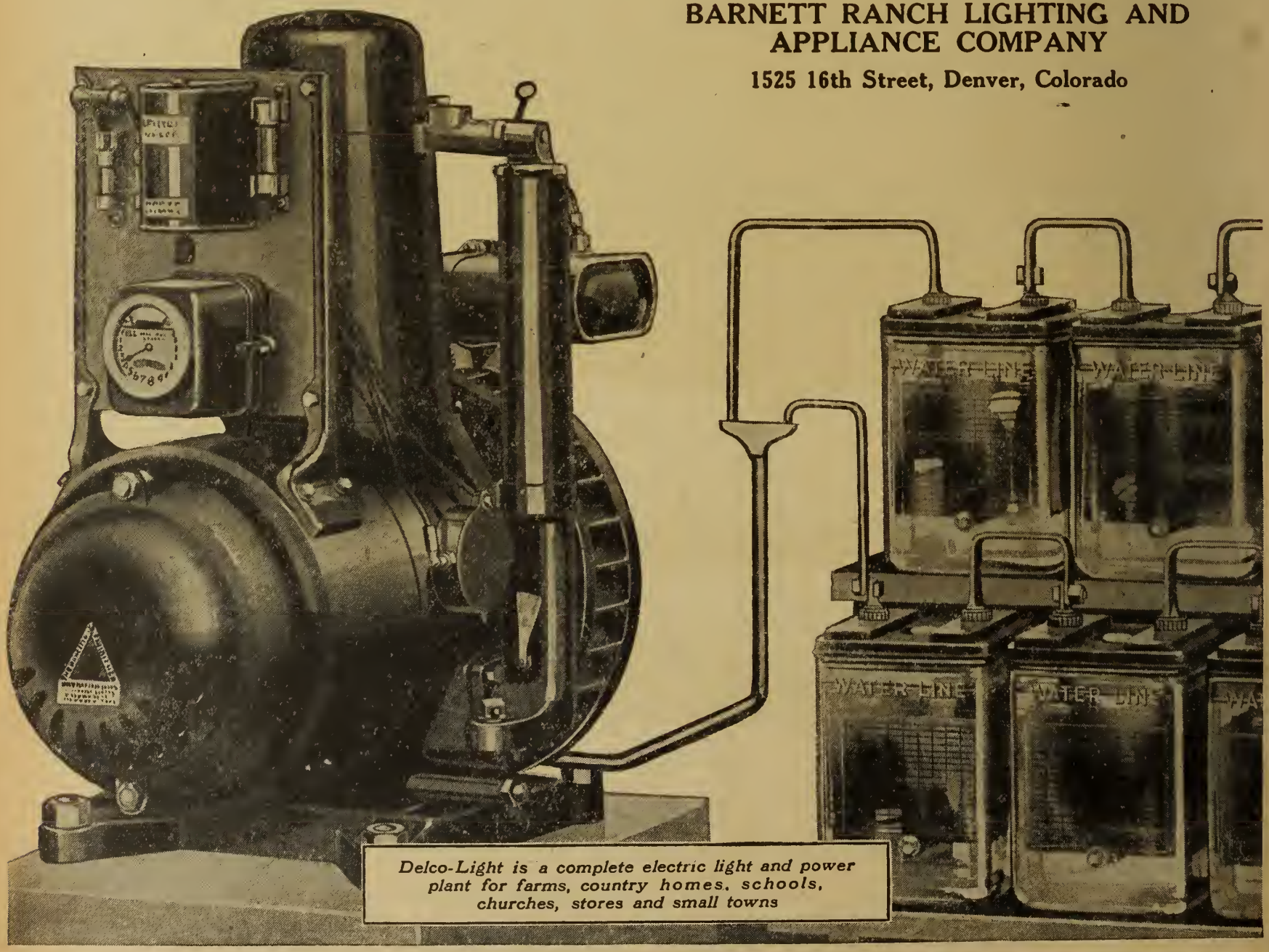

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A Western Magazine for Western Farmers and Stockmen

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Largest Circulation of Any Farm Magazine in the West

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Breeders Join Forces for Betterment of Stock

ELIMINATION OF SCRUB CATTLE, HOGS, SHEEP AND HORSES

H. A. LINDGREN

ECONOMICAL livestock production through better types of meat and milk animals produced by the exclusive use of purebred sires is the aim of Colorado farmers and stockraisers who are making most remarkable progress in the development of this industry. All over the state there is a demand for better meat and milk animals, and, incidentally, better draft animals. The movement has lately taken the form of organization of owners of purebred registered stock by counties or districts, these organizations including beef and pork producers, sheep raisers, horse breeders and dairy farmers. Further dissemination of good blood, successful methods of selling the selected surplus of the herds, and educational effort toward establishing the type and breed best suited to a given locality are some of the objects of these organizations.

Nothing has done more to stimulate interest in better blood than the fall fairs, and the improvement work traces back to the county agents whose activities in the interest of improved methods of farming and better livestock are bearing practical fruit.

Coincident with the organization of the breeders there are being formed in several localities, co-operative livestock shipping associations, the objects of which have been fully set forth in recent issues of Western Farm Life. Briefiy, the main object is to give the small producer an equal show with the larger producer of livestock on the principal markets. This is accomplished by collecting the animals from various farms and shipping and selling them collectively through a manager, who works on a percentage basis. The local speculator is thus eliminated and the small producer enjoys the benefits of carlot rates and bulk handling at the market.

A short course for Co-operative Livestock Shipping associations will be held at Denver, Saturday, December 20, the day following the closing of the Colorado Farmers' congress at Fort Collins. Managers of the twenty-six livestock shipping associations in the state have been invited to attend, as have the county agents and all farmers and stock shippers. The meeting is to be held at the Exchange building in the office of Mr. Gibbons, who has charge of the livestock office of the Bureau of Markets at the Denver yards. Mr. Gibbons will be in charge of the school, assisted by practical men from the commission and packing firms, who will give instruction in grading and handling livestock for shipment.

At the afternoon session the Colorado office of markets, in charge of Stuart L. Sweet, will submit blank forms for a uniform system of accounting which is to be explained and discussed. This is something in which the associations are showing much interest as it will greatly simplify bookkeeping by the managers if a uniform system can be adopted.

All of these activities in relation to livestock are not to be confused with the already flourishing associations of rangemen. The rangemen have their own peculiar problems, which they are solving satisfactorily. In many instances rangemen are also breeders of registered stock and, therefore, interested in both organizations. There is no conflict between the two. In fact, along some lines, they will work well together, as for example in the movement for a purebred sire law for Colorado. The breeders are unquestionably in favor of such a law and the progressive rangemen are using only purebred sires. Together the two organizations would have no difficulty in getting action from the next legislature.

Larimer Breeders Organize

The livestock breeders of Larimer county have recently organized an association for the purpose of handling the problems connected with the industry and for furthering the production of better stock and seed.

The officers of the association are: J. D. Pancake, Loveland, president; S. H. Clammer, Fort Collins, vice president; Elmer Johnson, Fort Collins, secretary-treasurer; D. C. Bascom, Fort Collins, assistant secretary.

The advisory committees are: Beef cattle, George Carryston, Livermore; dairy cattle, Ray Mathews, Loveland; horses, Elmer Johnson, Fort Collins; sheep, Park Maxwell, Fort Collins; hogs, W. S. Hill, LaPorte; poultry, R. M. Karnes, Timnath; seed, Tom Pulestón, Wellington. The objects of the association are numerous, among the more important being the holding of sales, and the encouragement of the use of purebred sires on every farm.

The Larimer County association together with the Boulder County association will conduct a hog sale December 19 at the stock pavilion at the Agricultural college. Fifty-two head of hogs, Durocs and Polands, will be sold. A more complete announcement appears on another page of this issue. This is an example of one of the objects of the registered stock breders' associations. This one object alone means a great deal to the livestock breeders, both in and out of the association.

Weld County Follows Suit

The breeders of Weld county have recently organized an association of the men breeding registered stock. They are planning some profitable things for the breeders of the county. One of the main planks in their program is the organization of livestock shipping associations of benefit to all of the stockmen. The centers to be worked from in this are Greeley, Kersey, LaSalle, Fort Lupton, Ault, Eaton, Platteville and Mead.

There are thirty charter members of the association at present, including such prominent stockmen as John Painter & Sons, Harvey Parker, Fred Shick, J. A. Campbell, Harvey Witwer and A. M. McClenahan. It is the plan to make this a county-wide organization. A tour of inspection of the dairy and beef herds in the county will be made by the breeders in the near future.

The officers of the association are: W. A. Purvis, Greeley, president; C. W. Henry, Greeley, vice president; F. A. Ogle, Greeley, secretary-treasurer; H. E. Witwer, beef cattle; W. A. Senior, horses; W. H. Hill, poultry; Charles H. Graham, hogs; W. E. Letford, dairying; John Painter, sheep.

Western Slope Association

The Western Slope Purebred Livestock Breeders association was completed at Delta, Colorado, November 10. The preliminary organization was formed at the Western Slope fair at Montrose in September, the final organization being perfected at the Delta meeting.

On account of the need for an organization of this kind on the Western Slope and due to the fact that the breeding of purebred livestock is in its infancy in this section, it was thought advisable to include the breeders of all classes of livestock. There were fifty-five breeders present, thirty-eight of whom became members of the organization.

The enthusiastic beginning made at the first meeting spells success for the association. It will be possible for them to promote the breeding of better stock on the farms of the Western Slope and to compete with the other breeders in holding sales to dispose of the surplus stock of the membership.

The main place of business of the association will be at Delta, and the annual meeting will be held alternately at Grand Junction, Delta and Montrose, the plan being to give the breeders the opportunity of visiting the different sections.

The following officers were elected to hold office during the ensuing year: President, Robert Lazear, Garmesa Farms, Fruita, Colorado; vice president, A. A. Clement, Paonia, Colorado; secretary-treasurer, Senator John J. Tobin, Montrose, Colorado.

Representatives: Horses, Ed. H. Ayer, Crawford; beef cattle, W. B. Roe, Crawford; dairy cattle, George LaGrange, Grand Junction; swine, Judson Solomon, Olathe; sheep, Joe Loesch, Montrose.

The representatives with the officers will constitute the executive committee.

The field for livestock improvement is unlimited. There is nothing that will assist the breeder in the work of promoting the industry more than the organization. It should be remembered by all that the success of the breeders association does not rest with the officers alone, but with each individual breeder, and that one cannot expect to get benefits from the association without putting something in.

Boulder County Association

One of the first purebred livestock breeders associations to be formed in the state was the one in Boulder county. This was formed as a part of the Farm Bureau, by the chairman of the livestock committee, Mr. George L. Miller, and County Agriculturist H. H. Simpson. There are now forty members in the association out of seventy breeders of purebred stock in the county.

On November 15th the Boulder County Association held a banquet at Longmont at which there were several visitors from the Larimer County Association. The banquet was attended by some forty-seven men, all of whom were breeders or interested in livestock development in the state. The spread was presided over by Mr. W. R. Reynolds, who introduced each of the speakers in a very pleasing manner.

The first speaker was Mr. George I. Miller, president, who spoke briefly on the work of the association. He was followed by ex-Governor Ammons, who called attention to the vast change in the livestock conditions in the state during the last twenty years. He spoke of the opportunity for improvement through the use of better breeding stock. The next speaker was Prof. George E. Morton, on "The Outlook for Swine Breeding." Mr. J. D. Pancake, of Loveland, president of the Larimer County Association, spoke on the subject of "Purebred Dairy Cattle." He

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LINE UP OF DRAFT TEAMS AT THE MORGAN COUNTY, COLORADO, 1919 FAIR
This fair was put on by the Morgan County Purebred Breeders' Association

Discussion of That Unexpected Water Shortage

IRRIGATOR WAS FACED BY UNUSUAL WEATHER COMBINATION

What did the farmers in the irrigated sections of northern Colorado leave undone, or what did they do which they should not have done, that they were overtaken by drouth last summer? A question to that effect was put to Prof. Alvin Kezer, chief agronomist of Colorado Agricultural college, in the hope of obtaining an answer that would contain some suggestions of value for the future. Prof. Kezer has general supervision of operations on the college farm and that farm, usually sure of its water supply, was among those where the yield was cut short by lack of early irrigation water. Therefore he speaks from the farmer's standpoint. His answer sums up the matter most interestingly. It leaves the blame on the weather, and not on the farmer.—Editor.

Prof. ALVIN KEZER

I HAVE before me your letter in regard to suggestions which farmers in the irrigated sections might apply to prevent such losses as occurred this year in Larimer, Weld and Boulder counties. You are putting up to me a task which I feel is almost beyond me. Unfortunately, I am not the gentleman who controls the weather.

When you ask me what the farmers might do, I am reminded of an incident that happened one evening at a certain party where I was present. The game was bridge whist. One of the ladies present evidently did not know how to bid her hand as she was a new player. She turned to the gentleman nearest her at an adjoining table and said, "If you had a hand like this, what would you do?" The reply was, "I think I'd pray."

It is written that the rain falls on the just and the unjust alike, so I am not so certain that even this remedy would avail.

Perhaps we can gather something from the experience of the past season which we will be able to apply in the next. Again, I am reminded of a remark of Colonel Payne's. Colonel Payne lived practically on the line of the Texas-Oklahoma boundary. He said in his neighborhood there was a box whittling artist who was given to sudden and sagacious remarks. A group of the colonel's friends were discussing weather conditions and dry farming. The discussion waxed exceedingly warm. Finally our friend of the dry goods box closed one eye and said, "Wal, boys, I have noticed this—that what a fellow learns about farming in this country one year makes a d—— fool of him the next." Maybe the colonel's whittler came about as near the truth as some who think their wisdom much more profound.

When we get to analyzing conditions and looking at past weather of this northern Colorado region, we find that there have been years when the snowfall in the hills was as light as the winter of 1918-1919. There have been years when the rainfall was as light as the spring of 1919. But the years in which we get the light snowfall and the light rainfall coming together have been exceedingly scarce. The weather record shows that we had such seasons in 1893 and 1880. The growing period of 1919 was probably as dry as either of these previous years, unless 1880 year should be worse.

It is the practice in this northern Colorado region to use what early water does come upon the hay crop. It so happened in 1919 that the early water came very late, due to cold weather in the hills. Farmers quite generally followed the practice of putting the early water on the hay. Past experience shows that they would be right in this practice 37 years out of 40 and I think that you will admit that that is a pretty good average of being right. John Wanamaker says that the man who is right 51 per cent of the time is a success. The practice of our farmers of being right 37 times out of 40 represents a good deal higher percentage of correctness than 51 per cent. Farmers of northern Colorado do not plan to irrigate up grain or beets and weather experience shows they need not so plan more than about three years in 40.

We had the experience on the college farm of having 20 acres of barley which never came up. The history of this barley was about as follows: The land had been fall plowed with the idea of seeding grain and alfalfa in the spring. Grain and alfalfa were seeded early and a poor stand obtained. Accordingly it was plowed up and re-seeded. On this land which was plowed in the spring, and on other spring plowed land, we did not get a stand of grain. Barley, oats and corn did not come up on the spring plowing. On the fall plowing we got a good stand. This experience would indicate that land plowed in the fall and put in good shape is in better condition to stand dry weather in the spring than spring plowed land and, so far as fall plowing is practical, the practice is beneficial on all the heavier and drier lands of northern Colorado in the irrigated districts.

We followed the practice which farmers in the neighborhood have followed of putting the first run of water on the alfalfa. We might have used the first run of water to irrigate up our small grain crops. We didn't do it and got a very poor crop in consequence. We used the water on the hay and got a full crop of hay, but a very short crop of grain and in the case of one field the grain, as above mentioned, never came up. Our water right this year was so deficient that except for brief exceptions we only had a run sufficiently large to give one good irrigation. Some farmers had better water rights and got more than this, but most of the farmers in our neighborhood were much worse off than the college farm.

Lands which are properly prepared in the fall are in better shape to catch winter moisture and consequently in better shape to produce crops. Properly prepared in the fall, where blowing is not a factor, means plowing shallowly, harrowing or disking, and harrowing after the plow. Under irrigated conditions especially, land so prepared is quite regularly in better shape in the spring than land left unplowed or land plowed and left loose. Land that has a very strong tendency to blow after it is plowed in the fall had better not be plowed, but listed crosswise, the direction of prevailing winds, if possible, so as to catch snow and moisture.

It is extremely doubtful if it would pay farmers to prepare for irrigating crops up in the northern Colorado districts. In the Arkansas valley such practice is the usual and regular thing. They also get an earlier run of water in the Arkansas valley because the temperature makes an earlier melt of mountain snows. On many northern Colorado farms in 1919 even if crops had been irrigated up, such as sugar beets and some of the grains, there was not sufficient water later to mature the crop. This was especially true on some of the water rights which might be classified as "not quite so good."

Aside, then, from more attention to fall preparation, it would seem that farmers this year, in principle, at least, hit upon the best practice. It is quite probable that if farmers had generally known what the conditions would be for the season they could have avoided quite as severe losses as occurred. They certainly would have planted smaller acreages of beets. They probably, in many instances, would have used the water on smaller acreages of grain and get good yields from that smaller acreage, but there was no way of determining in advance that such would be possible. If they had been close students of weather conditions, they would probably have done as they did because they would have seen that their chance of hitting conditions right would be about 37 out of 40 and the chance of failure about three out of 40.

Most farmers, when they saw the way conditions were turning, did curtail further planting and in many instances did use their water on a limited, or at least a restricted area, in order to get better use out of it. They made their plans for a full crop. They had to follow those plans and were correct in making such plans. These farmers needed the money and the country needed the produce. When they were up against weather conditions which failed, they had to about face in their practices as quickly as they were able, which was about all they could have done unless some Divine insight had told them what the season would be and, in the language of the English, this isn't done.

Colorado Farmer's Congress Meets This Month

STATE FARM ORGANIZATIONS TO GATHER AT FORT COLLINS

RALPH L. CROSMAN

WITH a better program than ever before in its history, a program which will include a number of speakers of national reputation, the Colorado Farmers' Congress will open its eleventh annual session at the Colorado Agricultural Colloge, in Fort Collins, December 15th. Sessions will continue for four days, until December 19th. The new date was set by the executive committee of the congress, under instruction from the congress at its last session, and was placed in December because it was believed a larger number of farmers could attend the congress at that time, than in January, when the National Western Stock Show is on, and many farmers' organizations are holding their annual state meetings. Indications are that the change in date is meeting with approval of the farmers of the state, for already a larger number of names of farmers and farm women who intend to go to Fort Collins for the congress are in the hands of the secretary than ever before in the history of the congress.

The session this year will be the first for two years, the session in 1918 being abandoned on account of the epidemic of the Spanish influenza.

President Newton C. Daugherty, of Greeley, and Secretary H. T. French, of Fort Collins, have been busily engaged for a month or more in working out the details of the program, being assisted by Mr. John Painter, of Roggen, Colorado, who will have charge of the livestock section of the program. Among the speakers of national and state reputation on the program will be: Gen. Leonard Wood; R. C. Pollock, of the National Holstein-Friesian Association; M. J. Munn, of the National Dairy Council; C. E. Bassett, of the National Fruit Growers' Exchange of New York; Henry S. Graves, of the U. S. Forest Service; Governor Lynn J. Frazier, of North Dakota; Clarence Darrow, the noted labor attorney; Governor Oliver H. Shoup, of Colorado; President Charles A. Lory, of the Colorado Agricultural College, and former Governor E. M. Ammons.

The annual meeting of the Colorado State Dairymen's Association will be held during the congress, as will also the annual meeting of the State Beekeepers' Association. The potato growers will have an important state conference, and plans are now under way for the organization of a state wool growers' association, the object of which will be to stimulate the keeping of sheep on the farms in Colorado. A feature of the week which will be especially interesting to stockmen will be a short course on co-operative marketing, consisting of lectures and discussions at the Agricultural College, and a tour of the stockyards at Denver.

The sessions of the congress will open Monday afternoon, with brief addresses in the nature of reports from all agricultural associations represented, including the State Farmers' Union, the Grange, livestock breeding associations and co-operative shipping associations, the State Farm Bureau and others.

Governor Oliver H. Shoup will deliver an address of welcome Monday evening, and he will be followed by Dr. Charles Lory, president of the Agricultural College, who will welcome the delegates on behalf of the institution. Governor Lynn J. Frazier, of North Dakota, will be the speaker of the evening, discussing "The Farmers' New Day in North Dakota."

Tuesday morning the Colorado State Dairy Association will open its sessions with reports from different districts of the state on the dairy outlook, and with addresses by R. C. Pollock, of the National Holstein-Friesian Association, and M. D. Munn, of the National Dairy dairy association will be devoted to the dairy association will b edevoted to the subject: "Feeding of Dairy Cattle."

Tuesday evening at the general session of the congress, Clarence Darrow will speak upon the subject: "The Farmer and Politics." Other speakers of nation-wide reputation will be on the program for that evening.

The State Dairy Association will devote Wednesday morning to ten-minute reviews of various phases of the dairy industry, including such subjects as: "Ice Cream Manufacture"; "Butter Manufacture"; "Retail Dairymen's Associations"; "Cheese Manufacture"; "Building of Silos"; "Report of State Dairy Commissioner," and to a business meeting.

The livestock program will come on Wednesday afternoon, with John Painter, of Roggen, presiding. Among the speakers and their subjects will be the following: Governor Ammons, "Early Maturity of Beef"; Dr. J. F. De Witt, the well-known livestock breeder, "The Value of the Purebred Sire"; James Brennan, of the Denver Union Stockyards, "Supply and Demand"; Charles Bliss, of Greeley, "The Place of the Sugar Beet in Colorado Farming." Other subjects discussed will be: "Sheep on the Farm," and "The Feeding of Sugar Beet By-Products."

The annual session of the Colorado Rural Life Conference will begin Wednesday evening with a "community sing" and a program of addresses. Rev. Clark Bower, of Clifton, president of the association, will preside, and among the speakers will be Rev. Dr. Meade, of Denver.

Thursday morning there will be a session of the Colorado Rural Life Conference. Among the speakers will be Rev. D. E. Nourse, pastor of the Sargent Community Church, near Monte Vista; Rev. Ora Miner, in charge of the field work of the Iliff School of Theology; Rev. Shurder, field representative in rural church work for the Methodist Church in Colorado, Idaho, and Nevada.

The potato growers on the same day will discuss "Marketing an Co-opera-

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American Farmer's Declaration of Principles

HOW AGRICULTURE STANDS IN RELATION TO CAPITAL AND LABOR

INCREASED production is still the slogan of the hour and the farmer is still working at high speed and long hours without adequate help, and, facing falling markets for his products, he now appeals to those in other callings to buckle down to work and turn out the product, stop the profiteering and ALL TOGETHER BEGIN TO PAY THE DEBT THAT HANGS OVER THE LAND."

In this ringing declaration the farmers of the nation, through their representatives in the conference on the relations between capital and labor, held at Washington recently, called upon contending forces to harmonize their differences and follow the example of the farmer in working out and not talking about reconstruction. The conference failed in its efforts to adjust the industrial situation, because of labor's withdrawal, but its deliberations gave the agricultural representatives an opportunity to put their case before the nation in strong terms.

Western Farm Life is indebted to Lou D. Sweet of Colorado for a report of the proceedings relating to this part of the conference. Mr. Sweet was one of the delegates chosen by President Wilson to represent the public, as distinguished from class groups, but because he is a farmer and formerly was president of the Potato Association of America, he was asked to serve on the committee which drew up the declaration of principles for the agricultural group. Others on this committee were President John Barrett of the National Farmers' Educational and Co-operative Union, T. C. Atkeson, representing the Grange at Washington, D. C., President Tittemore of the Society of Equity, and President Bradfute of the Ohio State Farm bureau.

Following is from the declaration of principles affecting agriculture in its relation to other industries:

Farmers have responded to the ever-increasing demands of modern industrial and economic development. The modern farm is no longer a self-sustaining unit as in primitive days, but has become a highly specialized production plant, the operation of which requires technical skill and managerial ability with large investments in modern labor-saving machinery. Six million such farms make up the vast industry of America's agriculture, on the uninterrupted operation of which depends the daily supply of food to all the people.

The Farmer as a Laborer

The daily manual labor of operating farmers in this country is equivalent to that of 13,000,000 adult workers. The price of farm products determines the farmer's wage. The solidarity of labor is such that farmers cannot continue on one wage level while the rest of labor is on another level. One must rise or the other fall until a level is reached.

The Farmer as an Employer

American farmers employ more laborers than any other single industry. The number of operating farmers and their hired employes is greater than that of laborers in all other industries combined. Any adjustment of industrial wage disputes to be fundamentally sound and permanent must give full consideration to the relation between wages on American farms and in other industries. To pay higher wages on the farm inevitably means higher prices for farm products. The present level of wages makes it impossible to cultivate American farms with the greatest efficiency and must reduce production.

Reciprocal Duties and Obligations

To produce sufficient food is the primal duty of those engagel in agriculture, and to the limit of their physical and financial ability this duty should be performed. For this there must be an equivalent in value. Farmers discharging this duty to organized society have a right to demand:

(a) Such returns as will fairly compensate them for their capital invested, their technical skill, their managerial ability and their manual labor.

(b) That they and their families have social, educational and political opportunities equal to those engaged in other activities.

Failure to meet these demands will result in a continuance and an acceleration of the decline of agriculture. Increased production is still the slogan of the hour and the farmer is still working at high speed and long hours and without adequate help, and, facing failing markets for his products, he now appeals to those in other callings to buckle down to work and turn out the product, stop the profiteering and all together begin to pay the debt that hangs over the land.

Farm Production

The demand for farm products should be scientifically satisfied. Overproduction as well as underproduction dislocates industrial and economic balances, and in the end results in economic waste. In 1910 we produced over 11,000,000 bales of cotton. In 1911 we produced 15,000,000 bales and yet received $60,000,000 less for the 1911 crop. Society had the benefit of the 4,000,000 bales of cotton, but the farmer got $60,000,000 less than nothing for them. In 1915 we produced 1,020,000,000 bushels of wheat and received $942,000,000 for it. In 1916 we produced 642,000,000 bushels and received $1,020,000,000. Society had the benefit of 385,000,000 bushels of wheat, but the farmer received $78,000,000 less than nothing for it. Thus it will be seen that simply to produce will not mean prosperity, but rather to produce only what will yield cost of production and a measure of profit. Reliable official cost of production studies and records are in existence proving inadequate returns to agriculture. This information should be widely circulated so that the public may know the truth. Further studies of cost of production, together with comprehensive studies of marketing, including prices actually received by farmers, are also needed.

Hours of Labor

Neither the day nor the week is a unit upon which agricultural costs or income can be satisfactorily based. Conditions are so variable that it is difficult to prescribe a rule applicable to all localities or to any locality at all seasons. It is, however, becoming most difficult for farmers to secure laborers who are willing to work more hours than do laborers in other industries. Experience shows that the hours of farm hired laborers approximates the hours of labor finally prescribed in other industries. The nature of agricultural work is such that it cannot economically adjust itself to a specific hour-day. If a definite hour-per-day basis is determined upon in other industries, however, this basic day must be the unit of all estimates in farm-production costs.

Soil Fertility

Economic conditions should be such that the farmer may operate his land so that its fertility shall be maintained and perpetuated. An adequate future supply of food requires that the fertility of the soil should be conserved and replenished. The people should unite in all measures, legislative or otherwise, that will permit and accelerate the movements of fertilizers in such form and quantities and at such prices as will enable farmers to maintain and conserve soil fertility.

Co-Operative Marketing

Economic and industrial conditions in agriculture necessitate co-operative marketing. Legal obstacles are now handicapping such effort. All necessary amendments should be made to state and federal laws to clearly preserve to farmers the right of co-operatively marketing their farm products.

Farm Organizations

Economic efficiency in agriculture is promoted by every agency which adds to the knowledge, experience, satisfaction, technique and equipment of the in-

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Questions of Color in Holstein Friesian Cow

WHY AMERICAN BREEDERS ARE RESTRICTED TO THE BLACK AND WHITE

DR. L. S. DIJKSTRA

The author of the accompanying article who is known to many of our readers through his frequent contributions on dairy topics, sailed during November for his ancestral home in Holland, intending to spend some time with his people and, incidentally, to acquire new ideas and information which may form the basis for articles to be prepared on his return to America. We are hopeful that Dr. Dijkstra will again find it opportune to make his home in the West, when he comes back to us, so that readers of Western Farm Life may continue to receive the full benefit of his excellent advice and suggestions. What he has to say regarding the Holstein-Friesian cow is said with the authority of one who was born on a Holland farm, where this ancient breed has been fostered for a century by members of one family, and whose training, education and personal research have been along dairy breeding and milk production lines.—Editor.

When speaking of the Holstein Friesian cow every one knows that it is the breed of the black and white colors. The Holstein Friesian association of America has fixed requirements in point of color and no other color is acknowledged here as Holstein Friesian. In the native home of the Holstein Friesian cow, however, the Holland or Dutch Herd Book has also special requirements concerning the color, but on account of the occurrence of red and white, (though perhaps at the rate of one in twenty-five thousand,) it has also opened sub-herdbook for the red and white colored cows, for the reason that the red and whites have proven to be as good milk and fat producers and as sure in the transmission of color to their progeny, as the black and whites. As a matter of course the owner of red and white Holsteins has to breed these cows to the red and white sire, because red calves resulting from black parentage, or black calves from red parentage, are never allowed for registration, competition or prizes, for the reason that the Dutch Herd Book only wants to have pure color strains. Now the question might be asked: Why does the American Holstein Friesian Association not take up in its books red and white or other colors, as well as the Dutch Herd Book?

I believe the American association has taken the right stand in regard to this and should never change its policy unless pedigreed red and whites might directly be imported from Holland to this country, which I think will seldom or never occur, as, so far, Halland never has shipped red and white colored cattle to America. However, great numbers have been shipped to Italy, Austria, Belgium and France, which countries sometimes pay even higher prices for the red and white animals than for the black and whites.

Now the question might be asked, what is the reason that I have no objection to registration of red and whites in the native home of the cow and do not approve of it here? The reason is simply this, that I consider the native home red color of quite other origin than the American red color, and to explain this more clearly I quote the following bit of history.

The oldest inhabitants of Holland, of which we have any records, are the Friesians, (my ancestors and myself were born and raised in the province of Friesland). These Friesian people dwelt on the shores of the North Sea as early as 300 B. C. They were a peaceable, pastoral people, whose main occupation was cattle keeping, when they were not engaged in defending themselves against the Normans and other quarrelsome neighbors, who often captured big herds of their cattle and transported them to their own homes. But the Friesian people were smart and strong enough to finally free their land from the enemy, and they became an independent nation, choosing their own kings until the Friesian king also became king of Holland in 1648. The Friesian people still have their own language, however, which is absolutely different from the Holland language. What is of importance to us is that the Friesian people, with the exception perhaps of a few at present, have never heard of or seen a Jersey, Guernsey or any other breed of cow, for the simple reason that these breeds have never entered and will never enter Friesland. The Friesian farmer of 2300 years ago was not different from the Friesian farmer of the present day. They have stuck to one breed. Importation of strange blood has never taken place; exportation of surplus cattle takes place on a large scale.

Inasmuch as the old laws of Friesland specify magpie colored skins and old pictures by Potter (1603,) Maertens and other Friesian artists show large herds of black and white cows, with perhaps only one red and white in the group, we are sure in concluding that the black and whites have always been far in the majority. At the same time it also shows that the red and white cows have equal right to the name of Holstein Friesian.

Never crossing with or importing any strange blood makes the Holstein Friesian cow in the province of Friesland a real purebred animal in the color line. Her color is fixed, and although the animal may be red, or not black but in reality blue or mouse color, she is still a true Holstein Friesian. Now in regard to the American red color: The original red cattle of America are of much later date and were imported mostly by the English. The number of breeds and mixtures we have is enormous, so that there are no strictly American breeds, mainly owing to differences in climate, care and ideals of American breeders.

Red and white Holstein Friesian cows were never exported to America and I would surely be perplexed if I should see one here. I have seen red and white colors here in so-called Holsteins, but on close examination of the red hair, (which is coarse and dark), I knew immediately that this red came from quite another breed than the Holsteins. And so I believe that the American Holstein Friesian Association acts wisely by not acknowledging any other color than black and white.

What About The Name?

Another question that has often been the topic of discussion is this: "What name should the black and white cow have?"

The French call it the Holland cow and so do the Russians and Italians. The Germans and Austrians call it the "Netherland" cow, while the northern countries and England call it the Holland, Friesland or Dutch cow. America calls it the Holstein Friesian cow. Which name is corect? I should think the name which the old Friesian people gave it, and also the Romans, and which is in the old Friesian language "Fryske kouw" or translated in our language "Friesian cow." The correct name then is simply "Friesian cow" and there are only two places where this correct name is used, namely in the province of Friesland itself and South Africa.

Why is it wrong to say Holland or Dutch cow? Holland or the Netherlands consists of eleven provinces and with the exception of two provinces, Friesland has only the real black and white color. The other provinces all have broken colors. It is thus absolutely wrong to call the Friesian a Holland or Dutch cow, merely because they belong to the Kingdom of Holland.

The American name, Holstein Friesian is no longer correct. In 1866 Schleswig-Holstein formed the southern part of Denmark. The Germans then took it and I believe it belongs to Denmark again, since the peace treaty of 1919. The climatic and soil conditions are about the same in Friesland as in Holstein, but the geographical combination of the names for the cow has absolutely no reason for existing. The Friesian inhabitants had their breed established many centuries before the Friesian cattle entered the borders of Holstein, so "Holstein" is a misnomer. The real name should therefore be "Friesian cow." Before I bring this article to a conclusion I wish to emphasize that it is far from my intention to open a new campaign of name discussion. The breed is old and famous enough to keep its present reputation under any name. The value is not in the name but in the production capacity of the cow.

Hog Scales and the Auto in Which the Equipment Was Carried by Mr. Lindgren in Farm Feeding Tests

Farm Feeding Tests

Very little practical feeding data is available for determining the costs of meat production. In many localities, conditions of feeds, water and climate are so different that local practical feeding tests are of great value. On many farms platform scales are now being installed to enable the feeder to weigh his stock and feed to determine just how things stand. This practice often saves the feeder a great deal and informs him as to the most economical practice.

When in the employ of the government the writer conducted feeding tests in co-operation with the hog feeders. The plan of work was quite simple. The farmer having hogs on feed was usually very glad to co-operate in learning what he was actually making. Not only was the information valuable to him but to his neighbors as well. He kept accurate data as to the amount of feed given. The hogs were weighed at the beginning of the test and again at the end. Very often intermediate weighings were made. When the test was completed the feed cost was determined as against the gains made and the feeder had the information as to whether he had made any profit.

The equipment to use in conducting these tests was a common cotton scales, chain and ordinary hog crate with a door at each end. When a convenient alley was arranged it was possible to weigh forty or fifty one-hundred pound shoats in an hour's time.

The data gathered from these tests covered considerable territory and gave information that was applicable to local feeding conditions.

The steer feeding carried on in every community should be closely watched and reliable data gathered as to costs of gains. This work is worth much to nearly every locality and does not require much labor. It is usually found that the county agents are glad to supervise the work, where they are not already overloaded with duties.

The Extension department of Colorado Agricultural college is putting on several schools for farmers where feeding is to be given in textbook and lecture form, accompanied by actual farm tests. The object of these schools is thus set forth by Prof. R. W. Clark, livestock extension specialist: "To instruct farmers in formulating suitable economical rations, to instruct them in the care and breeding and judging of animals and to encourage the practice of better feeding by one or more feeding demonstrations."—H. A. L.

Shorthorn Calf Club

Fighting a blizzard and about a foot of snow fifty farmers of Elbert county gathered at the Gleason and Blazer ranch, south of Kiowa on Saturday afternoon, November 8, for the drawing of the Elbert County Shorthorn Calf club. In spite of the weather it was another big Shorthorn day for the Divide country.

Sixteen beautiful heifer calves, ten of which were roans, were haltered and tied in the barn. These calves were all bred and raised in the Divide country. Each calf was numbered and a placard told the name, age, breeder, weight and cost of the calf. The numbers were placed in a hat and the boys and girls drew for their calf. Registration papers and an insurance policy good for one year were included in the drawing. The Hartford Insurance company made a special rate for the calf club and each calf carried $140 insurance in case of death by any means. The club was financed by the Stockgrowers State bank of Kiowa, the boys and girls signing eleven month notes bearing 7 per cent interest. About half of the boys paid cash for their heifers.

Mr. Tingle of the Colorado Agricultural college placed a valuation on each calf, the best calf bringing $160 while the poorer ones brought $140. This included the insurance. Dr. Johnston, of the Purity Serum company of Denver, vaccinated each calf for blackleg free of charge. Keen interest was manifested in the drawing. Immediately after the youngster had drawn a number he was anxious to find his calf and in several cases much affection was shown to the new acquisition.

The average cost of the calves to the boys and girls was $148. The calves were all this year's calves and the average weight was 504 pounds. The members of the club are going to take care of these calves for one year and show them in September, 1920. Already $200 has been subscribed for premiums in the club for the contest. Several cups will also be offered.

The Calf club was formed by the Elbert County Farm bureau and is one of the projects to develop the Divide country into a Shorthorn center. This country already has established a reputation for Shorthorn cattle and by adding sixteen new breeders, it will not take many years to develop into one of the strongest purebred cattle centers in the west.

The calves for the club were supplied by Hixon & Sons, Simla; Gleason & Blazer, Kiowa; Cornforth Livestock Co., J. Paul Jones, of Elbert, and John Smith of Franktown.

The club consists of three girls and thirteen boys. The ages vary from 10 to 18 years. The following are the names of the club members: Marjorie Gleason, Helen Clark, Florence Litherland, Allen Carnahan, George Carnahan, Loren Gleason, Sharon Litherland, Verner Litherland, James Litherland, Ben Kusma, Paul Weiss, Floyd Weiss, James Bruce, George Maul, Marvin Murray, and Marvin Myers.—H. L. Ford, County Agent.

New Calf Club Record

Twenty-nine registered yearling heifers bred by John E. Painter & Sons, Roggen, Colorado (the famous Lakeside herd), established a new record for calf club sales on the farm of E. S. Moser in Johnson county, Kansas, recently. These heifers were bought last spring, the selection being made on the Painter ranch at the suggestion of an American Hereford Breeders association representative. They were distributed to calf club members on the Moser farm May 17. Every member was given a booklet contalning instructions for the proper handling of purebred calves.

On October 25 the calves were brought back to the Moser farm for grading and judging. Premiums amounting to $1,000, contributed by the Hereford association, John Painter and Mr. Moser were distributed among the youthful breeders for excellency in handling their calves. Orville Nicholson won the first prize of $200; Donald Hite was second, R. W. Hemphill, third; Austin Brockway, fourth, and Harold Hite, fifth prize winner.

At the auction sale which followed the 29 calves brought $12,415, an average of $300. Twenty-four of the heifers were purchased by Johnson county farmers, and only one of these buyers had been handling purebred cattle before the calf club was organized.

The Farm Bureau of Millard County, Utah, through its livestock project committee and county agent, induced 54 farmers to co-operate in the marketing of the wool clip, with the result that 32,500 pounds of wool were pooled and marketed at an average price of 50 cents a pound.

If you don't know, ask Western Farm Life Service Bureau.

How I Make Big Money Out of "Ornery" Horses

R. W. Sinclair

ABOUT two years ago I witnessed up in New York State an exhibition of horse-training that opened my eyes. A man by the name of Mackley took a devil of a mean, vicious mare that hadn't been harnessed for seven months and in a few days had her gentle enough for a school girl to drive. Mackley had taken the mare off the owner's hands for $50 and just ten days after sold her for $175.00. A clear profit of $125.00 in ten days!

That started me investigating. I learned that Mackley had simply used the methods introduced by the famous horse trainer, Jesse Beery. Beery, I learned, used to go about the country giving wonderful exhibitions in colt-breaking and horse-training; but realizing that he could accomplish more by teaching his methods by mail, had given up his exhibition work to spread his horse-training secrets by mail-instruction. Mackley had studied Beery's Course in his spare time and in a few months was able to accomplish magical results with green colts and horses with bad habits.

Other Successes

Mackley's work showed me a way to make some nice money and I determined to take Prof. Beery's Course in horse-training—but before doing so I made further inquiries. Here are what a few of Beery's students said. I'll let them tell of their success in their own words.

Mr. S. L. Arrant writes: "Just to test Beery's methods, I bought the worst balky, kicking, fighting horse I could find. Paid $65.00 for him. After handling him only a few hours according to Beery's system I sold him for $135.00.

Mr. Dell Nicholson, Portland, Mich., writes: I have trained a four year old mare that was given up by everybody. Bought her for $35.00, and now have her so gentle, my little boy handles her. Wouldn't take $200.00 for her.

Dean L. Smith, Findley, Ohio, writes: By following Beery's instructions have changed a worthless, dangerous balker into a horse worth $225.00.

Everett McBlock, Elkhart, Ill., writes: Have just broken a pony to drive and taught it some tricks. Owner bought it for $17.50. Paid me $40 to train it. He just sold it to a show company for $150.00.

How I Work

The big source of my income is in buying up "ornery" colts and horses at bargain prices, and after training the animals, selling them at a good profit. However, I also pick up good money handling colts and training horses for others on a fee basis. For instance, a farmer had a beautiful driving bay that had the bad habit of shying. A piece of paper blowing across the road would set the horse crazy. The owner thought a great deal of the animal, but couldn't take chances on the shying habit. A friend of his for whom I had done some work put this man in touch with me and in a few hours I had the horse completely cured of the habit—for which job I received $50.

Curing Bad Habits

You can see from this that my work consists not only in breaking colts and "gentling" vicious horses, but in curing the various bad habits a horse can have—such as shying, balking, fear of automobiles, etc., pulling at hitching strap, pawing in the stall, etc. etc., Beery's methods of colt breaking are particularly amazing. Under the old way of handling green colts one usually had to half kill the horse as well as himself to accomplish anything—and then the colt was usually spoiled or hurt in some way or other. But, when you apply Beery's principles, there is no hard, long work or injury to the colt.

No one should have a biting, kicking or balky horse when it is so easy to cure these vicious habits. No one should attempt to break in a colt the old fashioned way when Beery's methods make the task so easy. To every horse owner, to every lover of horseflesh, my advice is to get acquainted with the Beery principles. You can not only make money for yourself, but you can do a world of good, particularly at this day when war-demands have placed a premium on horses.

Wonderful Book Free

I have been requested to state that Prof. Jesse Beery will send his remarkable booklet, "How to Break and Train Horses" free to those interested. It is a booklet well worth having as it reveals some startling information on horse-training. I have heard men who considered themselves expert horsemen say that the booklet was a revelation to them. There is no use in my going into details on the booklet when you can get it free for the asking.

Just drop a line to Prof. Jesse Beery, Dept. 5012, Pleasant Hill, Ohio, and the booklet will be sent free by return mail. A postcard will do as well as a letter.

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H.R.H. the Rider

ROMANTIC ADVENTURES OF A PRINCE, A MAID, AND A HIGHWAYMAN

By EDGAR RICE BURROUGHS—Author of Tarzan of the Apes and Other Tarzan Tales

(Copyright by Edgar Rice Burroughs)

'Captain Polnik, turn out the guard. mpress into your service as many of he private machines as you may need, n addition to the military and royal ars at your disposal here, to transport our men in pursuit. Lose no time. At he border scatter your forces in both irections, unless you strike the trail efore, and search the mountains thor- ughly. The Rider lairs somewhere not ar from the Roman road. We will go t once to Demia, where you will keep is advised of the progress of your earch. Do not cross into Karlova ex- ept under the most pressing necessity, hough I do not need to tell you that I hall expect you to cross even into hell, f necessary, to rescue her highness from he clutches of that devil's spawn."

"Yes, sire," replied Polnik.

"Good! Now go. In the mean time we will wire Sovgrad to co-operate with is from their side of the border."

Captain Polnik saluted and left the all. The guests, who had risen when he king rose, were now talking excit- dly among themselves. Those who were fficers of the guard were hastening from he palace to join their men. All was ustle and excitement. The courtly form nd ceremony of a royal function were orgotten or ignored. In the mind of ach Margothian there but a single hought loomed, large and ominous— heir beloved princess was in the hands f that n torious cutthroat and scoun- irel, the Rider. In fifteen minutes from he time that Captain Polnik left the anquet-hall twenty automobiles carry- ng a hundred and fifty officers and sol- iers of the guard were racing toward he Roman road, on their way to the estern frontier.

Several miles ahead of them two other utomobiles sped westward. In the fore- ost car rode Mrs. Abner J. Bass and er daughter, Gwendolyn; in the second he false Prince Boris, with Alexander alensk and Nichoias Gregovitch, rode n moody silence, bound for the hunting- odge of the Crown Prince of Karlova, here the Rider and the prince were gain to exchange identities and take p once more the particular roles for hich each was best suited by nature nd early training.

"I hope Boris will be there," said lexander.

"Peter can get word to him quickly nough if he is not," replied the bandit. If he is not there, he will be in my amp—if the gendarmes haven't got im."

At this, Nicholas laughed. "Gad!" he xclaimed, "what a joke on Boris, if hey should!"

"And on us, too," growled Alexander. It would cost us our commissions hould his majesty ever learn our part n this affair. Say, what have we here?" s the car turned to one side and came o a stop beside another machine which locked the road at a bad turn.

The royal chauffeur was excitelly be- ating the driver of the other car for topping in such a place.

"Get out of there!" he cried. "Make ay for His Royal Highness Prince oris of Karlova."

"G'wan, you dago!" growled the man ddressed. "Talk American. What do ou t'ink I am?"

If her chauffeur had failed to under- tand the speech of the Karlovian, Mrs. bner J. Bass rad not. "His Royal ighness Prince Boris of Karlova!" Mrs. lass was out in the dust of the Roman oad in a second.

"McDougal!" she cried sharply. "Have care! Prince Boris of Karlova is in hat car!"

"I don't care who's in dat car!" grum- led the exasperated American, who ad heen tinkering with a refractory agneto. "If he t'inks I can pack a ourin'-car off on me back he's got an- dder t'ink comin'."

The three men had now descended rom the royal limousine, the two officers aving seen that a woman in distress, nd the handit following their example rom force of habit.

"I am so sorry, your highness," apolo- ized Mrs. Bass, looking questioningly rom one of the men to another; but one of them seemed desirous of ac- nowledging himself Crown Prince of arlova. It was at this moment that wendolyn stepped from the car to her nother's side.

At sight of her the Rider raised his ilitary cap and bowed low.

"Permit me," he said, "to offer my ervices. I am Prince Boris of Kar- ova."

Mrs. Bass and her daughter curtsied. lexander and Nicholas raised their hel- ets, bowing low from the hips.

"I am Mrs. Abner J. Bass, of Amer- a," said the wife of the multimillion- ire, "and this is my daughter."

The Rider licked his lips. He had eard of the millions of the famous bner J. Bass. What a haul!

"If you will permit me to offer you he use of my car," he said, "I will adly take you to Sovgrad. My alds ill remain with your chauffeur and see hat he gets in safely after he has made he necessary repairs."

Alexander and Nicholas bit their lips nd scowled. The effrontery of the man! Nicholas looked at Alexander. What ere they to do? They had given their romises to respect the exchange which their prince had made with the highway- man, and to treat the latter as their lord and master until the true Boris claimed his rightful position. Alexander shrugged, and bowed in acquiescence. The Rider held open the door of the royal car, and assisted the two ladies to enter. Then he followed them.

"Good evening, my friends!" he called through the window to the two officers as the car started once more upon its interrupted journey.

As the car bowled along the road, the Rider thought rapidly. It never would do to enter Sovgrad in the royal car, nor could he hope to hold his precious prizes within the boundaries of the capital city. Picking up the speaking-tube he signaled the driver.

"To the hunting-lodge," he said; "but stop first at Peter's Inn." And then to Mrs. Bass: "It is a long way to Sovgrad—we will stop for a moment at my hunting-lodge for refreshments."

Mrs. Abner J. Bass, quite overcome by this close communion with royalty, would have agreed to anything.

"How thoughtful of your highness," she murmured.

In the dim light the Rider could see that the younger of his victims was extremely beautiful. To her he addressed most of his remarks. He told her of the attempt to marry him to the Margothian princess, and during the narration an inspiration came to the unscrupulous scoundrel which almost caused him to laugh aloud.

"You see," he said, "I must marry at once, some one whom I could love, or I shall be forced to marry this hideous woman. Of course, if I marry another, I cannot marry the princess."

"It would seem that it should be easy to find many desirable princesses who would be honored by such an alliance," suggested Mrs. Bass.

"But she need not be a princess," the Rider hastened to assure her. "In fact, I should much prefer marrying one who is not a princess," and he looked directly and pointedly at Miss Gwendolyn Bass.

Mrs. Abner J. Bass gasped and almost choked. For once in her life she was at a loss as to what to say. A real prince —a crown prince! And he had as much as said that he would like to marry Gwendolyn. "Her Royal Highness the Crown Princess Gwendolyn!" My! how wonderful it all sounded! And later, Queen Gwendolyn! Mrs. Bass was thankful that she had chosen a really distinguished name for her daughter.

Miss Bass, who had seen quite all she desired of the royal features, shrank far back into her corner of the car, a little shiver of horror playing up and down her spine. What had become of Hemmy? She was sure that she had caught a glimpse of him in Bucharest, and that her mother had seen him there, for immediately Mrs. Bass had altered her plans and turned back toward the west. She needed him now, if ever she had heeded anyone, for she was not so blind but that she could read all too plainly the trend of the thoughts of the man at her side, and she knew her mother quite well enough to be sure that that ambitious lady would jump at the chance to become the mother-in-law of a prince of the blood-royal. But Hemmy might have been dead and buried, thought the girl, for all the good he could do hernow. She hadn't the faintest idea as to where she might reach him.

The man at her side had been talking earnestly with her mother, now he had turned and was speaking to her. At first she only half comprehended the

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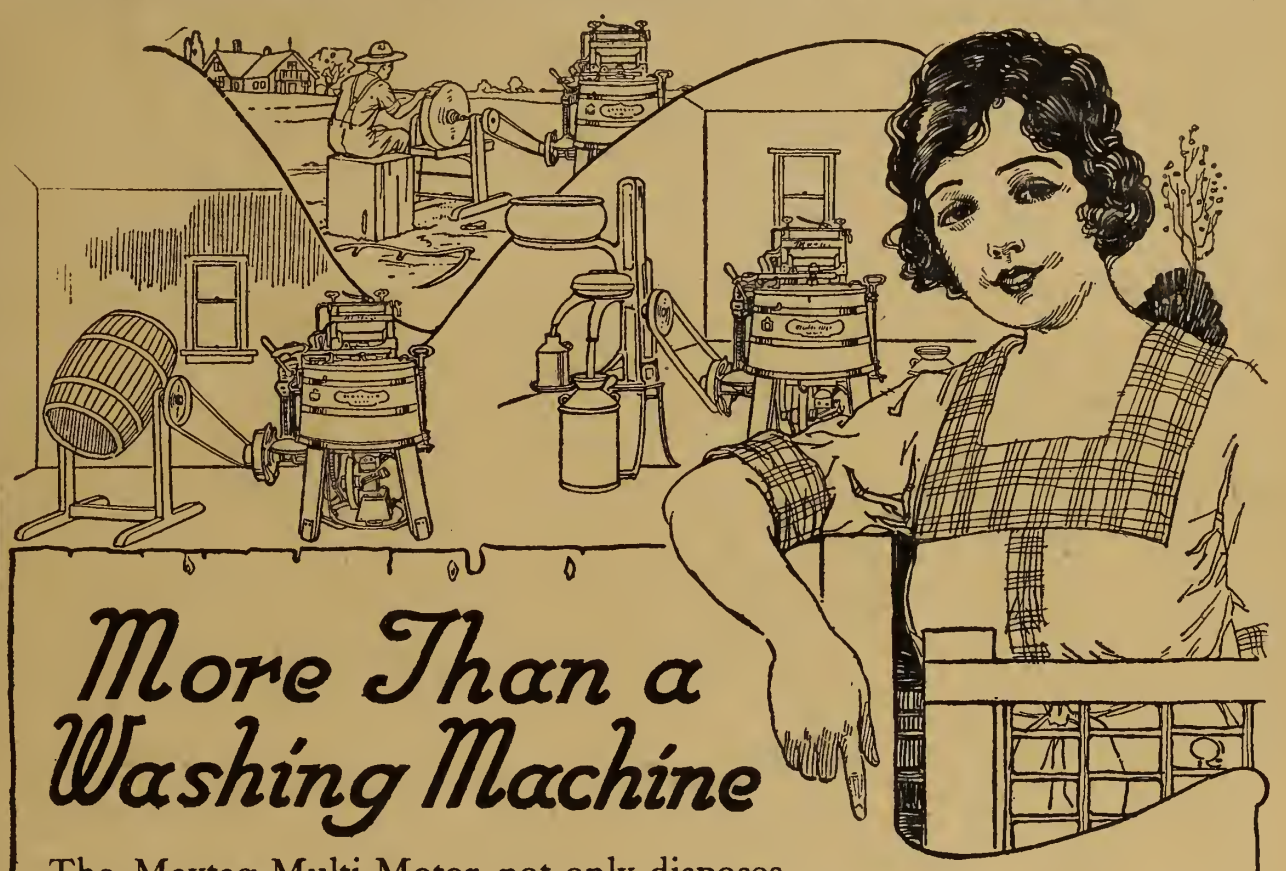

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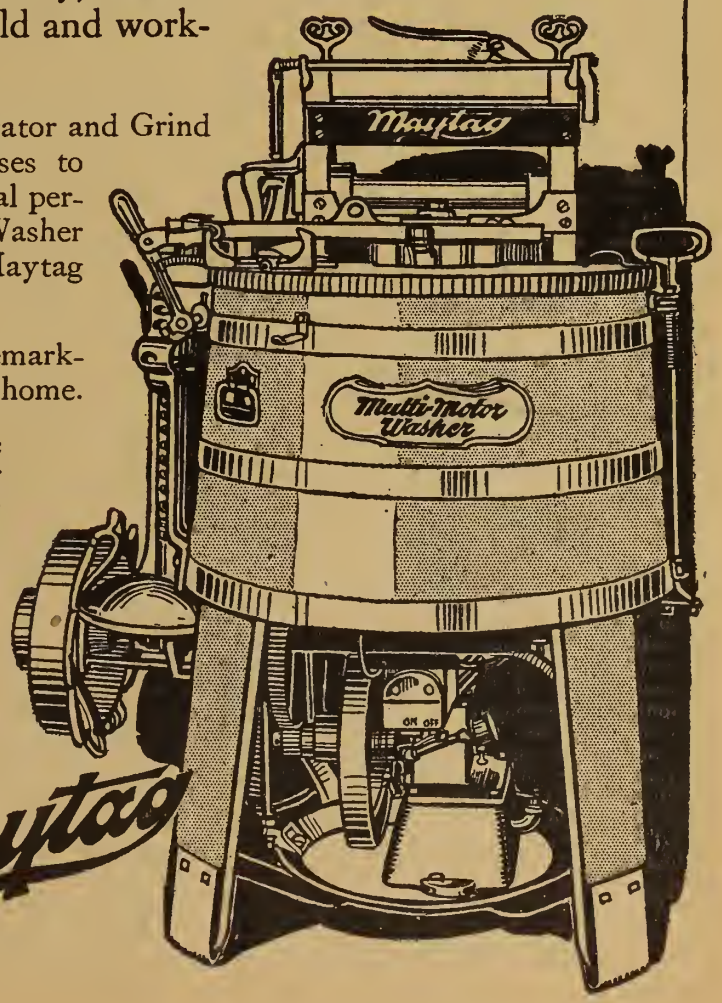

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Where the Grange Stands

The great majority of American farmers will approve every word of the stirring declaration with which National Master Oliver Wilson recently opened the annual session of the National Grange at Grand Rapids, Michigan. During the present period of unrest and uncertainty when the very foundation of the nation is threatened on the one hand by outright anarchy and on the other by class government, it is encouraging to know that the pioneer among farm organizations remains firmly rooted in the principles that make for the highest type of citizenship. Hear what the National Master has to say:

"The keynote of the hour, whether we face our national problem or consider our national blessings, is found in a single sentence—we must all be Americans together. There is too much of the tendency among our people toward class endeavor, class thinking, class legislation and the interests of the nation demand the destruction of such unworthy ideals.

"In the final analysis the entire economic and industrial and social troubles of the times simmer down to simple selfishness—almost every man is out to 'get his,' regardless of how his neighbors fare.

"Always characterized by its breadth of vision, the Order of Patrons of Husbandry more than half a century ago declared its purpose to educate and elevate the American farmer, but in order to clearly define the place which the organization proposed to take in the vast structure of American affairs, it further announced its purpose, 'for we seek the greatest good to the greatest number.'

"Only by a revival of this spirit and by the consecration of the whole people to its attainment can a republic ever hope to survive. We must all be Americans together."

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Advertising Livestock Sales

Many purebred livestock sales have failed because of the lack of sufficient advertising. A breeder is not doing himseif justice when he attempts to conduct a sale of his surplus stock without an announcement at least 60 days prior to the time of holding it. The reason for this is that breeders scattered over the territory may be looking for just the strain one has to offer and would come from a distance to attend the sale. When a sale is rushed through in two or three weeks time, it is difficult to reach just such conditions. A breeder cannot expect to rely on local competition to bring up the sale average. Local buyers often attend largely out of curiosity and are there to buy as cheaply as possible. No one can be blamed for this. However, a breeder of registered stock is entitled to consideration and it is only through strong outside competition that he realizes the average he is entitled to. A strong advertising campaign is necessary, extending over a period of at least sixty days and better yet, ninety days.—H. A. L.

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On Steers and Profit

"Two for a nickel—three for a dime."

Is the joke on you?

Some time ago a neighbor butchered a ten-months old steer. It dressed 296 pounds. Another neighbor butchered a three-year-old steer. It dressed about 50 pounds more than the calf.

It had cost three times what the calf had cost to raise. Did it bring three times as much? Oh, no. It brought about ten dollars more.

Can you afford to keep an animal three winters for ten dollars?

How much profit was there in the steer? Nobody knows. Maybe enough to pay Ford his libel suit damages of six cents!

How much profit was there in the calf? It was born in February and killed in December. It was raised on its mother's milk and on pasture. It ate very little hay. Hide and ail, it brought nearly sixty dollars. Half of this was clear profit. It would take five three-year-old steers like the one mentioned to make as much profit as one calf.

In another case a man butchered an eleven-months-old steer that dressed 262 pounds. From it he realized, hide and all, between sixty-five and seventy dollars. Soon after he butchered a four-year-old that brought about eighty-five dollars.

Would you keep an animal three years and one month for seventeen dollars?

On a farm a yearling is half profit, short or long.

A 4-year-old has eaten most of that profit.

The yearling says: "Here I am a good twenty dollars clean profit. Keep me over three winters and I will make you half that profit!"

Most farmers who are in the habit of keeping steers to maturity could not make a profit on a yearling.

Why?

Because they can't raise baby beef, but only knot-heads.

To dress 300 pounds at twelve months a calf must be well fed. A poor feeder must keep a steer four years to make twice that weight.

To feed as little as possible is to cut your profit to the minimum. To feed as much as possible to a growing animal and to sell at the right time is to make the maximum profit.

Why keep a steer FOUR years for 600 pounds of meat when you can get 300 pounds in ONE year?

A friend of mine was standing near a fruit stand in Chicago waiting for some one. There was a run on peaches. As people came by they stopped to ask the price. With a face that never twitched the fruit-girl chanted in a sing-song: "Two for a nickel. Three for a dime."

And those Chicago suckers invariably said, "Give me a dime's worth!"

Don't be a sucker!—Gordon Kent, Pinecliffe,C olo.

She Likes the Cotswold

Editor Western Farm Life:

I note in your last issue item on sheep by Ed. R. King. He doesn't say very much about the Cotswold sheep. I am the owner of 400 head of pure-blood Cotswold. I bought 200 ewe lambs and 100 ewes last October from Frank Maw of Cokeville, Wyo. I picked out the long, heavy, curly type of Cotswold from his herd of 3,000 head. I sheared these 200 yearlings and 100 ewes on the 15th of March, averaging 9½ pounds to the head and again on the 1st of August, averaging 6 pounds to the head, making 15½ pounds each for these sheep in one year. I sold the wool for 55c per pound, making $8.52 for wool from each sheep. Lambing started the 15th of March and I got 110 lambs from the 100 ewes. These lambs are now four to five months old and the wool on them is 4 to 5 inches long and they weigh from 50 to 100 pounds each. If one should doubt my word these lambs can be seen at my home one mile west of Englewood bank on West Hampton avenue. I have owned different kinds of sheep and have found out there is money in any breed, if they are handled properly. It is all in knowing how, and the sheep business is quite a trade of its own. The Cotswold will not do well if corralled. I never have any of my sheep lose their wool like the Lincoln and Leicester. The only drawback I can find to the Cotswold sheep is that they are hard to herd. But I find they are the only sheep in this country that can be sheared twice a year. These sheep of mine will shear on the average of 10 pounds of wool to the head in March and again in August 6 pounds, so what beats that?

I have found that the Cotswold sheep will not bloat on alfalfa. I ran my sheep for two months last fall on green alfalfa, wet alfalfa and frosted alfalfa and also grazed them in alfolfa fields this summer and have never had a bloated sheep. These sheep grow wool so fast that their stomach is working all the time. Now you can't say the same of other breeds of sheep, as no one cares to try it. Also I have had a Cotswold sheep drop a lamb in January on the range in Wyoming and the ewe was in full milk and raised a fine lamb. Have also had the close wool Merino or Rambouillet ewes drop lambs the same time and all they would have in their bags would be a little yellow gum and they would lose their lambs. I have tried all kinds and breeds and the Cotswold is the sheep for me. It is true they are very hard to herd and seem to find all the gardens and alfalfa fields within five miles, but nevertheless they bring in the money—Mrs. J. B. Snodgrass, Littleton, Colo.

Another Johnston Producer

Colanthus, owned by Lohry & Walles of the Johnstown district may not be the milkingest cow on earth, but the record of her achievements in milk-pail filling during the past nine months would sound like a fairy tale if it came from less authority than Roy Curtis of the Johnstown Cow Testing association. Colanthus' record taken from the association's books shows that during the period of nine months she has produced 18,241 pounds of 3.8 per cent milk yielding 583 pounds of butterfat, which is the equivalent of 729 pounds of butter. At an average price of 60 cents a pound, which is probably too low, the cow's earning capacity is thus established as $439.40, or $48.82 per month. A son of this cow has been sold for $350.

Colanthus, however, is not the only cow in the Johnstown district. W. A. Purvis owns a 2-year-old heifer, a daughter of Rocable, who was high cow in the association last year, and who is giving 60 pounds of milk a day which tests 3.3 per cent.

The largest producer in the district for the month of September is Trilby, a Holstein owned by L. H. Harrington, whose record is 2,020 pounds of 3 per cent milk. The heaviest producer of butterfat is Fannie, owned by J. W. Whowell & Son, whose 1,952 pounds of milk contained 68 pounds of butterfat.—Weld County News.

Poultry and Corn Show

The Loveland Poultry and Pet Stock show will be held in connection with the Larimer County Corn show at Loveland, Colorado, December 30 and 31, 1919, and January 1 and 2, 1920. Extensive plans are being made for this event. The officers of the show are President Rock Buck, Loveland; Secretary-Treasurer Lee H. Hoffman, Loveland; directors, Roy Toliver, C. H. Droge, Glen Draggoo, S. C. Orr, R. M. Karnes.

The management is being assisted in this work by County Agriculturist D. C. Bascom and County Club Leader W. S. Hill. The poultry shows do much to improve the methods of handling poultry and to create an interest in good birds.

Nothing is better for the corn grower than the corn shows. Where the communities are taking hold of this idea, there is a marked improvement in corn grown. The grower has an opportunity to learn how his corn can be improved by proper seed selection. It tends to standardize the varieties in the community. The first show held may contain a variety of types of ear and kernel but by continuing with the show each year a great deal of good results to the industry. The Rocky mountain states can grow corn and the corn show is bringing results in showing just what varieties are best suited to a given locality.

If you like this magazine tell your neighbor about it.

The Branding Iron

Nebraska has a law providing f the copyrighting of farm names. It a good law. The farmer who orga izes his business, advertises his pr duct and keeps careful account of h operations should have a copyrighte name for his farm. It is his trad mark. It adds dignity and profit the farimng business.

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Alice's papa belonged to sever lodges. One day little Alice was e plaining to her little brother Fredd the relationship between the moth hen and the little chickens.

"Now this is the mamma hen," sh said, "and these are her little babies

Here she stopped and thought moment, then turning to her moth asked: "Mamma, where is the dadd chicken? Has he gone to lodge?"

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"Syrup which will answer the pu pose of sugar is now being made fro malting barley, the process up to certain point being the same as tha used in making beer." So reads Department of Agriculture news not Suppose a fellow making this stu should fail to see the point when h got to it and kept right on, would th resultant product get him in bad wit the revenue officers?

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A silo at the Kansas State Exper ment Station has been filled with wi sunflowers for the purpose of testin in comparison with sorghum and cor silage. Milk production as well as th quality of the milk and butter to b made from the three kinds of ensilag are objects of the test. According t a press story sent out by Kansas Agr cultural College this test will dete mine whether the Kansas sunflower i as suitable for making butter as it i for making poetry.

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Reports received by the Immigr tion Department from all sections c the state indicate that the populatio of Colorado is now approximatel 1,100,000, an increase of about 38 pe cent in the past ten years. The censu bureau found the population of th state in 1910 to be 799,024, an increas of 48 per cent over that for the pr ceding ten years. The increase in th decade just ending is confined largel to the agricultural districts and i greatest in the non-irrigated section of eastern Colorado.

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If we follow the advice of some o the experts and convert everythin into ensilage, what's to hinder us fro taking our ease and letting the whol estate grow up in Russian thistle wild sunflowers, lambsquarter, povert weed, wild morning-glory and Jim Hi mustard, working only in the fal when these crops are harvested an put into the silo. The fields will re seed themselves and there'll be n plowing, no harrowing, no drilling an no nothing! Life would be just on grand dream on the silage farm.

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The area of farm land reported fo taxation in Colorado this year i 26,574,201 acres, compared with 25 129,943 the previous year. Accordin to the State Immigration Departmen most of the increase is in acreage o dry farming land, the total of whic reported by the assessors is 9,952,19 acres. Twenty years ago this area o nearly ten million acres was con sidered fit only for grazing and had value of not over $3.50 an acre. To day the average value is about $30 a acre. And still some people doubt th practicability of dry farming!

He Likes the Magazine

Western Farm Life,
Denver, Colo.

Gentlemen: My subscription expires in December, so I am inclosing check for $2.00, for which enter me till January 1, 1925. My files of WESTERN FARM LIFE for the last five years include a tremendous amount of inspiring and practic matter, compared to which the subscription price is a mere trifle.

Heartily wishing you all success,

Sincerely yours,
GORDON KENT,
Pinecliffe, Colo.

Comment by Farmer Putnam

MANY FRIENDS COME TO HIS RESCUE WITH LETTERS OF APPROVAL

THE I's have it. All the votes is in favor of me goin' right ahead with this here kind of writin' and payin' no attention to what that thar college professor said about butcherin' the English language. I'm still hearin' from the outlyin precincts and everybody so fur is unanymus. Some sez they don't want me to quit writin' this way because they know it's the only way I kin write and they believe in lettin' people earn their bread; others sez that if I quit they won't hear nuthin' more about Josephine and that would be a calamity, because she is the life of the family; others thinks if I keep on quite a while I might finally learn to write and spell. Anyhow nobody wants me to quit. One man writes that it would be best for me to keep doin' what I been a-doin' because he's afraid I might really want to try to farm if I did'nt have no literary work to do and that would be awful hard on the land. He sez he'd hate to try out some of them theories of mine and so long as I confined myself to writin' about

'armin' and didn't try to do any of it, ill would be o.k.

I reckon some of you folks knows Jncle Hiram Moseley that runs the Hermitage in Castle Rock? Well he vrote to the editor sayin: " I think little nonsense now and then is relished by the best of men; and still it's ense of the best kind. I think this tyle of writing suits the majority of eaders. In my life of seventy-two ears I have read a great many differnt men's writing. Petroleum V. Nasby of X Corners, Kentucky, was one of he most laughable writers fifty years go; still everybody did not like his tyle. Farmer Putman was in town nd wrote up a farmer's picnic in fine hape. I cut it out to keep like many ther of his writings. Whatever you o don't let him go. I am as healthy as blooming rose and always have been. hope to live a great many years yet o read Farmer Putnam's writings."

When he handed me that the editor ez: " Well Farmer Putnam here is a an after your heart. They call him Jncle Hiram. You ought to look him p when you go to Castle Rock next me." I sure will.

Old Gad Barney of course wrote to ie direct, because him and me belongs o the same lodge, talks the same anguage, eats the same grub, believes n the same God and political party and as other interests in common. He ez, sez Gad: "Dear Tom. Don't let the ollege professor bluff you out of writng the good old Show Me lingo. What ood would it do if you did write in the est King's English? You may as well rrite in French, Cherokee or some ther foreign language. Who are you rriting to, the farmers? Then tell it n words they can sabe and appreciate. Jnderstand, I'm not saying anything gainst the professors; I suppose we ust have them along with the county gents and other necessary annoyances. Don't get discouraged Tom and when ou have anything to say, just go to it n your own way and the rest of us 'ill be too polite to make remarks in egard to your lack of English grammer.—Gad Barney, Haswell, Colo. (X-B anch, Big Type Poland China Hogs. dv. tf.)

Another of them old timers I heard om was Mr. O. F. Thomas in Crested utte. That's up in the Gunnison ountry. Nuthin' but ranchers up in at country; they don't call it farmin'. t's the finest country fur grass and ater and trout fishin' that you kin nd anywheres. Mr. Thomas sez: "I on't want to lose my vote, so I will rite you a few lines. The first thing read in the Farm Life is your piece. here is lots of men that is highly ducated that thinks you and me are anged fools, but if they want to know ow much they are missed when they ie let them stick their finger in a barel of water and see how big a hole ere is left."—O. F. Thomas, Crested utte, Colo.

Here is another one that comes from ver the range in Routt county: "Western Farm Life would not be the same ithout Farmer Putnam and his Missouri hash. I am surprised that after all ese years that he has stood for Josehine, he would even give that profesor a second thought. Like the rest of s, he isn't above criticism; what Josehine has written proves that."—E .C. hindorf.

I heard from Charley Coppledge too. Charley raises all kinds of dry land crops down near Clayton, N. M. His place is three quarters north of Royce's Switch; it's the Moundinvale Seed Farm, and he sez: "Your mode of expression suits me. The professor is all right at school. I have known some of these over-educated ginks that could waste four columns telling the difference between peas and beans."

Thanks Charley, but you notice I don't let 'em skin me when it comes to wastin space. I kin write as much about nuthin' as any of 'em.

Bruce Jackson out near Cheyenne Wells sez: "We think Farmer Putnam all right and think you should continue to publish his pieces. They contain many good points which would not be read or noticed if they were written in college style. They contain real facts which the professors of English can't understand."

I got one from the wife of one of them agricultural experts that lives in Manhattan, Kans. She sez: "Your articles are too valuable to be omitted. Just take the objections as an advertisement of your wares. Keep up your good work. Your page is the first one read here at our house and most of us have had college training. The ideas are worth while and presentation acceptable here."—Mrs. J. E. Payne.

That's a fine one. I hope Josephine don't mind me printin' it.

I got another one from a lady livin' in Lockwood, Colo. Them ladies is mighty nice about it. I showed the next one to Josephine and she sez:

"Oh, that's all right Tom; that's Mrs. Englewood. She's a-doin' that on my account; either that, or she's sarcastic."

Well anyhow she sez: "His wit is perfectly delightful. Are we not to give our farmers anything at all to laugh at? It was the first article that attracted my attention and now I often read every one in the paper."

Doctor Collins of Bushnell, Neb., sez; "Now for my part we would not take Western Farm Life if you did not have your story in the paper. I love to hear your old time language, as I call it, and I am not alone. Our family counts the days till they can hear your story and we quit our work and read it."

Thanks Doc; if I ever git sick I'll call you and then, if I get well I'll give you a testimonial. (I don't know the Doctor; I hope he ain't no vet.)

C. R. Atkins, Colorado Springs sez: "I am a farmer and enjoy reading those pieces of yours and I think any paper ought to have more or less spice. Those who do not care to read it can pass it by."

H. M. Scott, New Raymer, Colo.: "In these strenuous days where money seems to be the prevailing motive everywhere, a little wit and humor go a long way to make life more pleasant and agreeable."

Mr. and Mrs. Ben F. McDonough, Parlin, Colo.: "Consider this a vote very strongly in favor of anything Thomas J. Putnam writes, and we are not old fogies either, but young ranchers. His page is our favorite in Western Farm Life."

It sure does a old man good to have them young folks speak up like that. Most of the young uns thinks I'm past my usefulness, and gittin' childish.

Here's one from a lady livin' up in Granite: "Everybody that knows far-

Turn to page 14

Buy IDEAL heating

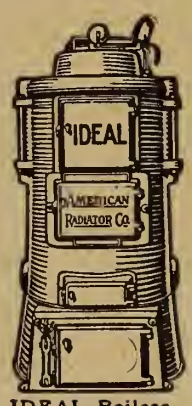
—the great necessity in farm life

The success of any farm is absolutely bound up with the success and welfare of the family which operates it. During the long winter the first necessity in the farm home is proper heat—the welfare of the family is dependent upon it. The farm family which struggles along during the dreary winter with chills and colds in a "barn-like" home is not laying the foundations for farm success. The family must have proper comforts and conveniences in order to be happily contented and make the most out of their land possibilities.

AMERICAN RADIATORS & IDEAL BOILERS

Will last as long as the building stands—burn any local fuel and get the most heat out of it

We insist that IDEAL-AMERICAN heating is the best kind for farm house because it can be installed in any New or Old building with or without water pressure. It is exactly measured to the size of the house so that no more or no less is put in to heat adequately all rooms to a comfortable temperature during the most severe winter weather. It saves labor and fuel.



IDEAL Boilers will supply ample heat on *one charging of coal* for 8 to 24 hours, depending on severity of weather. Every ounce of fuel is made to yield utmost results.

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Phone your dealer today and get an estimate for installing IDEAL-AMERICAN heating in your home. It puts you under no obligation to buy and may start you on the road to greater success in your farm life.

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Write for copy of free book "Ideal Heating"—this 64-page book will be sent promptly and we want you to read it because the information and illustrations will make you better posted as to the right kind of heat for your house. Don't put it off—write today.

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Harvest 20 to 45 Bushel to Acre Wheat in WESTERN CANADA

Think what that means to you in good hard dollars with the great demand for wheat at high prices. Many farmers in Western Canada have paid for their land from a single crop. The same success may still be yours, for you can buy on easy terms,

Farm Land at $15 to $30 an Acre

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Learn the Facts About Western Canada

—low taxation (none on improvements), healthful climate, good schools, churches, pleasant social relationships, a prosperous and industrious people

For illustrated literature, maps, description of farm opportunities in Manitoba, Saskatchewan and Alberta, reduced railroad rates, etc., write Department of Immigration, Ottawa, Canada, or

K. HADDELAND
Dunn Block Great Falls, Mont.
Canadian Government Agent.

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU. WESTERN FARM LIFE, Denver, Colorado.

Running Hogs at Large

Answer to E. W. K., Otero county, Colo.:

No hog or swine shall be permitted to run at large and the owner of any hog or swine trespassing on the property of any person shall be liable in treble the damages occasioned by such trespassing and a fine of not less than $5.00 nor more than $10.00 f r each offense. The law does not require the building of hog-tight fences, but this is about the only safe way for hog raisers to do if they wish to keep their hogs on the place. The man who owns the hogs is required to see that they do not trespass on his neighbor's land.

Fence Governs

A division fence, which has been up for twenty-five years or more is not on the property line as defined by deed. In that case which governs, location of the fence or description in deed?—J. H., Pueblo county, Colo.

In my opinion the location of the fence governs.—Hamlet J. Barry, Attorney,724 Equitable Bldg., Denver.

Concerning Suit In Equity

If a neighbor ignores your claims and subjects you to a great expense thereby, can one so word a suit and summons under protection of the common law or the law of equity as to hold the party so ignoring your claims responsible for any and all just and equitable damage resulting from such refusal to act and collect by filing the articles of equity and summons with the recorder of deeds and by registering the defendant a copy of same with the recorded notice? And can you compel the defendant to appear in equity court this way? B., Kit Carson county, Colo.

A suit of equity may be brought and, if the case is a proper one, a lis pendens may be filed with the county clerk and recorder.

Mr. B. has not told us just what the nature of the acts complained of is. In the absence of such information it is a little difficult to make suggestions. However, if Mr. B. has been wronged he can invoke the appropriate remedy and obtain relief against his neighbor.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

Concerning Property Rights

Answer t Subscriber, Colo.:

If a man files on a homestead in Colorado, puts house, etc., on it, lives there with his wife, can he sell his relinquishment without consent of wife to go into some other business, or must he have signature of wife to do so? Ans.: Yes.

If he should make final proof on said homestead can his wife have 160 acres of the 320 (the part where he builds house, barn, etc., on with his own earned money) fenced up for herself, as her property, although the man turned a $10,000 building in a city over to her, she getting the rent income from this building? Ans.: No.

Can the man sell the homestead in order to go back to his old business? Ans.: Yes.

Must he have his wife's signature to sell his homestead. No children to support? Ans.: Yes.

These questions are all answered upon the theory that the property stands in the name of the man, and that the wife has no part of the title and has not entered a homestead on the land on the margin of the record in the office of the county clerk and recorder of the county where the land is situated. If she owns any part of the land, or has homesteaded it, she will have to join in the conveyance of same.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver.

About Making a Will

Answer to Subscriber, Colorado.

One should make his will at the place where he resides if it is convenient to do so, so that he is sure then that the will conforms to the laws of his own state. However, he may make the will anywhere and he is able to have the will conform to the laws of all states, excepting possibly where such laws are inconsistent. So if one should draw his will to conform to the laws of both Colorado and California I see no drawbacks in the circumstances you mention.—Hamlet J. Barry, 724 Equitable Bldg., Denver.

Feeding Rye Straw

Ans. to J. O. M., Adams county:

Rye straw is a poor feed at the best. On acc unt of its woody nature it is not relished by stock. You might make it a little more palatable by mixing syrup with it. In doing this would suggest that you cut the straw in small lengths with a chopper or ensilage cutter. Dilute the syrup with water so that it can be sprayed or sprinkled on the cut straw. This will sweeten the straw but will not improve its digestibility. In feeding it mixed with syrup, it would be advsable to feed cott nseed cake with it. The rye grain is quite valuable as a feed but should be ground and mixed with other grains. It is necessary to exercise caution in feeding rye to horses, as it is apt to cause colic. In feeding it to horses, start with only a very small amount. It will probably be more valuable for the hogs than for the other stock mentioned.—H. A. L.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Treatment for Lump Jaw

I have a yearling steer who has been breathing heavy for two weeks. On examining him it seems like a big lump has appeared on the back of his tongue. Would it be safe to cut it open or what would be best to do?—E. S., Wyoming.

The swelling of the tongue may be caused by a foreign body penetrating the tongue, like a needle, wire, glass, etc., or it may be actinomycosis, which is the same thing as "lump jaw" but in the tongue is spoken of as "woody tongue." If pus has accumulated near the surface as indicated by the sense of touch, either on the tongue or below between the angles of the jaw, it should be relieved with a sharp knife. If the pus is very offensive and copious it will probably indicate an abscess and recovery should follow the escape of pus. If it is actinomycosis the potassium iodide treatment should be given at once. This treatment is successful in the majority of cases. If after further investigation it appears that this treatment is advisable, it will be better to employ a veterinarian, or in case veterinary assistance is not available, write to the editor of this department.—G. H. G.

Probably Rheumatism

I wish to ask for advice regarding a pig that I have. It is a Duroc male pig about 10 months old. He has been in a small pen all summer. Have been feeding mostly skim milk and bran slop and some cooked potatoes for about two months. Now he has gone lame in the hind leg. I turned him out but he seems to be getting worse. I do not know of any way in which he could have gotten hurt. Could it be caused from feeding too much skim milk and not enough other feed, and what can I do now to help him?—I. W. M., El Paso county, Colo.

In the absence of external lesions, probably the best guess is rheumatism. It will be hard to connect this condition with an unbalanced ration. Hogs are much subject to rheumatism, which may be muscular, but occasionally affects the joints, causing them to swell and apparently causing the animal much pain. Pigs are never so happy as when they can lie in their own bed on the ground with just enough litter to partially cover their backs. Rheumatism is liable to affect hogs that are kept on plank or cement floors. Hogs, to keep healthy, must have room to exercise and an opportunity to root and find their own bed. Treating hogs for rheumatism is seldom satisfactory. Try a better balanced ration, more room for exercise and an

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Every fruit grower should send coupon for the book. Read why Fruit-Fog, the scientifically atomized super-spray, is the ONLY spray *fine enough* to seek out and kill the *hidden* pests—millions of which infest the microscopic niches in bark, buds, and foliage where no coarse spray can reach. The book explains why this amazing Fruit-Fog *thoroughness* is adding *fortunes* to fruit growers' profits each year. Send coupon now.

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Fruit-Fog spray is produced by Hayes 300 lb. high pressure and the scientific Hayes nozzle. Its vapory fineness gives it wonderful *adhering* power. No drops form—no solution wasted—no buds or leaves knocked off—as with heavy, coarse, low-pressure sprays. Fruit-Fog Sprayers are skillfully made in every part to give enduring service and greatest efficiency under high pressure. Service stations all over the U. S. assure new parts within 24 hours in case of accident. The Fairbanks-Morse famous "Z" Engine means supreme engine satisfaction.

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Send coupon telling us how many fruit trees you have and their average age. We'll tell you the style Hayes Sprayer best suited to your needs, and its price. We'll also send our Big FREE BOOK showing 50 styles of Hayes Sprayers and our Valuable SPRAYING GUIDE. Send coupon below today.

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Correct Lubrication Governs Tractor Performance

The power and service you get out of your tractor depend on correct lubrication—a gas-tight piston-to-cylinder seal — every bearing and moving part running quietly—oil-cushioned against wear.

Ordinary oils are not suitable because tractors practically always operate at full load—the throttle wide open—with much higher cylinder heat—especially when kerosene is the fuel.

STANOLIND Tractor Oil

is the oil that leading tractor manufacturers recommend. It maintains correct body and lubricating qualities at the high operating heats usual in tractor engines. It keeps engine wear-and-tear at the lowest figures—the tractor in A-1 condition the year round at the smallest cost for over-hauling and repairs. Join the thousands of satisfied users of this oil.

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THE CONTINENTAL OIL COMPANY
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Albuquerque — Boise

open pen that will be comfortable but not so warm that the pig will become overheated.—G. H. G.

Suppression of Milk Secretion

Answer to R. J. C., Mesa County, Colo.

Checking of the milk secretion (agalacta) is hard to account for in instances. It is common to all species of animals. In some cases it is congenital, and mothers are never capable of nursing their young. Sudden suppression of normal milk flow may be caused by excitement, due to fright, anxiety, estrum, etc., but is usually of short duration. Disease will naturally cause a suppression of milk flow and this will probably account for the condition in this instance. Certain foods are presumed to influence the milk flow adversely, such as apples, pumpkin seeds, etc., likewise certain drugs. A Jersey cow recently gave birth to her fourth calf. She had been an average milker and was apparently in perfect health, yet when this calf was born the udder hung pendulous and there was no milk. All efforts to bring her to her milk failed. A year later she gave birth to another calf and gave more milk throughout the lactation period than she had previously given. This strange phenomenon was probably due to internal secretions, which have to do with the functioning of the mammary glands. Respecting the case under consideration, the cow is probably diseased, possibly the suppression of milk is due to the heavy ration of apples, but this is doubtful. There are many things that might cause it and which one is responsible in this case is problematical.—G. H. G.

Organized Vet. Service

The high standards in veterinary education are bringing results. Many more men are being trained in this profession and a much larger proportion are qualified to render an appreciative service. Commensurate with better trained veterinarians is the increased value of live stock. Veterinarians like other humans are rated as good, bad and indifferent. There are those who have not been sufficiently trained for their work; those who have not the aptitude; those who are possessed with the one idea of making money and seemingly have no sense of responsibility to the community other than getting all they can with the expectation of moving out with the next tide. Lastly, there are those veterinarians of whom we are proud, who are first-class citizens, educated gentlemen, a credit to the community and who have a high sense of responsibility in service. This latter class is in the ascendent; the fittest must survive.

There is an unprecedented demand for qualified veterinary practitioners and for veterinarians to supervise the control of contagious and infectious diseases. Our statutes do not provide for the control of hog cholera and other infectious diseases by fixing the responsibility upon any city or county official. The State Veterinarian in Denver is alone responsible. One physician appointed by the State Board of Health would not get far in controlling all communicable diseases of people in the state.

Several communities have for the present at least solved the problem of securing satisfactory veterinary supervision of their flocks and herds. The central thought in each instance has been to affect a strong organization for the dual purpose of securing the services of one or more veterinarians to guard against the introduction and spread of infectious diseases, and to treat the common diseases of farm animals. The different plans adopted are as follows:

Monte Vista—The Monte Vista Hog Growers' Association. with an auxiliary organization, The High Order of Grunts (H.O G.). A large membership; three veterinarians employed (started with one); annual dues, $25 00. Veterinarians practice for benefit of the membership and have effectually controlled hog cholera, blackleg and like diseases. They have an annual banquet of over 500 farmers and business men from Monte Vista and surrounding towns; an annual stock show, stock sale and farmers' institute. Once more hogs are considered a first class security for bank loans in the San Luis Valley. "Nothing succeeds like success."

Montrose—An organization of farmers, the Montrose Livestock Protective Association; employs one veterinarian; annual dues $18.00, which provides for services of the veterinarian for one year. Twenty cents per mile, one way, is charged for each visit. This is a wise provision, since it tends to prevent unnecessary calling of the veterinarian. The veterinarian is paid a good salary but furnishes his own means of transportation. Farmers pay for their own medicines.

La Jara—The county commissioners appropriate money to a farmers' organization to use as they see fit in the protection of the livestock industry. They have other means of raising money and they pay a veterinarian a nominal monthly salary to supervise the control of infectious diseases in the county. The balance of his income is earned in private practice. This plan seems to have been highly satisfactory.

Salida—There is an organization of farmers who have tried the plan of raising money by private subscription to subsidize a veterinarian to practice in the community. This plan is unique and may be adopted by other sparsely settled farming and dairy communities where a first class veterinarian cannot be secured in any other way.

Kiowa has a plan similar to Montrose. Durango, Alamosa, Parker and other places have these various plans under consideration and some of them will no doubt organize this winter. The college will be glad to assist in every possible way.

Dr. GEO. H. GLOVER.

Certified Spuds Profitable

Offers on potatoes produced from certified seed in the Dietrich, Idaho, tract thus far have averaged from 40 to 50 cents more per hundred pounds than the market price. More than 50 acres of certified seed were planted on the tract last spring. On the most conservative estimate of the yield, these prices will net the farmers an extra $50 an acre.

When preparing your potato ground apply your barnyard manure this fall and plow under, you will find it much better than putting it on in the spring and then discing it in. —Laramie County (Wyo.) Farm Bureau News.

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Get Latest Drag Saw Prices

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A complete power plant for log sawing or ice sawing. Arm Swing leverage and latest improvements. Simple, safe, easy to operate. Engine easy to handle. Saw stays idle until you push the clutch lever. Start slow or fast. Adjustable stroke on saw—180 strokes a minute. Goes anywhere. Does the work of 10 men. Write for description and latest prices, Free.

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The Cleveland Six is a finished product, not an overnight venture, not rushed to the market to meet an emergency. It is the product of years of intelligent thought and careful work—a car designed and built to supply higher quality in its field. Master skill and great sincerity are built into this car.

The Cleveland Six brings real motoring satisfaction to thousands who have wanted such a car. It is a welcome expression of the best ideals for service to the world, service of transportation and recreation.

The Cleveland is an extraordinary car of power, pick-up, speed and comfort, compact in its design and construction, yet roomy and unusually economical in cost of operation.

Nearly two thousand good dealers have contracted to sell the Cleveland Six. One of these dealers is somewhere near you. Write for catalogue and the dealer's name today.

Five Passenger Touring Car $1385
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(F. O. B. Factory)

CLEVELAND AUTOMOBILE CO., CLEVELAND, OHIO

$1385

Dairying and Hog Raising

H. A. LINDGREN

All letters regarding commercial and technical features of dairy farming and hog production promptly answered. Address all communications to Dairy Department, WESTERN FARM LIFE, Denver, Colorado.

A Rebuke to Cabana

Holstein breeders all over the United States are pleased with the answer made by Loesch Brothers of the Pahgre Valley ranch, Montrose, Colorado, to the patronizing announcement of Oliver Cabana, Jr., that he was the Moses appointed to lead the breed out of the Egyptian darkness into which it was plunged by a chap named Cole. In a full page advertisement in the Holstein World of November 1, Loesch brothers declare they object to Mr. Cabana's self-appointed leadership, "First, because we did not know that the Holstein industry had become in any way downhearted since you left it. Second, because you would be our last choice to lead us from despair to hope."

In view of the fact that Mr. Cabana, by court action, has prevented a full inquiry into frauds confessed to by Cole, the rank and file of Holstein breeders are certainly in agreement with the Pahgre Valley statement. In previous comment on this situation we have sought to make it clear that the issue involved is not the Holstein breed, but human cupidity. There is not the slightest reason why the breed should suffer, but every reason why those guilty of trying to discredit the records should be brought to justice. Any and all efforts to thwart the association in this plan deserve rebuke.

For Butchering Hogs

A very handy device for handling heavy hogs in butchering is being used by Mr. Judson Solomon of Olathe, Colo. It is simple and may be built by any farmer without very much expense. It is a windlass arrangement built very much like a Mormon stacker, only that it is smaller and arranged so that it swings around on a pivot. The hogs can be placed in a pen near the derrick and killed. They can be easily lifted from here to the vat and then to the gallows, where the hogs are hung for removing the entrails. The device is handy and will do away with the heavy lifting connected with butchering.

Device for Hanging Hogs During Butchering—This Saves All Hand Lifting

Jersey Breeders Form Club

At Grand Junction on November 1 there was organized the Mesa County Jersey Cattle club, with J. D. Reed, Palisade, president; E. G. Pettengill, Grand Junction, vice president; Geo. LaGrange, Grand Junction, secretary-treasurer. Fourteen breeders signed the constitution and paid the fees and dues for a year. Quite a number have since signified their intention of affiliating at the next meeting. As the apples were not all gathered at the time of the first meeting it kept a few from attending. It is hoped that an organization of twenty-five members can be obtained. County Agent McCann was present and gave the breeders a lot of good advice about laying their hammers on the shelf, putting their shoulders to the wheel and all pushing together. If this advice is heeded there is a chance for the newly formed organization to do a lot of good, not only for the breed, but for the breeders as well. The Jersey is the general favorite here, and there are some mighty good animals to be found in the county. By co-operating the breeders should be able to place Mesa county on the map as a Jersey center.

Back to Land

"Look here!" said the worthy Farmer Giles, "I don't pay you wages to sit under the hedge and fan yourself with your hat. What sort of a game do you call that?"

"It's my favorite 'back-to-the-land' movement," replied the man lazily.—Farm and Ranch.

Start a Garage

Make $100 to $400 a Month

Right in your own neighborhood. Be a Rahe Trained Motor Mechanic and get into a good paying business at once. 80,000 small towns and rural communities without a Garage of any kind.

Learn in 6 to 8 Weeks

Daily practice on Automobiles, Trucks, Tractors—Greatest Training Equipment in America. All you need is will to "Learn By Doing." (No colored applications)

Write for 7-Day Trial Offer and Big Book **FREE**

RAHE AUTO AND TRACTOR SCHOOL
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Only $2 DOWN ONE YEAR TO PAY

$38 Buys the New Butterfly Jr. No. 2½. Light running, easy cleaning, close skimming, durable.

EASY TO CLEAN

NEW BUTTERFLY

Separators are guaranteed a life-time against defects in material and workmanship. Made also in four larger sizes all sold on

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and on a plan whereby they earn their own cost and more by what they save. Postal brings Free Catalog Folder. Buy from the manufacturer and save money. [9]

Albaugh-Dover Co. 2129 Marshall Bl. Chicago

Blackleg Aggressin (Kansas Germ Free Fluid Vaccine)
One Dose Immunizes for Life — It Saves the Calf

THE U.S. BLACKLEG SERUM CO.
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Write us about it. Dr. F. S. Schoenleber, Pres.

25c Per Dose——WHY PAY MORE?

$22.00 Sweep Feed Grinder | **$28.00 Galvanized Steel Wind Mill.**

We manufacture all sizes and styles. It will pay you to investigate. Write for catalog and price list.

CURRIE WIND MILL CO.,
610 E. Seventh Street, Topeka, Kansas.

DE LAVAL

the world's standard CREAM SEPARATOR

"It is so much easier than the old way."

In these times of high butter prices and scarcity of labor, no housewife should bother with the old-fashioned gravity method of skimming milk. The De Laval Separator will recover one-fourth more cream and do it with less work and in shorter time.

Neither is there any excuse for struggling with a half-worn-out or inferior separator that wastes cream and is hard to turn and difficult to wash. The work can be done much better, quicker and easier with the De Laval—the world's standard separator.

By purchasing a De Laval now, it will have paid for itself by spring

The nearest De Laval agent will be glad to demonstrate a De Laval If you do not know his name, write to nearest De Laval office

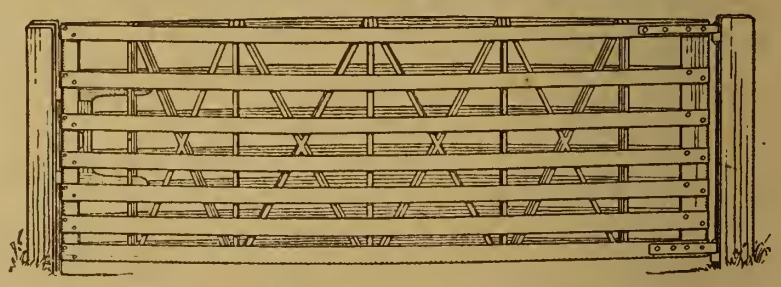
THE DE LAVAL SEPARATOR CO.

165 Broadway, NEW YORK — 29 East Madison Street, CHICAGO — 61 Beale Street, SAN FRANCISCO

50,000 Branches and Local Agencies the World Over

MASTER FARM GATE

Light Weight, Can't Sag, Bend, Twist or Warp



A CHILD CAN OPEN IT, BUT A BULL CAN'T

The Master Farm Gate has a patented panel construction which makes sagging and bending impossible. It is made of white spruce aeroplane wood with seven ¾x3½-inch panels to a side. These panels are bow shaped, with crossed and upright bars between, giving the gate exceptional strength and resiliency.

It is hung on specially patented hinges and swings both ways.

A specially prepared black paint is applied by dipping. This process fills every crack and crevice, giving a lasting coat which sun or rain can't penetrate.

The gate is made in 12, 14 and 16-feet lengths, and shipped complete with hinges, hangers and a patented double latch.

GOOD, LIVE AGENTS

Wanted Everywhere. **Write for Particulars**

The Master Farm Gate Co.

714 Equitable Building **Denver, Colorado**

NO MORE BLACKLEG — ARE YOU VACCINATING AGAINST BLACKLEG AND STILL LOSING CALVES?

If so, you must be using an inferior Blackleg Vaccine.

The GENUINE Dr. O. M. Franklin's KANSAS GERM FREE BLACKLEG AGGRESSIN (VACCINE), the only aggressin backed by a guarantee to pay for every calf you lose from blackleg after vaccination.

SAVES EVERY CALF with but one vaccination.

Do not be misled by cheap imitations claimed to be "just as good" or "the same thing."

Reliable products are always subject to imitation, therefore be sure you find this trademark on every bottle you use. IT IS YOUR PROTECTION.

Price, 40c per dose; for 10c additional per dose we issue a written guarantee against loss from Blackleg. Comes ready to use in 5, 10, 20, 45 and 90 dose bottles. Our special-made syringe, $2.50. Free booklet on request. Order from our nearest office.

THE KANSAS BLACKLEG SERUM COMPANY

Amarillo, Tex.; Denver, Colo.; El Paso, Tex.; Fort Worth, Tex.; Kansas City, Mo.; Oklahoma City, Okla.; Phoenix, Ariz.; Pierre, S. D.; Salt Lake City, Utah; Santa Maria, Cal.; Wichita, Kans.

Maine Boy Is Corn Champion

The boy's national championship in the growing of flint corn, which since 1913 has been held by Walker Lee Dunston of Alexander City, Ala., has gone to a little agricultural town in Maine. Jerome R. Quimby of Brooks, Waldo county, 15 years of age, has been informed by the University of Maine, on authority of O. H. Benson, national leader of club work in the North and West, that the record of 58½ bushels of flint corn raised on the quarter-acre at the Quimby farm is a new boy's corn record in the United States. The Alabama boy's yield was on the basis of 232 bushels per acre. Jerome Quimby's is at the rate of 234 bushels. Jerome is a freshman in the Brooks High school, walks two miles each way between his home and the schoolhouse, and is taking both an agricultural and a college preparatory course. He and his brother, a senior in the same school, help their father, Selectman Frank R. Quimby, run his 90-acre dairy farm.

New Silage Tables

On account of the inaccurate methods and tables used in estimating silo capacities, there is much complaint from farmers and stockmen in their buying and selling of silage. The tables that have been used in the past are based on King's work published first in 1891. The data were gathered from a limited number of silos and as these were the only figures available on the subject they were considered adequate. Recent work by the experiment stations in Nebraska, Missouri and Kansas have brought out the fact that the tables in general use were inaccurate and results were too high. They have published two tables based on extensive investigation, which are now available.

It might be said here that from weights taken by farmers in various sections of Colorado, mainly Boulder county and the Uncompahgre valley, these figures are more nearly correct. The nature of silage at the best is such that it makes it very difficult to get more than an approximate estimate. These tables are given here for the information of those who desire to determine the capacity of their silo. Two tables are given, one of which should be used to estimate the tonnage when filling is completed and the other when silage has completely settled. It was found that separate weights were necessary for these two cases. The following statement and tables are taken from Circular 89, Missouri station:

Estimating Silage Weight When Filling Is Completed

Table 1 is to be used in estimating the weight of silage at the time filling is completed. This table is based on the assumption that two men have been kept in the silo trampling during filling, and that the silage was allowed to settle two days, and the silo then refilled. The depth of the silage and not the height of the silo should be taken in using the table. If the condition of the silage is normal, use the figure as found in the table. If conditions are extreme, correct the figures in the table according to the following:

1. If corn is unusually dry, deduct 10 per cent.
2. If corn is unusually dry and has little grain. deduct 15 per cent.
3. If the silo is filled rapidly and no time allowed for settling, deduct 10 per cent.

Estimating the Weight of Settled Silage

When silage has been in the silo for one month or more, use Table 2 for estimating the weight. It may also be used for estimating the weight of silage remaining when a portion has been fed. If none has been removed, the estimated weight may be found directly from the table. For example, twenty-five feet of If a portion of the silage has been resilage in a silo sixteen feet in diameter is estimated by the table at 96.2 tons. moved, and the depth of the silage before feeding began is known, estimate by use of the table the tonnage before any was removed, and also the tonnage of the amount fed. The difference is the estimated amount on hand.

When conditions of moisture and amount of grain are judged to be average, Table 2 is to be used as given. When conditions are extreme, the following modifications are suggested:

1. When the corn is put into the silo in a less mature condition than usual, for example, in the milk stage, or the beginning of the dough stage, add 10 to 15 per cent to the weights given in the table.
2. If the grain is unusually heavy in proportion to the stalk, add 5 to 10 per cent to the figures found in the table.
3. If the corn is considerably past the usual stage of maturity and clearly contains less water than usual, deduct 10 to 15 per cent.
4. If very little or no grain is present, deduct 10 per cent.

It is recommended that the same table be used for estimating the weight of sweet sorghum and Kafir silage.

Table 1—Capacity of Silos and Estimated Tonnage of Silage at the Time Filling IS Completed

Depth of Silage in Feet	DIAMETER OF SILO IN FEET				
	10 Tons	12 Tons	14 Tons	16 Tons	18 Tons
12	11.3	16.3	22.1	28.9	36.6
13	12.3	18.1	24.6	32.2	40.7
14	13.9	20.0	27.2	35.5	45.0
15	15.2	22.0	29.9	39.1	49.4
16	16.8	24.0	32.7	42.7	54.0
17	18.1	26.1	35.5	46.4	58.8
18	19.6	28.3	38.5	50.3	63.6
19	21.2	30.5	41.5	54.1	68.6
20	22.8	32.8	44.6	58.3	79.8
21	24.4	35.1	47.8	62.5	79.1
22	26.0	37.5	51.1	66.7	84.5
23	27.1	40.0	54.4	71.8	90.0
24	29.5	42.5	57.8	75.5	95.5
25	31.3	45.2	61.3	80.0	101.3
26	33.1	47.7	64.8	84.6	107.2
27	34.9	50.3	68.4	89.3	113.2
28	36.8	53.0	72.1	94.1	119.2
29	38.7	55.8	75.8	98.9	125.4
30	40.6	58.5	79.5	103.8	131.6
31	...	61.3	83.4	108.8	137.9
32	...	64.1	87.2	113.8	144.5
33	...	67.0	91.1	118.9	150.8
34	...	69.8	95.1	124.2	157.4
35	...	...	99.1	129.3	163.9
36	...	...	103.2	134.7	170.7

Table 2—Estimated Weight of Settled Silage

Depth of silage feet.	Estimated wt. of silage to the cu. foot at this depth. Lbs.	Average wt. of silage to the cu. foot at this depth. Lbs.	DIAMETER OF SILO				
			10 ft. Tons	12 ft. Tons	14 ft. Tons	16 ft. Tons	18 ft. Tons
10	38.0	35.0	13.7	19.7	26.9	35.1	44.4
11	38.4	35.3	15.2	21.9	29.8	39.0	49.3
12	38.8	35.6	16.7	24.1	32.8	42.9	54.2
13	39.2	35.9	18.3	26.3	35.9	46.9	59.2
14	39.6	36.2	19.9	28.6	39.0	50.9	64.3
15	40.0	36.4	21.4	30.8	42.0	54.8	69.3
16	40.2	36.7	23.0	33.2	45.2	59.0	74.5
17	40.4	36.9	24.6	35.4	48.3	63.0	79.6
18	40.6	37.1	26.2	37.7	51.4	67.1	84.8
19	40.8	37.3	27.8	40.0	54.5	71.2	90.0
20	41.0	37.5	29.4	42.4	57.7	75.3	95.2
21	41.2	37.6	31.0	44.6	60.7	79.3	100.2
22	41.4	37.8	32.6	47.0	64.0	83.5	105.6
23	41.6	38.0	34.3	49.4	67.2	87.8	110.5
24	41.8	38.1	35.9	51.7	70.4	91.9	116.1
25	42.0	38.3	37.6	54.1	73.7	96.2	121.6
26	42.2	38.4	39.2	56.4	76.8	100.3	126.8
27	42.4	38.6	40.9	58.9	80.2	104.7	132.3
28	42.6	38.7	42.5	61.2	83.4	108.9	137.6
29	42.8	38.9	44.3	63.7	86.8	113.3	143.2
30	43.0	39.0	45.9	66.0	90.0	117.5	148.5

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to GRIND YOUR FEED
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SHELL YOUR CORN
PUMP YOUR WATER
ELEVATE YOUR GRAIN

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Can be used with Ford, Overland, Dodge, Reo and Chevrolet 490 cars and Fordson Tractor. Your automobile has a powerful engine—it will outlast the car and you might as well save your money and use it to do all your farm work. **No wear on tires or transmission.** Hooks up in 3 minutes. No permanent attachment to car. Cannot injure car or engine.

Friction Clutch Pulley on end of shaft. Ward Governor, run by fan belt, gives perfect control. **Money back if not satisfied.** Ask for circular and special price.

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Gennine Grimm is most profitable because of its hardiness, large yields and high feeding value. Less seed required to get a stand. Booklet, testimonials and seed sample free.

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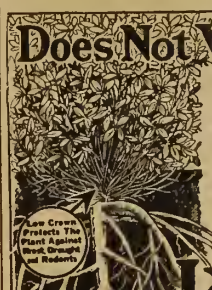

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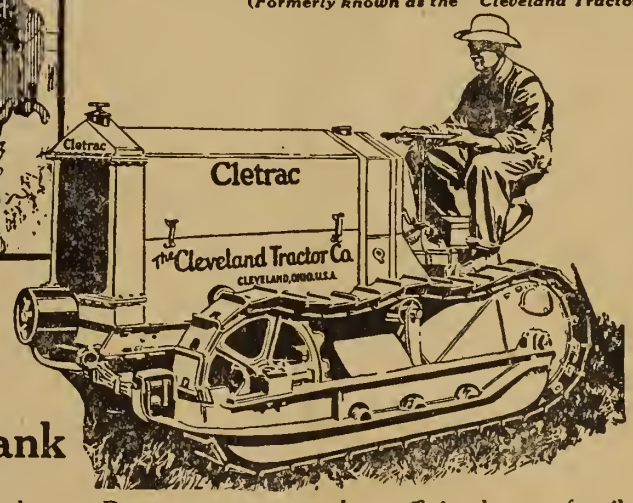
TANK-TYPE TRACTOR

(Formerly known as the "Cleveland Tractor")

Pushing a wheelbarrow through soft soil is almost an impossible job. The wheel sinks in and gets stuck.

Lay a track of boards over the ground and you can roll along easily enough.



It runs on tracks as a wheelbarrow runs on a plank

TRY to push a loaded wheelbarrow through soft plowed ground. You have to exert every ounce of your strength. The wheel sinks in deeper and deeper and you finally get "stuck" altogether and have to take off your load.

But lay a plank over the *same* soft ground and you can roll the *same* wheelbarrow over it with the *same* load—*but with only a fraction of the effort. It was the plank that made the difference.* Its broad flat surface *distributed* the weight of the load so that there was very little pressure at any one point.

And right there you have the principle back of the Cletrac Tank-Type Tractor. It runs on broad flat tracks in much the same way as the wheelbarrow runs on the plank. No power is wasted. You can pull a bigger load. Fuel and oil go further. And *more* work can be done in *less* time—at less cost.

Because you can work so efficiently on soft soil with the Cletrac *you can go through with the entire preparation of the seed bed*—a most unusual thing for a tractor to do. The Cletrac doesn't sink in and doesn't leave two hard trails of packed down soil behind it.

Order your Cletrac now. There is plenty of work for the Cletrac to do, like getting out wood, hauling logs, grinding feed, breaking roads, hauling manure, etc., during the winter months and when Spring work comes along you will be fully acquainted with your Cletrac.

We have an interesting 32-page book entitled "Selecting Your Tractor" that will be sent free upon request. It discusses tractor farming problems on a "brass tack" basis. *Write for your copy today.*

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Trappers! Send All Your Furs to JUDD and get a Guaranteed Check

No other fur house backs up its promises with guaranteed checks. Ship to Judd this year and get the **Extra Money** we pay for skins of all kinds. No commission charges or grading fees come out of your check.

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Comment by Farmer Putnam

Continued from page 9

mers know they know better; others don't notice. Kind regards to Josephine."—Nellie H. Weir.

I showed that to Josephine and she sez: "Tom, who is this Miss Weir?"

"I never met the lady," sez I, truthful.

"Let's see that card," she sez. I showed it to her and she looked at it a minit and then sez: "Oh, she's a school marm."

How she knowed I couldn't tell you, but Josephine got what folks calls instict. It's the same thing that makes a cat's fur raise up when a dog comes around the house and she hain't seen him yet, but she knows he's comin'. She's pertickuler about ladies writin' to me, exceptin' if they's school marms. Why that is I never could figger out. Wimmin has got queer ways. I been a-livin' with Josephine fur night to forty years and they is some things about her I don't understand yet—and never will.

I'm a-tryin' to write a pussonal letter to all them folks that I ain't got space fur to mention and thank through the paper fur their kind words, but last but not least I got to put in Hon. Edw. D. Foster, our State Immigration Commissioner. He sez: "Nothing I have occasion to read gives me more real pleasure than the Putnam letters. They contain just enough grammatical mayhem to make them amusing without crossing the line into the realm of the far-fetched."

By gosh! a feller couldn't ask nuthin' better'n that. Don't that sound good—grammatical mayhem? I got to look that up the next time I go into town.

Thos. Jefferson Putnam.

American Farmers' Declaration of Principles

Continued from page 5

dividual farmers. For these purposes strong self-supporting farmers' organizations are urged, to develop leadership from their own ranks in accord with their own best interests, and to represent the industry in its contact with other industries and with the public.

Storage

Adequate food storage reservoirs are essential to a well-fed people. In time of heaviest production foods should be stored away in such quantities as will tide over periods of non-production. Depletion of these supplies during the harvest months will probably mean bread lines before spring. Wise public policy will encourage properly regulated storage by farmers and others of essential reserves of food.

The High Cost of Living

Much of the complaint of the high cost of living is the result of extravagant living. The cost of living is high or low according as the price of the necessaries of life arise above or fall below the general level of salaries, wages and income. The present cost of living is not due to the prices received by the farmer for his products, as shown by a comparison between farm prices, food prices and wage levels. Reliable government statements indicate that the percentage of increase in food prices is not as great as that of other commodities entering into cost of present-day living, or of the level of wages in other industries.

Land Tenures

Land tenancy is increasing, farm ownership in the hands of non-resident landowners, a condition which, from historic precedent, presages a declining national virility and if not checked ultimately a feudal peasantry. An independent, successful and permanent agriculture, with the essential schools, churches and social facilities, cannot be maintained on the basis of absentee ownership. Its inevitable end is not only a social cleavage which is opposed to the principles of our American democracy but another new and dangerous line of industrial cleavage and conflict.

Farm Depopulation.

The farmers' efforts to secure high wages or better working conditions are not based on an organized refusal to work. His environment gives him those qualities which make him sought by many other occupations and professions. Banks, factories, stores, transportation and commerce call to him to come to them and the professions make their fine appeal. In the quiet of his home with his family about him his boy and girl decide to heed that call. One more family has left the army of food producers and another family has joined the army of food consumers.

Financing Agriculture.

The availability of capital used in agriculture is a matter of public concern. Direct extension of federal credit through the land banks will reduce the cost of this capital and should be made easier of access to all farmers. Associated credits of farm communities should be developed under proper laws and leadership.

These principles presented by the representatives of agriculture in the Industrial Conference and transmitted by the employers' group are believed to be not only vital to agriculture, but vital to the common good. The highest concept of government in a democracy is to coordinate the functions of all its parts into a perfect and symmetrical whole. In the case of the individual the mind wisely protects physical well-being and produces proper physical and mental balance. Theoretically, democratic government does this for all its people. In practice, however, certain members, through intensive organizations, acquire and exercise undue influence, destroying thereby the harmony which should exist between all the essential elements. The situation which has brought about this conference is due to lack of recognition of this basic duty of government.

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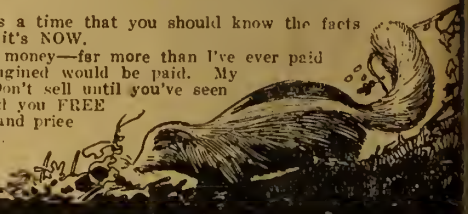

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How to Trap Skunks

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As the skunk is the animal for the beginner to practice on. I will give a few simple methods for trapping him. The most successful methods are the bait set, the blind set, and the scent set.

Skunks travel trails along fences, stream beds and old cattle paths. To make a bait set, find a trail along which skunks will likely travel. Build a V-shaped pen about two feet from the trail. Use small logs partly rotten, never fresh cut logs, for a mink might come along the trail and you would not get him. Nail the bait to the back end of the V. Shoot a bird for bait. Set a No. 1½ trap at the mouth of the V and cover it with leaves. Fasten the chain to one of the logs. Different baits are recommended by different trappers, but I have found birds most successful, not only for skunks, but for minks, weasels, wildcats and badgers.

A blind set is very successful in some localities and very simple to make. Find a trail where there are skunk signs. Dig a hole deep enough to bury the trap. Cover it carefully and fasten the chain to a small log laid by the trail. Put a small branch about one inch in diameter across the trail about two inches from the trap. This is placed there so that when the skunk steps over the branch he will land in the trap. The chief objection against the trail set is that an animal as large as a horse or cow will ruin the set if it comes along the trail.

Nothing is more successful than a scent set, both for mink and skunks. Find a bank along which there are skunk odors. Dig a hole in the bank about six inches above the level of the ground. Dig it so that it will have the appearance of having been dug by some animal. Place the scent on a leaf and put it in the back end of the hole. Set the trap in the mound of dirt at the front, being sure to cover it well. Fasten it to a stake. Fish scent is as successful as any. This is made by placing a few small fish in a bottle and allowing them to decay.

If a skunk den can be found, set a No. 1½ trap at the mouth. No particular care need be taken to conceal the trap, as the skunk is both curious and unafraid. Sometimes as many as ten or twelve skunks may be caught at one den.

The ordinary No. 1 or No. 1½ steel traps are the best. A good trap can be made from a barrel. Balance a barrel over a log and put a piece of bait in the back end. When the skunk walks in to get the bait, the barrel will set up leaving him in the bottom.

The chief objection to trapping skunks is the odor. This, however, can be avoided. The trappers' guides give several methods of killing to prevent him from ejecting his odor, such as drowning, stabbing in the back of the neck with a knife on the end of a long stick, and shooting to break the back bone. I haven't found these methods very satisfactory. I have had more success by shooting the animal in the back of the head with a twenty-two rifle. If he does get much scent on his fur, I tie a string to the end of a long stick, make a noose in the end, slip it over the skunk's head, drag him down to the river or irrigation ditch, and leave him in the running water for twenty-four hours. —Harold Lucas, Fort Collins, Colo.

What He Meant

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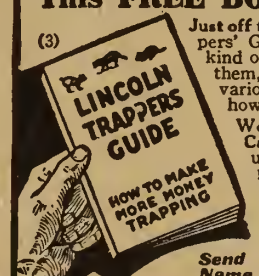

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"H. R. H., The Rider"

Continued from page 7

words which fell so easily from his lips, and which, although she had been expecting them sooner or later, came now with all the effect of an unlooked-for nervous shock.

"Your mother approves," he was saying, "and I hope, Miss Bass, that you will approve. It would be a very advantageous marriage." He neglected to specify to whose advantage it would redound. "The ceremony may be performed at my hunting-lodge tonight—should we delay, the king might get wind of the matter, and that would be the end of it, for I assure you that he would prevent our marriage and immediately place me under arrest."

"But I scarcely know you," objected the girl, "anyway, I do not wish to marry."

"Gwendolyn!" admonished Mrs. Bass. "His highness has honored you highly by asking your hand in marriage—of course you will accept him." And, turning to the Rider, "She is so young, and this has come to her so suddenly, you cannot wonder, your highness, that she is quite taken off her feet; but of course she will do as I say. Gwendolyn always does, she is a very good and dutiful daughter."

It was well for the peace of mind of Mrs. Abner J. Bass that she could not read what was at that moment passing through the mind of her dutiful daugter.

CHAPTER XI
At the Hunting Lodge

During the balance of the ride the bandit regaled his mother-in-law-to-be with vivid word pictures of the wonders of his royal palaces, the power and glory of his house, and the riches of the domain over which he and the daughter of the house of Bass would one day rule.

Mrs. Bass became quite excited in anticipation; but Gwendolyn, inclined to captiousness in all that pertained to her royal fiance, saw only the crudeness of his grammar, the coarseness of his voice and the boorishness of his manners.

Presently the car turned from the Roman road into a dark wood, and shortly after drew up before a squalid inn. The Rider excused himself and entered the place on the pretext of arranging for a messenger to fetch a priest from a near-by monastery.

Inside he sought and found Peter, to whom he transmitted his instructions. "I shall be at the royal hunting-lodge," he said, "and when the priest comes here, have him brought there to me at once; but do not let him know where he is being taken. Lose no time about it either. If I have any other instructions for you I will send them in writing by a messenger," and with that he turned and hurried back to the waiting car.

Now the road which leads north past Peter's Inn toward the hunting-lodge of the King of Karlova is not an automobile road. It passes beneath the heavy foliage of a dense forest, and as a result is seldom thoroughly dried out. Ox carts with broad tires travel it, carrying provisions to the lodge, and market stuff to Sovgrad from the few wretched little farms which eke out a miserable existence upon the borders of the hunting preserve. Royalty and its guests pass to and fro upon horseback; but automobiles seldom if ever hazard the soft mud and the deep ruts of what is doubtless one of the most abominable roads in Europe.

Rain had not fallen for many weeks, and as a result the road was reasonably hard, but the deep chuck holes retarded the speed of the car to such an extent that it traveled but little faster than a man might walk.

Peter had despatched one of his dependents to fetch the priest the Rider had demanded, and was waiting for the man's return when the door of his barroom opened to admit two strangers. The first to enter was quite evidently a foreigner—a young man in riding togs and with a face which betokened a superabundance of initiative and determination. At his heels followed a dark-rohed priest. Peter eyed the two questioningly.

"Good evening!" said the young man. "Have I the honor of addressing the proprietor of this charming hostelry?"

Peter nodded.

"Then your name is Peter?" asked the stranger.

Again Peter signified an affirmative, and the other drew a folded note from his pocket, extending it to the innkeeper. "For you, my friend," he said.

Peter took the note, slowly unfolded it, and with evident labor, spelled out the message it contained:

Peter:

Furnish the bearer with a guide who will conduct him and the priest to the spot where the Wolf lairs. Ask no questions. THE RIDER.

That was all. Peter turned the paper over; but it was blank upon the opposite side. He looked from it to the young man and then on to the priest. How the devil had this young fellow come to be here so soon with a priest, and what had become of the messenger whom Peter had sent to fetch a priest? But the note said plainly that he must ask no questions. Peter scratched his head. The whole thing was a puzzle to him. Well, it was none of his business anyway, and here was a priest, and here was a written command from the Rider himself—there was naught to do but obey.

He stepped close to the young man and whispered in his ear. The latter looked relieved, for Peter had just told him that his new friend had passed the inn but a short time since and that he had come in an automobile which had remained in the darkness of the trees beside the road.

And so it happened that Hemmington Main and the priest he had brought from Sovgrad started off with their guide upon the road toward the royal hunting-lodge before the automobile containing the false prince and his two victims had covered more than half the distance from the inn to their destination.

All during the journey Gwendolyn Bass's brain was awhirl with mad schemes for escape from the fate which the ambitions of her mother had ordained for her; but nowhere, through the impenetrable darkness of the forest road, could she find an opportunity to put to the test of action a single one of them, and at last the machine turned into the royal preserves onto a fairly good road where the speed of the machine made escape without injury impossible.

The few servants at the hunting-lodge had received their instructions from Prince Boris at the time when he had exchanged identities with the Rider, and now they welcomed the returning bandit as though he had indeed been the son of King Constans of Karlova, though once out of his presence their sneers were unrestrained.

At the Rider's command the two women were shown to apartments on the second floor, and while they removed the dust of the road from their garments and faces a lunch was served in a small breakfast-room on the main floor of the lodge.

The three had scarcely seated themselves at the table before a servant appeared to announce the arrival of a young man accompanied by a priest.

"Ah!" exclaimed the Rider, "they arrived sooner than I had hoped. Show the good man in, and take care of his guide in the servants' quarters."

But when the priest was ushered into the breakfast-room, his "guide" followed close at his heels, though a servant in the royal livery did his best to prevent him. Gwendolyn Bass was the first to see the face of the young man behind the priest and at sight of it she half rose from her chair with a little exclamation of relief and surprise.

"Hemmy!" she cried, and at the name Mrs. Bass turned and saw Mr. Hemmington Main standing directly behind her. Main was looking at them with a puzzled expression upon his face. Nowhere could he see aught of his new-found friend, but as his eyes fell upon the face of the man seated at the table with Mrs. Bass and Gwendolyn they went wide in consternation, for he recognized at once the features of the Crown Prince of Karlova whom he had seen pass his hotel that morning in Demla.

"What are you doing here, Mr. Main?" demanded Mrs. Bass.

"I have come to marry Gwendolyn," replied the young man. "You see I have brought a priest with me. Awfully sorry, Mrs. Bass; but I'm bound to have her. I wouldn't have been a party to this thing if it hadn't seemed the only way to save Gwen from a worse fate; but what I can't understand is what his highness is doing here and where my friend the Rider is. Anyway, it's all right; you won't be detained or bothered as soon as Gwen and I are married—I'll see to all that."

"I do not know what you are talking

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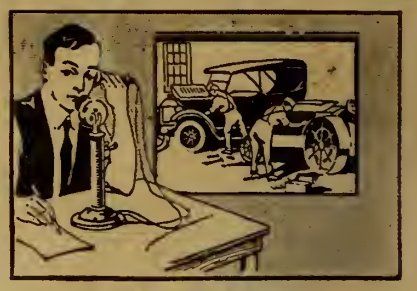

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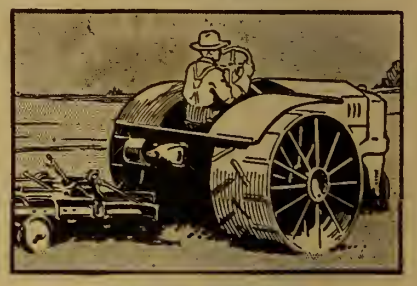
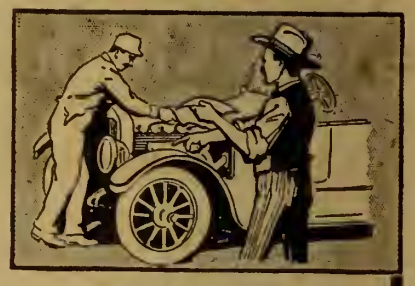


TRACTOR OPERATOR



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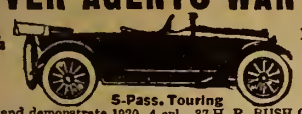

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about, Mr. Main." snapped Mrs. Bass; "but unless you are quite mad you will go away at once. His Royal Highness Prince Boris of Karlova has honored Gwendolyn with a proposal of marriage, and that is why he sent for this holy man. How you happened to accompany him I cannot understand. Do you know this person, Prince Boris?"

"Never saw him before," replied the Rider, and then turning to Main: "You'd better get out of here and get out quick."

Gwendolyn Bass had risen from the table, and now she crossed to Hemmington Main's side.

"Oh, Hemmy," she cried, "don't let them marry me to this awful man."

"You bet your life, I won't," replied Main, and as he spoke he put an arm about her which imparted to Gwendolyn Bass the first sensation of hope and safety which she had experienced in many a long day.

The Rider rose from his chair. His ugly countenance was drawn into a savage scowl. In the breast of his military tunic was the revolver that he could not be persuaded to part with even for an instant. As he advanced upon Hemmington Main he drew the weapon from its hiding place. At sight of it the servants scampered for safety, the priest hopped nimbly out of range and Mrs. Bass screamed in terror.

Main shoved Gwendolyn quickly to one side lest she be injured should the man fire and at the same instant drew his own weapon. The two shots blended into a single sharp report, as the men pressed the triggers of their weapons simultaneously. The Rider clutched his side and stumbled forward, falling to the floor upon his face. Hemmington Main stood there, white and rigid, looking down upon the fallen man. Gwendolyn Bass cowered, wide-eyed, against the wall, while her mother ran forward excitedly to the side of the wounded bandit.

"God help us, Hemmington Main!" cried the elder woman, "you have killed the Crown Prince of Karlova!"

(To be continued.)

Two-Breed Hog Sale

Boulder-Larimer county's first annual sale of registered Duroc-Jersey and Poland China hogs will be held December 19, during the Colorado Farmers' and Farm Womens' Congress at the State Agricultural College, Fort Collins.

This joint sale of quality pedigreed stock voices the binding spirit of friendly co-operation that prevails between Farm Bureau officials, county agents, the State Agricultural College, and competing breeders of Northern Colorado. Personal gain and selfish interests, or breed favoritism, have been eliminated by consigning breeders and sale directors, and a concentration of effort for "Success on Merit" is centered towards this sale. Quality of effort rather than quantity shall predominate, as breeders are entering only animals of superior breeding and individuality to make up the total of forty bred sows and twelve boars offered.

A competent committee of capable buyers and experienced breeders and hog men have visited herds, inspected and selected animals to be entered and catalogued for sale. The inspection committee is taking utmost precautions to elevate the standard of merit above any previous hog sale held in Colorado. Much blood of popular eastern herds will appear for bidders' inspection and consideration. The offerings will be of the big type, big bone kind, well grown out and possessing plenty of quality.

No doubt many prospective buyers will be interested in knowing that the following named breeders have made consignments to the sale:

Poland-China:

H. D. McGillvray, Boulder.
J. A. Davidson, Longmont.
W. R. Reynolds, Longmont.
Great Western Sugar Co., Longmont.
E. H. Allen, Longmont.
R. M. Karnes, Timnath.
R. G. Maxwell & Sons, Fort Collins.
J. W. Reed, Fort Collins.
Roy L. Toliver, Fort Collins.
J. H. Spence, Fort Collins.

Duroc-Jerseys:

G. E. Morton & Son, Fort Collins.
H. G. Sitler, Fort Collins.
Burt Hart, Longmont.
Bill Martin, Longmont.
C. W. Finch, Longmont.

Parties interested should write County Agricultural Agent D. C. Bascom, Fort Collins, Colorado, or H. H. Simpson, County Agricultural Agent, Longmont, Colorado, for catalogue and particulars pertaining to sale.

—J. T. T.

Rest rooms in towns for farm women are becoming more and more common. Last year in the 15 southern states 137 new ones were established through the efforts of the home demonstration agents.

Wagon History Is Being Made These Days

ARE you in any degree familiar with the two greatest of **Weber** and **Columbus** wagon features—the *International fifth-wheel* and the *International swivel-reach coupling?* If you are a wagon user and do not know these improvements, you have a bit of interesting wagon education coming.

You will find the International fifth-wheel is a strong and solid support between bolster and sandboard. It is already famous for reinforcing and saving wear and tear on the entire front gear, preventing breaking and bending of king bolt and circle iron.

You will find the International swivel-reach coupling relieves the reach, hounds, and wheels of all twisting strains under roughest road conditions. Compare it with the racking conduct of the flat hound plates of the old-style wagon.

These are both exclusive International features, each worth twenty dollars to you in wagon-long-life.

Naturally, **Weber** and **Columbus** wagons are now made in the modern 56-inch auto-track width, standardized, improved in many small details, and thoroughly in keeping with International quality standards. When you know the latest **Weber** and **Columbus,** you will see that its price is too low in comparison with the price of others. See the International dealer or write us for information.

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Binders Push Binders
Headers Rice Binders
Harvester-Threshers
Reapers Shockers
Threshers

Tillage Implements
Tractor Plows
Riding Plows
Walking Plows
Disk Harrows
Tractor Harrows
Smoothing Harrows
Orchard Harrows
Culti-Packers
Cultivators, one-horse

Power Machines
Kerosene Engines
Gasoline Engines
Kerosene Tractors
Motor Trucks

Haying Machines
Mowers Tedders
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Loaders (All Types)
Rakes Bunchers
Combination Side Rakes and Tedders
Sweep Rakes Stackers
Combination Sweep Rakes and Stackers
Baling Presses

Beet Tools
Seeders Cultivators
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Grain Drills
Broadcast Seeders
Alfalfa & Grass Drills
Fertilizer & Lime Sowers

Corn Machines
Planters Listers
Cultivators Drills
Lister Cultivators
Motor Cultivators
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Shellers
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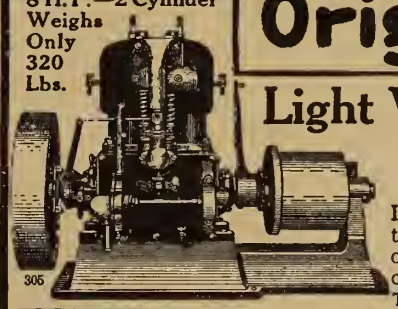

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Light Weight, All Purpose Farm Engines

Lead the world in superiority of design, material, construction and equipment — no other line of engines built for farm work comparing with them.

They weigh only 40 to 60 pounds per horsepower—only about one-third as much as ordinary farm engines—yet run even more steadily, quietly and economically.

They do every job that any other engine can do, and many jobs other engines cannot do.

Equipped with Throttling Governor, Carburetor, Friction Clutch Pulley and Water Circulating Pump without extra charge.

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Cushman Motor Works, 894 N. 21st St., Lincoln, Neb.

Cushman "Does More" Electric Light and Power Plant

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Have you had trouble or misunderstandings over the division of water for irrigation? Do you know if you are getting all the water to which you are entitled? The Burnham measuring device is the answer.

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We manufacture a complete line of irrigation Supplies, such as Flumes, Pipe, Gates, and other accessories. Write for catalogues and information.

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

O Little Town of Bethlehem

O little town of Bethlehem,
How still we see thee lie!
Above thy deep and dreamless sleep
The silent stars go by;
Yet in thy dark streets shineth
The everlasting Light;
The hopes and fears of all the years
Are met in thee to-night.

For Christ is born of Mary,
And, gathered all above,
While mortals sleep, the angels keep
Their watch of wondering love.
O morning stars together
Proclaim the holy birth!
And praises sing to God the King,
And peace to men on earth.

* * *

—Phillips Brooks.

To the minds of some of us there is no more beautiful Christmas hymn than the one of which the first two verses are given above. But we are not putting it in this issue just to give you a "Christmassy" feeling, it's to talk a little about getting the joy out of these old songs.

Isn't there a thrill—well, if there isn't, there ought to be, a genuine thrill, on Christmas eve or morning, in the midst of all the gifts and preparations for a gala day, to hear some of the sweet old hymns that bring back to us the real meaning of why we keep the day?

For it isn't gifts, it isn't a great dinner and family gathering that cause Christmas, it is because of the birth on one silent, starlit, holy night, of the Saviour and King, whose life has made the greatest joy and blessing there is possible in the world. And nothing quite brings that hush of joy and wonder and adoration in anyone's soul like sweet voices caroling the old, old songs. And we wait while listening until the peace of it enters in.

The old custom was that of the "Christmas waits," bands of singers who went about the town in the early Christmas morn and sang the carols to rouse the town to the day.

Some communities are reviving this old custom. In one small mountain town in the southern part of Colorado, the high school people have been practicing carols for weeks to sing on Christmas morning at the homes of those who cannot get out to any of the festivities. Last year in one town, the custom of placing a lighted candle in the window at dusk on Christmas eve, to guide the Christ-child was used again. Automobile loads of young people went about the city, each load taking one district, and sang at all the houses where this lighted candle showed.

It made that Christmas more real and beautiful for many a one. Now if you have any music at all in your soul, please learn one carol at least and sing it to somebody who can't get out to hear the program at the schoolhouse. Get someone else to help you, if you like, but try it and see what a joy it will be to you and to them, too.

Some Simple Christmas Sewing

Tea set in cotton crepe—A rather unusual but easily made tea set was seen lately in which ordinary cotton crepe or plisse, as it used to be called, played the chief and very charming part. The set exhibited by the maker was one in which a yard square of white formed the center for the table cover and a piece nine inches square the center for the napkins; and the hem was put on as a border. This border hem was a dainty blue but could be any other pretty color. A straight strip of the color, eight inches wide, had been basted along each side, to form the double hem which, of course, allowing for seams, was, when finished, three and a half inches wide. The corners were mitred and basted also. Then the piece had been sent to a shop and the whole border machine hemstitched on, along the line of basting. A bit of embroidery in outline stitch in blue in one corner of each piece completed the decoration.

The set consisted of one table cover, thirty-nine and a half inches square, after the hems were added, and six napkins, twelve and a half inches wide. You've no idea how dainty this material is made up in such a way. The machine hemstitching gave it quite an "air," beside making it durable and helping to keep the edges straight. The embroidery added just a needed dainty touch. The ease of caring for, as well as its beauty, will appeal to any recipient of this gift.

Centers could be of the color, and borders of white, or a very dainty figured crepe could be used with a color.

A Christmas Book List

The following suggestions for a Christmas book list come from Miss Lucy W. Baker, city librarian for Colorado Springs. Most of these books are for children. A good book is a good gift and it helps to cultivate that taste for reading which should be developed in all children.

For Small Children

Mother Goose—Ella Dollbear Lea; published by M. A. Donohue, Chicago. The best illustrated and most complete Mother Goose I have seen.

American Animal Life—Illustrations by E. W. Deming, stories by T. O. Deming; Stokes, publisher; price $2.50. Pictures of bison, moose, polar bear, grizzly, etc., with excellent landscape background of prairie, mountain, iceberg and forest. For children four to nine.

Cinderella—Andrew Lang; Longmans, publisher; price 35 cents. This also includes "Rumpelstiltzken," "Why the Sea is Salt," "Puss in Boots," "Little Thumb."

Folk Lore Reader—E. O. Grover; Atkinson, publisher; price 50 cents. Babies will enjoy listening to; beginners will love to read to themselves.

Just So Stories—Rudyard Kipling; Doubleday, publisher; price, $1.75. How the camel got his hump, how the whale got his tiny throat and other nonsense animal stories.

The Railroad Book—Story and pictures by E. Boyd Smith; Houghton, publisher; price, $2.25. Pictures of the railroad and Bob and Betty's journey on it. For children three to eight or nine.

For the Older Ones

King of the Golden River, or The Black Brothers—John Ruskin; Heath, publisher; price 32 cents. A lovely fairy tale.

Alice's Adventures in Wonderland—Lewis Carroll. Illustrations by Tenniel. Macmillan, publisher. Price, $1.25. Same illustrated by Rackham; Doubleday; price, $2.00. Many people think there should be no "Alice" without Tenniel's pictures. I do not think the Rackham edition should by any means be neglected.

Hans Brinker or the Silver Skates—Mary Mapes Dodge. Illustrated by Maginel Wright Enright. McKay, publisher; price, $2.50. Same illustrated by George Wharton Edwards; Scribner, publisher; price, $2.00. Same (Young Peoples Series); Scribner, publisher; price, 75 cents.

Arabian Nights—Edited by Olcott. Illustrated by Parrish; Scribner, publisher; price, $3.00. Holt, publisher; $1.50. Edited by Lang; illustrated by Ford; Longmans, publisher; price, $1.25. "The Arabian Nights" has done more than libraries of travel books to bring the atmosphere of the Orient to Western people.

Kidnapped—Robert Louis Stevenson. Illustrated by N. C. Wyeth; Scribner, publisher; price, $3.00. Same, Biographical Edition; Scribner, publisher; price, $1.35. Same (Young Peoples Series); Scribner, publisher; 75 cents. The adventures of David Balfour on a desert island and in the wild highlands and his acquaintance with the notorious Highland Jacobites.

Treasure Island—Robert Louis Stevenson. Illustrated by N. C. Wyeth. Scribner, publisher; price, $3.00. Same; Scribner, publisher; 75 cents. Same, illustrated (Washington Square Classics); Jacobs, publisher; $1.25. An unexcelled story of piracy and treasure finding.

Uncle Remus—J. C. Harris. Appleton, publisher; price, $2.25. It will be worth Daddy's while to learn to read "darky dialect" in order to chuckle with his small son over the doings of brer Rabbit, brer Fox and the other animals of Uncle Remus' tales and of Frost's illustrations.

Insect Folk—M. W. Morley. Ginn, publisher; price, 56 cents. About grasshoppers, katydids, crickets, etc.

Nelly's Silver Mine—Helen Hunt Jackson. Little, publisher; price, $1.35. Same; Little, publisher; price, $2.00. A story of Colorado life. One of the stories every girl reads.

On the Battlefront of Engineering—Century, publisher; price, $1.50. In story form, descriptions of many famous engineering projects are given.

The Prince and the Pauper—Mark Twain. Harper, publisher; price, $1.75.

Bob, Son of Battle—Fred Ollivant. Doubleday, publisher; price, $1.50. One of the best dog stories ever written.

When Mother Lets Us Make Candy—E. D. and L. F. Bache. Moffat, publisher; price, $1.00. Good receipts and clear directions, including lists of ingredients and utensils.

Mill on the Floss—George Eliot. Crowel, publisher; price, $1.00. George Eliot is one of the authors that older boys and girls cannot afford to pass by.

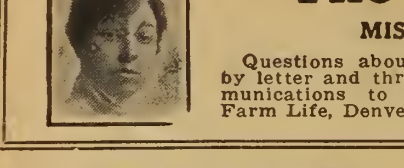
Ben Hur—Lew Wallace. Harper, publisher; price $1.50. Enthralling story of the first century. The hero was a young man of noble family in Palestine taken prisoner by the Romans and made a galley slave.

The Virginian—Owen Wister. Macmillan, publisher; price, $1.50. A romance of ranch life in the '70s and '80s. A young Virginian cow-puncher falls in love with the pretty school teacher from Vermont.

Little Minister—J. M. Barrie. Uniform Editi n; Scribner, publisher; price, $1.60. Same; Luxembourg Edition; Crowell, publisher; $2.00. A Scotch story of which the heroine is Babbie, who pretends to be a gypsy girl.

Don't let the wheat do al lthe "winter killing." Do a little of it yourself. Sausage will taste mighty good in January.

If you like this magazine tell your neighbor about it.



Somebody asks "What is tannin?"

Tannin is what they tan leather with—pulls it together, makes it tough.

There's a lot of tannin in oak, hemlock—and in cheap coarse tea, but hardly a taste of tannin in fine tea unless you boil it.

Now do you want tannin-flavor or tea-flavor? Do you want to put tannin or tea into your stomach?

Schilling Tea is the fine practical tea with the real tea-flavor—the most economical beverage next to water.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

A Schilling & Co San Francisco

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Have prepared a

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Christmas Gifts

Which they will be glad to send to readers of Western Farm Life.

The Gano-Downs label on a gift is a guaranty of its distinctiveness and desirability. Gano-Downs prices are no more than are commonly asked for merchandise of less-known worth. Address

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Denver, Colorado

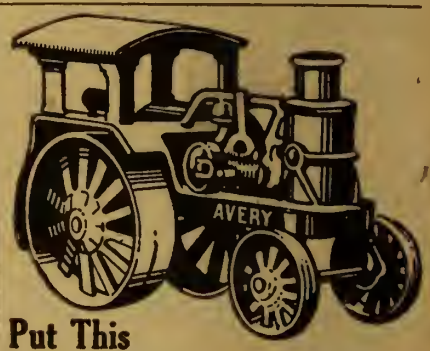
When Making Jewelry Gifts

THINK SYMAN BROS.

Quality Jewelry bought from us is not an accident

The Syman Bros. Jewelry Co.

840 16th Street DENVER, COLORADO



Put This Toy Tractor in His Stocking for Christmas—Only 25c

Looks just like a big Avery Tractor. Cast iron—has rolling wheels—finished in beautiful red and black enamel with gold striping. He'll be delighted with it! Stands 3½ inches high, 5 inches long. Makes a dandy toy—or table ornament. Worth many times its price.

Send 25c (35c in Canada) with the names of those talking of buying a tractor, cultivator or a grain thresher. Also mention as many tractor and thresher owners as you can remember. That's all. We'll send the toy by return mail.

AVERY COMPANY 4180 Iowa St. Peoria, Ill.

AVERY

Motor Farming, Threshing and Road Building Machinery

Breeders Join Forces for Betterment of Stock

Coneinued from page 3

was followed by Mr. Herbert Howarth, of Broomfield, on "The Future of the Draft Horse." "The Importance of the Fair to Livestock Breeding" was discussed by N. R. McCreery, president of the Boulder County fair board. One of the most interesting topics of the evening was that of "The Relation Between the Breeders Association and Farm Bureau." This was handled by President F. S. Luethi, of the Boulder County Farm Bureau, who emphasized the importance of the Farm Bureau as the center of all of the farmers' organizations in a county.

Others who spoke were President J. D. Rodgers, of the Larimer County Farm Bureau; County Agriculturist D. C. Bascom, of Larimer county; Mr. T. H. Hill, County Club Leader of Larimer county, and H. A. Lindgren, Associate Editor of Western Farm Life.

The meeting was a very profitable one to all who attended as it brought out many of the problems that confront the breeder. The officers of the Boulder County Association are as follows: George I. Miller, president; Herbert Howarth, vice-president; Clarence P. Emery, secretary; W. A. Dickens, treasurer.

Executive committee: George I. Miller, Herbert Howarth, George Knutson, H. F. Harmon, W. A. Groom, Lee Johnston, Frank Wadsworth.

Shipping Associations

County Agriculturist D. C. Bascom has recently organized four livestock shipping associations in Larimer county. He was assisted in this by Prof. R. W. Clark of the Colorado Agricultural college, and Stuart L. Sweet of the Bureau of Markets, Denver. The organizations completed and directors chosen are as follows:

Wellington Livestock Shipping association; directors, C. B. Parker, A. J. Piatt, Van R. Kent, Conrad Braun and Ernest Davis.

Waverly Livestock Shipping association; directors, W. A. Martin, Harry Wise, W. F. Harned, J. J. Smith and I. E. Powers.

Berthoud Livestock Shipping association; directors, J. B. Davis, R. V. Mann, Elton Wagoner, Paul Mead, Berthoud, Colo.

Bellvue Livestock Shipping association; directors, C. O. Brubaker, Bellvue; Frank Porter, LaPorte; Martin Farrar, Ballvue; Fred Sterly, LaPorte; Richard Falloon, LaPorte.

The directors are to meet and select a manager and then the associations are ready for business. There are quite a number of these associations in the state. Practically every community where livestock is being raised needs such an association. The plan is simple and brings results to the shipper. The idea is for small owners to band themselves together to make up a carload of stock. In this way the owner is benefited by the prices at the central markets. The plan has been proven and the results obtained from co-operative shipping has placed livestock marketing on a sounder basis for small owners.

Colorado Farmers Congress Meets This Month

Continued from page 4

tion," with addresses by Fred S. Caldwell, vice-president and manager of the Monte Vista Farmers' Co-operative Produce Company, and C. E. Bassett of the National Fruit Growers' Exchange of New York, will talk upon "Co-operation in the Handling of the Potato Crop."

Thursday afternoon will be devoted to a business session of the congress and to an address by U. S. Forester Graves.

The annual Rural Life banquet, held under the auspices of the Colorado Rural Life Conference will be held in the college dining hall Thursday evening, and will be followed by an illustrated lecture by Rev. C. J. Galpin, of the U. S. Bureau of Farm Management. This address will be in the college auditorium.

The Rural Life Conference will bring its deliberations to a close Friday morning with a number of addresses by prominent rural pastors.

The livestock men of this state will begin their conferences and school for the study of co-operative marketing Friday morning. They will leave the Agricultural College Friday afternoon and spend Saturday in Denver studying the Denver Union Stockyards.

Appreciative Subscribers

Western Farm Life:

Please find enclosed $1.50 for your big family offer, and I wish to say here and now that in the future, unless something unforseen happens, WESTERN FARM LIFE will ever be a member of our household.

In the busy season we have to keep the paper for a time when we have time to read it through, but we always find time then and there to hear what Thomas Jefferson Putman has to say, and we certainly think his articles are well worth the price of the paper. We certainly enjoy reading them.

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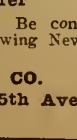

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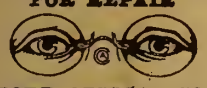

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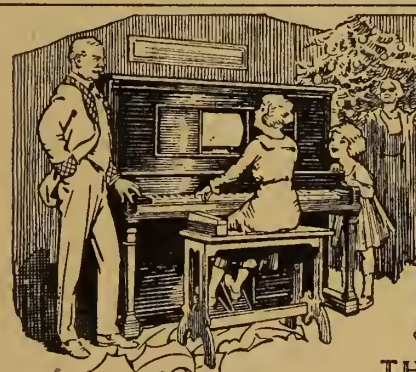

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Profitable Farm Poultry

Questions about the farm flock promptly answered by letter. Free advice on all phases of poultry production. Address all inquiries to Poultry Department, WESTERN FARM LIFE, Denver, Colorado.

The poultry house is both the home of the hen and the factory where winter eggs are produced, and unless it provides suitable living and working conditions the hen cannot be expected to lay well. The chief requirement is that the house must keep the birds comfortable. To be comfortable the house ,must be dry, well ventilated well lighted, and have sufficient floor space to provide exercise by scratching. Dryness is insured by having a good roof, keeping the floor of the house higher than the surrounding ground, and by providing good ventilation. Ventilation must supply plenty of fresh air without drafts. This is secured in the poultry house by having the south side relatively open and the other three sides absolutely tight. The importance of light in the poultry house has not been properly emphasized in the past, according to T. S. Townsley, of the University of Missouri College of Agriculture.

Recent experiments with artificial lights show that by furnishing more light so that the working period for the birds is lengthened the egg production can be materially increased. In many farm poultry houses no windows are provided and the house is in constant twilight on cloudy days, even when the door is left open. Needless to say, this condition does not favor activity on the part of the hen. To insure good natural light in a poultry house the openings in the walls should equal about one-fourth of the floor space of the house. At least half of these openings should be for open front ventilation, and the windows should be so arranged that the maximum amount of sunlight will be available to the birds. Wherever possible windows should be placed in the east and west ends of the building so that the early morning and late afternoon light will be secured. To insure room for scratching, not only must sufficient floor space be provided, but the droppings must be kept off the floor and a deep litter of straw or similar material be supplied so that the birds can be made to scratch for their feed. To keep the droppings off the floor every poultry house should be provided with a droppings platform arranged underneath the roost to catch the manure.

With all other conditions favorable but without proper feed, winter egg production is impossible, because the feed is the raw material that is necessary to make the egg. The first requirement in feeding is that sufficien quantity be provided. Too many farmers are afraid of overfeeding. The ancient buncombe about hens getting too fat to lay is still widely credited, when, as a matter of fact, no hen except a fat hen can lay. Many farmers begrudge a hen every bite that goes down her neck, and numerous early risers on the farm get up to feed the hogs before daylight to keep the hens from eating with them. It is not desirable to have hens eat with the hogs, but when they do this it is a sure sign that they are not getting enough feed from other sources. The kind of feed supplied the hen is fully as important as the quantity. The egg is made up of several different substances, and unless these are available in the ration eggs cannot be produced. The yolk of the egg is largely fat and material for forming this is abundantly supplied by corn, oats and the other grains and grain products commonly fed. The white of the egg is largely protein, and this is the element so commonly lacking in the ration. Some grains and grain products are quite rich in protein, but the hen does not appear to be able to use these vegetable proteins in making egg white. Experience shows that hens must have animal protein in order to lay prolifically. Milk, commercial meat scrap and tankage are the animal proteins most available for feeding poultry, and no flock owner can afford to neglect feeding one of these throughout the winter. The following ration is satisfactory for 100 hens: 10 lbs. corn, 5 lbs. oats; 3 lbs. bran, 3 lbs. shorts and 3 gal. of milk or 1½ lbs. of meat scrap or tankage, fed daily.

Get More Eggs; Save Feed

Sky-high prices for eggs this winter will make big profits for those who know how and what grain mixtures to feed. Improper methods mean big loss. Prof. T. E. Quisenberry made a thousand hens in the American Egg-Laying Contest lay 200 to 304 eggs each in a year. Another big flock cleared for him $6.15 per hen in nine months. His methods are explained in a new bulletin, "How to Get More Eggs and Save Feed." Get this free bulletin by writing Quisenberry today, addressing care American Poultry School, Dept. 582, Kansas City, Mo.

The Most Profitable Breed

What breed of poultry do you recommend as the most profitable for eggs and meat? Do you ever set hens in fall months and get good broods from them? If so, please tell me what month you set them in. Is the bantam a good layer?—Mrs. H. B. P., Nebraska.

The American breeds, Plymouth Rocks, Wyandottes and Rhode Island Reds, will come nearest to supplying both eggs and meat in most profitable quantities. The best time for setting hens is the spring, though sometimes good results are obtained with fall hatches. They should be hatched early enough to be well feathered before cold weather, preferably in August. No reason why the hatches should not be good. Bantams are not heavy layers; they are purely ornamental.—W. E. V.

Rations for Poultry

(Ans. to O. E. B., Larimer County, Colo.)

Under separate cover we are sending you some poultry bulletins; you will notice in all tables of rations that variety is strongly recommended. There is little danger of going wrong if this is kept in mind. Wheat and corn should constitute the larger part of the ration; any other grains will be a good addition. Milo may be substituted for corn, but the latter is worth ten to twenty per cent more, as a feed. Tankage is good and there is no harm in letting fowls have all they want of it. Alfalfa leaves, beets, cabbage, etc., should be furnished unless fowls have farm range. —W. E. V.

Color of Rhode Island Reds

What color should Rhode Island Reds be? Should they be all red, or can they have some black or dark feathers on them? We hatched some eggs that we bought for genuine R. I. Reds, but some of the chickens got a few black and dark feathers about their necks and tails. Do you think these can be called genuine Reds? —A. J., Wyo.

If your R. I. Reds showed no black you would have cause to complain. All Reds should show some black in main tail and wing flight feathers, and females should have black ticking in addition on ends of neck hackle feathers.—W. E. V.

Lice-Proof Nests

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Get 20 to 50% more Eggs, have healthier hens, make more money, with the Everlasting, Sanitary

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Preventive and curative of colds, roup, canker, swelled head, sore head, chicken pox, limber neck, sour crop, cholera, bowel trouble, etc. Mrs. T. A. Morley of Gallen, Mich., says: "Have used Germozone 17 yrs. for chickens and could not get along without it." Geo. F. Vickerman, Rockdale, N. Y., says: "Have used Germozone 12 years; the best for bowel troubles I ever found." Frank Sluka, Chicago, Ill., writes: "I have lost but 1 pigeon and no chickens in the 3 yrs. I have been using Germozone." C. O. Petrain, Moline, Ill.: "I never had a sick chick all last season." Bernard Horning, Kirksville, Mo., says: "Cured my puniest chicks this spring." Ralph Wurst, Erie, Pa., says: "Not a case of white diarrhoea in 3 yrs. I raise over a thousand a year." Good also for rabbits, birds, pet stock.

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THAT'S why we use Seasoned Hickory Wood in making **WRIGHT'S CONDENSED SMOKE.** If you want some good old fashioned **Hickory Flavored Hams and Bacon** use **WRIGHT'S HAM PICKLE and WRIGHT'S CONDENSED SMOKE.** The **Ham Pickle** is a scientifically prepared sugar cure. A dollar jar and 27 pounds of salt prepares a barrel of meat for smoking. A Dollar bottle of **WRIGHT'S SMOKE,** thirty minutes and a small brush will thoroughly smoke your meat and give it a **Delicious Flavor. The "WRIGHT" Way** of curing meat is easier, quicker, cheaper and gives better results. No fooling with fires. No danger of meat spoiling. No drying out or shrinkage.

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friction pulls another way. To overcome friction, use Mica Axle Grease—it smoothes out the seams and pores in the axle that are the causes of energy eating rubbing.

Mica Axle Grease is made of the finest grease stock and powdered mica. Doesn't gum—doesn't stick—gives the axle that bright hard coating which helps easy going.

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Out Among the Breeders

F. M. LOCKWOOD, Fieldman

John Kramer's farm, three miles southeast of Brighton, Colo., was my first stop. He expects to dispose of all grade Holsteins at public sale November 12th and retain only his purebred stock. Avoca Lodge Fayne, highly bred four-year-old bull, is at the head. He has Amy Sadie Pontiac and many other highly bred Holstein cows and calves, some of them bought last May at the Sam Hansen sale. Mr. Kramer won a valuable silver trophy cup at the 1919 Adams county fair for best Holstein cow—Amy Sadie Pontiac. Prof. Griffin had his Smith-Hughes agricultural class of twenty Brighton high school boys at Kramer's on Monday, October 20th, judging the Holsteins.

Dolan & Sons have sold most of their Herefords at private sale and are going out of the Hereford breeding business by February 1, 1920. The Dolans were in Wyoming when I visited their ranch west of Brighton. Many stock show visitors remember their fine exhibits, and this year at the Brighton fair they "cleaned up" on Hereford premiums.

The Fort Lupton district is coming fast in the number of new breeders of registered cattle. Dr. A. T. Morismith has recently purchased fifteen head of the Rand Holsteins, also a river ranch for their home, a mile west of the neat, progressive town of Fort Lupton, Colo. Herr Segis Alcartra is the herd bull. His sire is out of the famous Tillie Alcartra, dam out of King Segis Hengerveld de Kol. Mrs. Rand of Fort Lupton retained three well-bred heifers for a nucleus for a new herd, but has not decided, as yet, where she will locate.

U. B. Peckham, eight miles northwest of Fort Lupton, has recently erected some ranch houses and has started in to breed Holsteins. His bull is out of one of Donley's prize winners. He has two purebred Windsor Farm cows and one heifer.

H. H. Ewing has up-to-date stock buildings, equipped with cement floors and implements. Among his large herd is a purebred Guernsey bull, Bobs Governor; Pride of Lupton, a heifer; and one cow. His son, H. A. Ewing, on the same ranch, has Auburn Aline (from Parker's herd) and another purebred Guernsey heifer.

The next ranch I visited is owned by Charles Ewing. He and his son, Wm. Ewing, have the first Guernsey herd about Fort Lupton. It is headed by Woodland Marshall, a beautiful young bull less than two years old. They have eight head of females. Wallace Ewing and his father, at the same ranch, have a registered two-year-old Percheron stallion out of Zang's great Champagne. The young stallion won first premium at Brighton, Colo., 1919 fair, also third prize at the National Western Stock Show, Denver, 1919.

P. A. Wilmarth, northwest of town, has quite a herd of grades, but has a purebred Korndyke Holstein bull, Peter Jang, a registered yearling heifer and a bull calf unregistered.

I next visited W. C. Sauer & Sons, three miles northwest of Fort Lupton. Here I found 31 head of registered Holsteins in good condition. This is now one of the best looking herds in Colorado and has been purchased during the past year. Highland Canary is the herd bull and a fine animal. The herd consists of 22 cows and eight calves. Most of the cows were the highest priced sold at the Hansen sale last May, being mostly DeKols and Segis. Four of their herds are Korndykes from the Crews Fowler ranch. Mr. Sauer spent $8,000 on one of the most modern cow barns in the west. He has two silos and will soon erect a third. Mrs. Sauer and her daughter are well informed, enthusiastic and good talkers about Holsteins.

Another good breeding firm in the same locality is Dunnoway & Brigham. Their nucleus is two DeKol Holstein cows and two young Crewsdale bulls.

My next visit was near Platteville. Here is the C. L. Volmer ranch. Mr. Volmer was the pioneer in this section to start a Guernsey herd of grades in 1901. He has purchased many purebred bulls from the east in the meantime. Now he has May King from the Hope herd of New Jersey. This bull is from an imported dam and was sired by May Rose King II. There are two purebred calves. Mr. Volmer and his cattle are well known in northern Colorado.

C. B. Lee, three and one-half miles southwest of LaSalle, Colo., has a fine lot of Holstein grades, modern barn, dairy and two silos. His registered bull, Sir Union Johanna, is two and one-half years old.

Senator D. A. Carpenter's famous herd of Bates Shorthorns, 15 miles northeast of Greeley, was my next stop. This is the only pure Bates herd west of the Missouri river. He has 30 head of breeding cows, 65 head including bulls and calves. He sold 34 head last May and the demand has exceeded the production. Baron Groom and Cole's Coming Star (from the Hill herd) are his herd buls. Senator Carpenter has led in the redemption of the Crow Creek valley. His cattle sheds and equipment are mostly his original design.

Mr. Carpenter drove me over to the W. W. Wilson & Sons ranch, which comprises 200 acres, three miles east of Lucerne. Here I found 35 head of pure Scotch and Scotch tops; Choice Model, a two-year-old white bull from the Saunders Iowa herd; some fine Warnocks, also one cow, Butterfly, which is imported. Three registered horses are among the Wilson draft horses. The barns are up-to-date.

The next call was at the C. E. Leiper ranch, one and one-half miles southwest of Eaton. Mr. Lieper and family were absent, Mr. Leiper being in a Denver hospital. I viewed some beautiful registered Chester Whites. He had recently disposed of most of his hogs, retaining only about 30 head.

DUROC JERSEY BOARS AND GILTS
of March farrow, sired by Big Bone Wonder, First Prize Junior Yearling at Iowa, 1918. September boars and gilts (weaning) for sale NOW—sired by Joe's Orion King, a World's Champion. Dams are prize winners at Denver National. Well grown and smooth individuals.
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has for sale at this time 12 fine bulls from 9 to 20 months old. Sired by LOYAL STAMP. Priced right. Great-grandsons of Whitehall Sultan.

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State Fair Winning Blood is mixed thru our entire herd. Inspection invited, or write
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I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.
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Straight and Polled Shorthorn Cattle
Valentine's Last X12316 452005 at head of beef herd. Claywood White 427350at head of milk type.
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For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of both sexes, including several of a litter from the Junior Champion Gilt, Denver Stock Show, 1919.
C. E. GORDON, Mgr., Overland, Colo.

William Upp
Breeder of
BIG TYPE POLAND CHINA HOGS—HERD HEADED BY BIG JUMBO, Missouri Prince, Cotton Wood King, and others.
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Realize what it would mean to get set with a joy'us jimmy pipe, or the papers and to fill 'er up every once and a while. And, puff to beat the cards! *Without a comeback!*

Just as sure as you're reading this, P. A. will hand you everything you ever yearned for in tobacco joy! Why, it's so good you feel like you'd just have to eat that fragrant smoke!

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12 Cows, 2 Past Yearling Heifers, 2 Heifer Calves, 4 Bull Calves
The cows are all with calf from my herd bull, who is a son of Maxwalton Stamp and grandson of Avondale International Champion, grandson of Imported Lucie.
Write for further particulars and prices.
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Young stock of both sexes for sale at all times. Our sales yard is located within two blocks of The Denver Union Stock Yards. We are pleased to show our stock at all times.
THE LOWELL PUREBRED CATTLE CO.
Union Stock Yards, Denver

BIG-TYPE
REGISTERED
DUROC-JERSEY HOGS
QUALITY STOCK
GREEN ACRE FARM
6TH AND WADSWORTH
DENVER, COLO.
H. W. J. EDBROOKE, Owner

BOARS
Two Outstanding Herd Boars by Great Pathfinder
Two Outstanding herd boars by Victory
PRICED RIGHT

DR. F. T. DALY, Cambridge, Neb.

Farmers' and Stockmen's Exchange

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

RHODE ISLAND REDS

ROSE COMB RHODE ISLAND RED COCKerels; prize winning, heavy laying strain. Write your wants. E. M. Miller, Alma, Neb.

BRAHMAS

FOR SALE—THOROUGHBRED LIGHT BRAHma Cockerels, from prize winning stock. Best in the west. Prices reasonable. E. Grosser, 2240 Perry, Denver, Colo.

LANGSHANS

BLACK LANGSHANS OF SIZE AND QUALITY. Winter layers, win wherever shown. O. I. Moon, Fort Morgan, Colo., North Star Route.

SEVERAL VARIETIES

CHICKENS ARE HIGH; ROUP IS EXPENSIVE. Antiseptic Balm is only $1.00. Enough to cure 100 fowls. Satisfaction guaranteed. C. F. Nesmith, Fort Lupton, Colo.

BUFF LEGHORNS—R. I. REDS—BEST LAYers on earth; fancy cockerels, Mammoth Pekin drakes. I want your market fresh eggs. Champney, 2057 South Broadway, Denver.

COLUMBIA HATCHERY—ESTABLISHED 1911. Send us your orders for cockerels; 14 different varieties, also Mammoth Bronze Turkeys, White turkeys, Pekin and Indian Runner ducks and drakes. Write for price list. P. O. Box 1102, Denver, Colo.

TURKEYS

IDEAL MAMMOTH BRONZE, GOLD BAND strain. Parent Tom 40 lbs., hens 22 lbs. For sale—18 month toms, $15; May toms, $10; fifteen-pound pullets, $8. Laura Ullom, Lamar, Colo.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—TO HEAR FROM OWNER OF good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

TRADE RELINQUISHMENT WITH WATER right, for livestock, grocery, Denver residence. Murray, 1858 Lawrence St., Denver.

JOIN CO-OPERATIVE COLONY—GOVERNment land, coming under irrigation, easy cash, work and crop payments; hurry. The Liberty Irrigation Co., 1858 Lawrence St., Denver.

FARM AND CATTLE RANCHES—CHOICE list. If interested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis streets, Denver, Colo.

FOR SALE—MY IMPROVED 480-ACRE ranch; good location for sheep and cattle; a bargain if sold next 30 days. Write or see the owner. Geo. W. Worthan, Neiber, Wyo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb.

COUNTY SECTIONAL MAPS SHOWING VAcant government land in California and Southern Oregon; $2.50 per county. Homeseekers Information Bureau, Sacramento, Cal.

WE HAVE 4,000 ACRES OF BOTTOM LAND in grass and sweet clover to lease for winter pasture. Can divide to suit. The Arkansas Valley Sugar Beet & Irrigated Land Co., Holly, Colo.

FOR SALE — 15-ACRE DAIRY RANCH; cement barn for 20 cows; silo; good 5-room house; water system; 2 miles from city limits on Federal Blvd. J. A. Kennedy, 4911 Hooker Street, Denver.

GOOD LEVEL GOVERNMENT LAND IN NEvada open for homesteading; fine soil; worth $100 per acre in cultivation; on railroad; foreigners must have first naturalization papers; stamps for particulars. Homeseekers Information Bureau, Sacramento, Cal.

FOR RENT—I WILL RENT TO THE RIGHT party, 60 acres on Main Street, one-fourth of a mile from Fort Morgan. Good house, barn and lots of fruit. Ten acres number one farm land, rest woods pasture. I wish to rent the house at $35.00 per month; it is rented for that now. It takes one year's rent on the house in advance, and money to take cows and hogs on half interest. Harold Anderson, Fort Morgan, Colo., Route 3.

BIG LAND SALE—NEAR DENVER—30,000 acres being closed out by trustee at forced sale under order of court; rich soil; good water rights; good title; your chance to select a good farm on small cash payment and ten yearly payments for balance—all within 10 to 40 miles of Denver, and all near good railway towns. Come or write the Trustee immediately for literature. Chicago Title & Trust Co., Trustee, 701 Ideal Bldg., 17th and Champa Streets, Denver, Colo.

ATTENTION STOCKMEN—WE HAVE TWO stock ranch bargains. Just what you are looking for; each ranch comprises 320 acres deeded land with substantial improvements and large acreage under irrigation, and in alfalfa, timothy, clover hay, unlimited outside free range, with 4,000 acres of leased land under fence for fall pasture. These ranches are located three miles apart, 125 miles from Denver. Good shipping point, big money makers. Prices $12,000 and $13,600 on good terms. See us at once for these. Reynolds, Covey & Reynolds, 625 Exchange Bldg., Denver, Colo.

CATTLE RANCH LAND—6,880 ACRES IN solid body; adjoining shipping station on two main line railroads in Arkansas valley, 20 miles east of Pueblo, Colorado; not fenced, not improved; several fine springs, also crossed by large irrigation canal; 500 acres subirrigated and can be irrigated by pumps; high tension power line alongside of land to furnish power. By buying about 300 acres along the river adjoining fine shade and shelter can be had; 2 miles away is a fine irrigated alfalfa district. This is the making of the finest ranch in Colorado. Price, $12.50 per acre, reasonable terms. Chas. O. Elwood, Owner, 701 Ideal Bldg., Denver, Colo.

EXCEPTIONAL MID-WEST 119-ACRE BARgain, $9,150; with stock, machinery and crops included; on improved road, near town, 5 miles to thriving city; 90 acres record-producing tillage, last year raised 65 bu. oats the acre, 125 bu. corn, etc.; spring and creek-watered pasture; good 11-room house, 2 big barns, granary, corn, hog houses, etc.; aged owner throws in for quick sale pair horses, cows, wagons, harness, tools, hay, grain, potatoes; $9,150 gets all, and only $1,500 down required. Details page 79, Strout's Big Fall Catalog Farm Bargains 23 States; copy free. Strout Farm Agency 831BA, New York Life Bldg., Kansas City, Mo.

LIVE STOCK

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CATTLE

FOR SALE—10 HEAD HIGH GRADE HOLstein cows and heifers. Geo. A. Mayes, Cuchara Camps, near La Veta, Colo.

FOR SALE—ABERDEEN-ANGUS CATTLE; 13 registered cows and heifers, 4 registered bulls. A. B. Ashton, Arriba, Colo.

IS YOUR COW'S UDDER CAKED AND INflamed. Antiseptic Balm is guaranteed to bring quick relief, $1.00. C. F. Nesmith, Fort Lupton, Colo.

A CARLOAD OF REGISTERED YEARLING Hereford heifers; also this year's heifers; two yearling bulls and some extra good bull calves all good boned, good marked and best anxiety breeding. J. O. D. Ranch, Aroya, Colo.

HORSES

ANTISEPTIC BALM WILL HEAL THAT wire cut, leaving no scar; $1.00; satisfaction guaranteed. C. F. Nesmith, Fort Lupton, Colo.

FOR SALE—PERCHERON STALLION, DULL black, imported 1912, foaled 1908. Has first premium from state fairs. D. Karlen, La Junta, Colo.

HOGS

FOR SALE—A FEW BIG TYPE POLAND China spring boars of a 900-lb. sow and a 1100-lb. boar. W. J. Peterson, Seibert, Colo.

FOR SALE—A FEW BIG TYPE DUROC boars left by the wonderful Orion Cherry King. E. W. Brown, Mitchell, Neb.

FOR SALE—REGISTERED BIG TYPE DUROC Jersey hogs from Prize Winning Stocks. Edgemoor Farm, Route 8, Littleton, Colo.

BIG TYPE POLAND CHINA HOGS—SPRING boars and gilts for sale. Gad Barney, Haswell, Colo.

FOR SALE—JUNE DUROC BOARS, COLONEL-Uneeda breeding. Worth $100, but your check for $50 takes first choice f. o. b. Calhan. Horace Meloy, Calhan, Colo.

BROWN'S POLAND CHINAS—LEADING BIG type strains. Cholera immune. Big bred sow sale February 14, 1920. Descriptive catalog free. Write me. Boars for sale now. J. H. Brown, Route 5, Selden, Kas.

REGISTERED DUROCS—WE ARE MAKING A specialty of some good registered boars at farmers' prices. Have also some fine show prospects; write us. The Blue Ribbon Live Stock Co., C. F. Burke, Mgr., Pueblo, Colo.

REGISTERED BIG TYPE DUROC JERSEY boars and gilts by Orion Cherry King XV and out of Defender sows. Reasonable prices and money back if not satisfied. J. O. D. Ranch, Aroya, Colo.

DUROC JERSEY PIGS—SEPTEMBER PIGS by Montair Sensation, a son of Great Sensation, and half brother to Great Orion Sensation. Grand Champion at National Swine show. You can get well bred pigs at the price of commoner stuff. Geo. E. Morton & Sons, Fort Collins, Colo.

GET YOUR HERD BOAR NOW—I HAVE SEVeral registered big type yearling Duroc boars, litter mates to Willow Grange Chief, first prize winner at Pueblo State Fair, sired by 1918 Grand Champion, that I will sell at attractive figure. Also younger gilts and boars of prize-winning strain. Write me what you want and I will take care of you. J. N. Caldwell, Willow Grange Farm, Littleton, Colo.

HELP WANTED

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NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company, Marietta, Ohio.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

THOUSANDS U. S. GOVERNMENT CENSUS and Railway Mail positions now open. Men, women, 18 up; $1,100-$1,700 year. Common education sufficient. Write immediately for list positions. Franklin Institute, Dept. M171, Rochester, N. Y.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

THE LATEST IDEA IN CANNING FRESH meats, by using an Alexander Home Canner. Address for prices and description, G. W. Alexander & Co., Plattsmouth, Nebraska.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIrect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

BEE SUPPLIES AND HONEY

DELICIOUS NEW HONEY—10-POUND PAILS $2.25; 60-pound can, $11.50. A. A. Lyons, Fort Collins, Colo.

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TYPEWRITER

GOOD TYPEWRITER FOR SALE CHEAP—Free trial, easy payments if wanted. Write Bertha Payne, Shawnee, Kansas.

HAY

2,000 TONS PRAIRIE AND SWEET CLOVER hay for sale. Prices and terms reasonable. The Arkansas Valley Sugar Beet & Irrigated Land Co., Holly, Colo.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

GROCERIES AND SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. 5-lb. can Calumet baking powder, 90c. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteenth St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

Glendale ...ck Farm

Irvindale Rowdy
Grand Champion
Belgian Stallion
Chicago, 1917,
Denver, 1918
and 1919

Breeders of
BELGIAN HORSES and POLLED HEREFORD CATTLE

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

BEAU ASTER

Registered Hereford Cattle

Prince Domino —499611 Sire of the Champion Futurity Bull and Heifer Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER
Holyoke, Colo.

FOR SALE

I can show buyers 600 registered Herefords, also 800 registered Durhams, Aberdeen Angus, and Galloways, ages one year old. Two-year-olds, cows, and bulls; price $85.00 and up. Also six breeds registered draft stallions, mares and colts. Priced to sell. I can show breeding stock at bargain prices. I have been with livestock fifty-five years. Can fill orders for car lots. Write or wire me. Address Ralph I. Little, Good Block, Des Moines, Iowa.

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH
Montrose, Colo.

DUROC JERSEY BOARS AND GILTS

We have for immediate delivery some well-grown Duroc Jersey Boars and Gilts of this spring's farrow. They are of brilliant breeding from line-bred ORION CHERRY KING stock. We recommend this blood to our old clients who have had such success with Durocs bred by us.

For farmers who employ Milking Shorthorn cows we have a few choice bulls of the dual purpose sort that will improve your stock.

At the Colorado State Fair last September our exhibit won GRAND CHAMPION MILKING SHORTHORN BULL, GRAND CHAMPION MILKING SHORTHORN COW, and sweepstakes for best Milking Shorthorn females any age.,

Our herd is headed by unblemished Bates bulls—SENIOR BULL, BARON BATES 777290; JUNIOR BULL, ROYAL GLENSIDE 641519.

WYLDEMERE FARM

J. B. Benedict, Owner **Littleton, Colorado**

Western Holstein Farm

HALL BROS., Props.

Breeders of the correct thing in Holsteins. Colantha-Johanna-Ormsby Families. Pedigrees full of great show-ring winnings and world's record milk and butter production. Send for circular.

BULL CALVES $200-$500 EACH

Address Box 2, South Denver Station, Denver, Colo., or visit the Farm, 5½ miles southwest of Denver on the Morrison Road.

Milking Shorthorns
THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Our Duroc Herd has won over 1500 ribbons including 75 Championships.

Heading this great herd are Burke's Good E. Nuff Again, a Grand Champion in Colorado and heaviest Duroc by official weight at National Swine Show, Omaha, 1917; Big Cherry King, sire of all first prize futurity winners, Pueblo, 1918; and Blue Ribbon Sensation that we paid $1,000 for at nine months old.

Write us for prices on farmers' boars, bred sows and some great show prospects.

The Blue Ribbon Livestock Co.

C. F. Burke, Mgr. **Pueblo, Colo.**

FIRST ANNUAL HOG SALE

Forty Registered Duroc and Poland Sows. guaranteed to be safe in pig.

Twelve Registered Boars.

BOULDER-LARIMER COUNTIES BRREDERS' ASSOCIATIONS

Hold this sale jointly in the Stock-judging Pavilion at the State Agricultural College, Fort Collins, Colorado.

ALL A-No. 1 INDIVIDUALS

Inspected by competent committee from each county

FRIDAY, DECEMBER 19, 1919

Wyoming 4th

L. G. DAVIS HEREFORDS

ANXIETY-BRED

Sires in service:

The great **BEAU CARLOS 2D 352001**, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale. Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

Choice Offering of

Poland China and Duroc Jersey Sows

Bred and Open

Young Shorthorn, Hereford and Holstein Bulls at attractive prices.
Hampshire Ram Lambs by Imported Ram.
Two-year-old Cotswold Ram. Winner at Denver.

Write for prices and descriptions

ANIMAL HUSBANDRY DEPARTMENT

State Agricultural College, Fort Collins, Colorado

I Am Offering FOR SALE

is fine young bull, James ontiac DeKol Ormsby.
He is a fine outstanding individual from one of my producing advanced registry cows.

WM. A. PURVIS,
JOHNSTOWN, COLO.

JAMES PONTIAC DEKOL ORMSBY

JERSEYS

Western Home of The Majesties

We have a yearling bull by Majesty's Oxford Combination, out of an imported cow, in R. M., solid color, a corking good calf, will make an attractive price on for quick sale.

Also a January calf, sired by a 700-pound butter bull, out of a R. M. daughter of Count Majesty, that is hard to beat; very low price to move at once.

A few good Duroc gilts, either bred or open. Write me your wants, please.

A. M. McCLENAHAN **GREELEY, COLORADO**

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

A Sale of Real Show Hogs at Denver

The Colorado Duroc Breeders Association will hold a sale of Registered Big Type Show Sows and Boars at the National Western Stock Show, Denver,

TUESDAY, JANUARY 20, 1920

Nothing but show animals will be allowed in the sale. This rule will be rigidly enforced by a committee of competent judges with power to cull out every inferior or common looking Duroc.

SOME COLORADO STATE FAIR WINNERS, AND WINNERS AT DENVER, JANUARY, 1920 WILL SELL

Sale will consist largely of blood from the following families: Sensations, Cherry Kings, Pathfinders, Orions, Defenders, Good E. Nuffs and other leading families.

Every animal sold will be backed by an iron-clad guarantee by the breeders of an entire state. Get your name on our list for a catalog of the sale by writing to the Sale Manager, C. F. Burke, Pueblo, Colorado.

Send mail bids to R. C. Ashby of the Duroc Bulletin, Chicago, or to Harry A. Lindgren, care of Western Farm Life, Denver.

C. F. Burke **Caldwell Martin**

George E. Morton
Managing Committee

COL. FRED REPPERT, AUCTIONEER

THE HEREFORD CORPORATION OF WYOMING

Ranch Six Miles From Cheyenne, Wyoming

Registered Herefords Exclusively Anxiety Bred

We have on hand two carloads of coming 2-year-old bulls in fine condition for service. Several cars extra good yearling bulls for sale. Write us for prices and detailed information.

OFFICES

First National Bank Building, Cheyenne, Wyo.
406 New Live Stock Exchange Building, Union Stock Yards, Denver, Colo.

RAYMOND S. HUSTED, Manager

WM. J. ROSSMAN, Ranch Superintendent **JAMES C. ADAMS, Salesman**

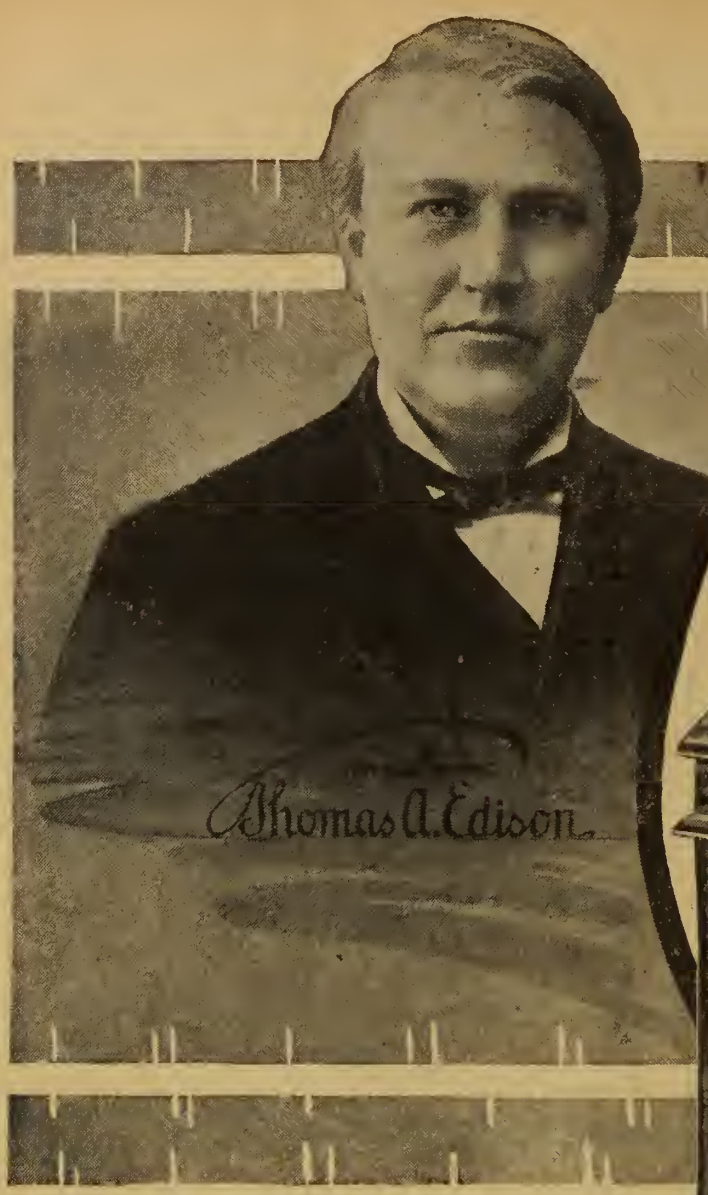
BIG TYPE POLAND-CHINA HOGS

One of the best herds of Poland-Chinas in the west. I have some choice boars and bred gilts sired by "Sampson Over," a son of McSampson, a Grand Champion, and McS. Big Timm, a son of Big Timm, Grand Champion, owned by Wm. Ferguson. Prices right for the quality of stock.

A. D. McGILLVRAY

Rural Route No. 1 **Boulder, Colorado**

Mr. Edison's Wor fu
New Amberola



Only $1.00

For years, the world's greatest inventor worked night and day to make the music of the phonograph true to life. At last he has succeeded. Now that you can get THE BEST on the wonderful offer below, you need no longer be satisfied with anything less than Mr. Edison's great instrument. Read below how easily you may have the genuine New Edison Amberola in your home.

and after trial!

Yes, we will send you the New Edison Amberola, the product of the world's greatest inventor's genius, the phonograph with the wonderful diamond stylus reproducer and your choice of latest Diamond Amberol Records on *free trial without a penny down.* On this offer, you can now have the genuine Edison Amberola, the instrument which gives you real, life-like music, the finest and best of all phonographs at a small fraction of the price asked for imitations of Mr. Edison's great instrument.

A Happy Home

Happiness is life—and real happiness is found only in a real home. And by a *real home* I do not mean a house with a yard or farm around it. Oh, no! A real home is the place where the happy, united family gather together for mutual enjoyment and recreation. And the Edison Amberola makes this possible, for it stands supreme as the greatest home entertainer. It will mean more than entertainment and merriment, more than an hour of amusement, yes, it will mean genuine pleasure of the lasting sort—helpful entertainment and culture of the most beneficial kind. It will mean the family united—a new home.

Entertain Your Friends

Get the New Edison Amberola in your home on free trial. Entertain your family and friends with the latest up-to-date song hits of the big cities. Laugh until your sides ache at the funniest of funny minstrel shows. Hear the grand old church hymns. Hear the crashing brass bands, the waltzes, the two-steps, the solos, the duets and quartettes. You will sit awe-striken at the wonderful grand operas as sung by the world's greatest singers. You will be moved by the tender, sweet harmony of quartettes singing those old melodies that you have heard all your life. Take your choice of any kind of entertainment. All on free trial. Then, after the trial, send the outfit back at our expense if you choose. Or keep it on our great rock-bottom offer. **Send the coupon today!**

Rock-Bottom Direct Offer—

If, after the free trial, you decide to keep Mr. Edison's superb new instrument, send us only $1.00. Pay the balance on easiest kind of monthly payments. Think of it! A $1.00 payment, and a few dollars a month to get this wonderful new style outfit—Mr. Edison's great phonograph with the Diamond Stylus reproducer, all the musical results of the highest price outfits—the same Diamond Amberol Records—yes, the greatest value for $1.00 down, balance on easiest monthly terms. Convince yourself—free trial first. No money down, no C. O. D., not one cent to pay unless you choose to keep the instrument. Send coupon!

COUPON

F. K. BABSON, Edison Phonograph Distributors,
3379 Edison Block, Chicago, Ill.

Gentlemen: — Please send me your New Edison Catalog and full particulars of your free trial offer on the new model Edison Amberola.

Name.....

Address.....

Our NEW Edison Catalog Sent Free

Your name and address on a postal or in a letter (or just the coupon) is enough. No obligation in asking for the catalog. Get this offer—*while this offer lasts!*

F. K. BABSON, Edison Phonograph Dist's.
3379 Edison Block, Chicago, Ill.
CANADIAN OFFICE: 355 Portage Avenue, Winnipeg, Manitoba

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IN

WESTERN Farm Life

UNIVERSITY OF DENVER LIBRARY
1920

Vol. XXI Denver, Colorado, December 15, 1919 Semi-Monthly

(Photo Courtesy of Denver Municipal Facts)

"PEACE ON EARTH, GOOD WILL TOWARD MEN"

A Christmas View of th e Colorado State Capitol

Baldwin's

Special Pre-Christmas

$111.00

Grafonola Offer

A STYLE E-2 GRAFONOLA WITH 24 SELECTIONS

(10 85c and 2 $1.25 records) of your own choice. It is equipped with the only non-set automatic stop, which will stop the motor at the end of every record.

Express prepaid to you.
Send $15.00 with order,
then $10.00 each month.

OUR SPECIAL FREE TRIAL OFFER

We will send you any number of records or player rolls on 2 days' free trial. Select at least one-third and return the ones you do not care to keep.

Orders shipped the day received. Catalogs sent free.

THE HOUSE OF BALDWIN

Home of the Manualo

1636 California Street
DENVER

THIS SPECIAL CHRISTMAS VICTROLA OUTFIT

including latest model Victrola, 7⅜ inches high, 13 inches wide, 14 inches deep; six double-faced, late popular Victor Records (12 selections); one Album to hold large and small records.

Only $31.25

Surely no home need be without music with such an offer as this. Shipped to you, express prepaid. Terms, cash or $5.00 cash, $5.00 monthly.

Write today. They will all be gone long before Christmas.

Other Styles of Victrolas Up to $300.00

Send for Our Record Catalog Today

(Coupon)

I enclose herewith $5.00 as first payment on your special Victrola outfit at $31.25, which please ship me by prepaid express immediately.

Name .....

Address .....

The Chas. E. Wells Music Company

The House of Music

1624-28 California St., Denver, Colo.

New Wheat Diseases

Two important wheat diseases, take-all and flag smut, have recently been discovered in the United States. This take-all, if not identical with that of Australia, is strikingly like it in the effect it produces on the growing crop. Flag smut is the same disease that occurs in Australia, India and Japan.

Take-all has been found in Madison, Sangamon and Mason counties in Illinois and in LaPorte, Porter and Tippecanoe counties in Indiana. Flag smut was discovered in Madison county, Illinois, and thus far has not been found outside of that county. Of 121 wheat fields surveyed in Madison county, 32 were affected with take-all and 23 with flag smut. Of the 32 fields containing take-all, 10 were affected also with flag smut.

To learn whether take-all and flag smut had been introduced through the use of Australian-grown seed, an investigation was made and the source of the seed wheat used in each of the diseased fields was determined. None of the wheat was of Australian origin.

In the field take-all is recognized by the appearance of more or less irregular patches of stunted and dying plants. The most seriously diseased plants are of a dull bluish-green color at first, but later turn brown and die. All affected plants show in varying degrees a rotting of the roots and a brown decay of the stems at the surface of the ground.

Flag smut differs from the other wheat smuts in that it attacks the leaves. In the later stages of this disease the flag leaf and its sheath, or boot, become twisted and much distorted. Smutted plants rarely produce heads.

Until more is known concerning the cause of take-all in America, complete recommendations for its control cannot be made. Grain from infected fields should never be used for seed. On farms which are infested, a system of crop rotation should be used which keeps wheat, oats, barley and rye off the land for four or five years. These measures should effectively control the disease.

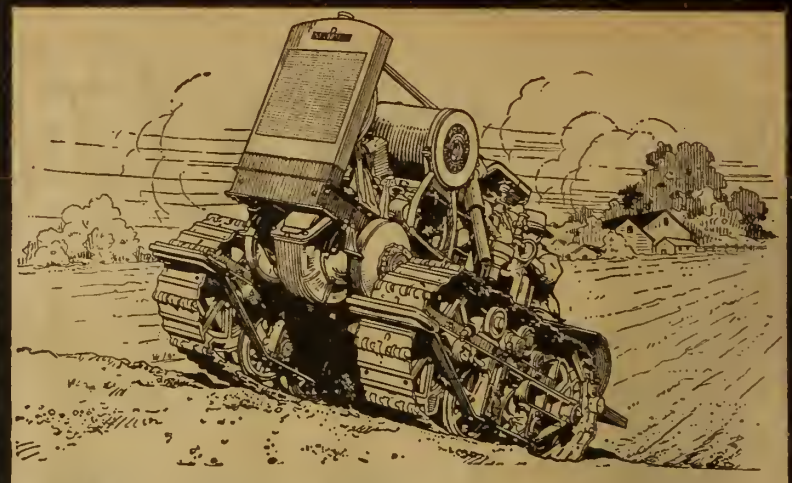
Flag smut can be controlled by crop rotation combined with seed treatment, as recommended in Farmers Bulletin 1063, just issued by the United States Department of Agriculture.

Exportation of Percherons

Pralse by the British for the grade Percheron horses which rendered such notable service in the war was received with some skepticism by many on this side of the Atlantic. They contended that British conservatism and preference for breeds developed within the Empire would preclude any possibility of establishing Percheron studs in Britain. Their doubts may now be set at rest by the record of things accomplished. A British Percheron Horse Society has been organized. It already has over ninety members, most of whom are men of great prominence in horse breeding circles in Britain. More than one hundred mares and a number of stallions have ben taken from France into Britain and distributes among those interested. In November, 1918, 22 mares and 1 stallion were shipped from Canada to Great Britain and I take great pleasure in announcing that three more shipments are now enroute eastward across the Atlantic.

Peter Ross, who has been shipping Shorthorns from Great Britain to America for the last twenty years, is responsible for one of these exportations, as he is taking 20 selected mares to men in the north of England and in Scotland, from whom he has been in the habit of buying Shorthorn cattle. All these mares were bought on order. Truman's Pioneer Stud Farm, the senior member of which has resided in Great Britain throughout his lifetime, is responsible for another exportation consisting of 23 mares and 3 stallions. The British Percheron Horse Society very wisely ruled that no Percherons could be exported from America to Great Britain unless inspected on this side by a thoroughly competent representative of the British Percheron Horse Society. After some exchange of cables, arrangements were entered into btween the British Percheron Horse Society and the Percheron Society of America, whereby Prof. J. L. Edmonds, ead of the horse department at the University of Illinois, was employed as in official inspector to pass upon all anmals destined for exportation to Great Britain. Instructions from the British Percheron Horse Society were that only nimals of true Percheron conformation, quality, size, action and type should be approved for export and that nly perfectly sound animals should be onsidered. The animals entering Into hese shipments are a creditable lot and will, without doubt, make friends for he breed.—Wayne Dinsmore, Secretary Percheron Society of America.

If you like this magazine tell your neighbor about it.



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Largest Circulation of Any Farm Magazine in the West

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Holsteins From Arizona for Las Animas County

SECOND IMPORTATION UNDER THE DAIRY DEVELOPMENT PLAN

H. A. LINDGREN

W. M. Jamieson, President of the Las Animas County Dairy Cow Development Association

THE Dairy Cow Development Company, an organization of business men interested in the development of dairying in Las Animas county, Colorado, have just brought in the second shipment of dairy cattle under their unique plan, and distributed them among the farmers of the county. The idea originated with County Agriculturist Charles E. Smith, who found that there were a number of men starting in farming on the dry land section, who needed financial assistance. They were not in position to get as much credit at the banks as they needed to buy dairy cows. The idea occurred to Mr. Smith that the business men of the county could and would help finance the new settlers if a feasible plan could be devised. Those who had a little money not in use, were asked to buy stock in a company for the purpose of purchasing dairy cows for the farmers. The cattle are brought in and let out to the farmers on a four year lease plan. The provisions of the lease have been explained in a previous issue of Western Farm Life. However, to refresh the more important points of the contract in the minds of the readers, they will be mentioned briefly again.

The cattle are purchased and brought in by the company. They are distributed to the farmers, each being limited to five head. The farmer agrees to care for and feed the animals, and to vaccinate all calves against blackleg. He must breed the heifers or cows to registered bulls of the same breed. He must build a silo to provide succulent feed and must weigh all milk and keep a record of the same. The lessee is to receive the milk produced by the cows and one-half of the increase. The original herd together with half of the increase remains the property of the company. At the expiration of the four years the original herd and the increase belonging to it is turned back to them. In case of loss, provision is made to adjust it fairly to both parties.

The first shipment under this plan was brought in over a year ago and distributed to farmers in the Branson district. There were 70 animals in this shipment which went to fourteen farmers. These cows are doing well, the plan having proved practical to the extent that a second importation of cows was demanded.

The second importation was received and distributed on the 22nd and 23d of November. There were 175 head in the shipment, making up five carloads. They were unloaded at Trinidad, where they were classified and branded with the company brand and vaccinated for blackleg, and the next day sent to Branson. The shipment was made up entirely of young stuff of the Holstein breed. The older ones were springing two-year-old heifers and ranging down to young calves.

They were purchased on the Salt River Irrigation Project, in Arizona. The farmers in that section have become interested in the production of long staple cotton, for which they are receiving 88 cents a pound. For this reason they are selling off the dairy cows at very reasonable prices. County Agriculturist Smith made the trip to Arizona and selected the animals. They were of excellent conformation all the way through. Mr. Smith was careful to select only from the herds where registered bulls had been in use. This assured him high grade animals.

Method of Distribution

I was present at Branson on Sunday, November 23d, where some twenty-five farmers had assembled for the distribution. This was a very interesting process to all concerned. The County Agriculturist and Mr. W. M. Jamieson, president of the Dairy Development Company, were on hand to assist in the work. In order to make the distribution as fair as possible, the farmers drew for choice. There were eighteen farmers to draw for the older heifers. Slips of paper bearing numbers from one to eighteen, were placed in a hat and each farmer drew to ascertain what choice he had. As each man was to receive five head, when the eighteenth man was reached he had a chance to have first choice on the second time around, and so on back to number one, who had first choice again for the third time around. When the animal was selected a number was placed on her, to correspond to the number the farmer held.

This plan was satisfactory to all concerned and all went away feeling pleased with the animals they had chosen. The calves were distributed in the same way. It might be said here that the calves were given out on the natural increase plan. That is, the farmer getting a calf keeps her and turns back half the increase at the end of the four years. Most of the calves were given to men who got cows on the first importation.

This idea is doing much to increase the dairying on the dry land farms in Las Animas county. The business man who assists by furnishing the money for these cows realizes that it not only helps the farmer, but it also helps the country as well. In that way it reflects back to his particular business.

Group of Las Animas County Farmers Who Participated in the Dairy Cow Distribution November 23, 1919

The farmers in Las Animas county have been enjoying a prosperous year, as indicated by the fact that yields of corn and wheat were very good. The writer was informed that the yield of the former was as high as fifty bushels in some cases on dry land, while a yield of forty bushels was quite common. In the case of wheat the yield was very often better than twenty-five bushels. This speaks well for the soil. The farmers are realizing the need for dairying in connection with other classes of farming and feel well pleased with the idea of leasing cows in the manner described. In discussing the plan with those farmers who obtained cows in the previous shipment, it was found that they were very well satisfied that the plan was an opportunity for them and at the same time is a safe investment for the business men.

Details of the Contract

The contract covers nearly every point which is likely to come up and is clearly stated so that it is easily understood by each party.

Among the very commendable provisions is the matter of the use of registered sires. The cows must be bred to a registered bull of the same breed. In this there is much wisdom. In order to handle this particular phase more satisfactorily than to have each lessee purchase a bull, it was provided that the farmers should be grouped and one bull placed with each group. In this way the cost does not fall heavily on anyone.

It should be stated here that each farmer must provide bull service for the cows. The plan used in the group is similar to the bull association plan. Better bulls can be provided in this way than if each man bought for himself. When a group is through with a bull he is transferred to another group.

The plan of weighing the milk from each cow and keeping a record of it is of untold value to the future building up of the herd. All bull calves from the grade cows must be castrated. Eventually they go to the block.

The common mistakes made by the dairy farmer are anticipated in the contract and the matter of prevention is taken care of in the provisions of the agreement. With such a contract to guide them they are assured of a good return if they live up to the provisions stated therein.

At the end of four years the farmer has a start in good animals and can go ahead for himself. He has not been out anything but the feed, and the milk should more than pay for that.

The cows brought to other sections of Colorado from Arizona have done well. There were 35,000 cows on the Salt River project when long staple cotton came into popularity. On account of the high return from cotton raising the number of cows has been cut down 50%. The foundation cows in that section came from Wisconsin and New York and good bulls have been used with them. The cows coming from Arizona seem to require less time in which to become acclimated than those from the East.

With this recent importation, some 250 head of dairy cattle have been placed with the farmers of Las Animas

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Holsteins From Arizona Ready for Distribution Among the Farmers at Branson, Colorado

Indians Developed Sunflower Now Used for Silage

NEW MEXICO COLLEGE MAKES INTERESTING REPORT ON EXPERIMENTS

GEORGE R. QUESENBERRY, New Mexico College of Agriculrure

THE wild sunflower (Helianthus Annus), is a native of the Great Plains area of America. From this native sunflower the Indians developed a variety with seeds as much as two-fifths of an inch in length from which they obtained oil for their hair. The early Spaniards introduced this improved type into the gardens of Spain and later its cultivation spread to nearly all parts of Europe. In Russia, where religious fasts restrict the use of meat, a demand has been created for a vegetable oil and the sunflower seed and oil have almost become staple foods

The cultivated sunflower is an erect herbaceous annual which grows from five to twenty feet in height and the diameter varies from one-half to three inches, depending to a great extent, as does the branching, on the density of the stand and the texture and fertility of the soil. The stalks and branches are usually covered thickly with short gray hairs. The leaves are alternate and heart shaped with about the same width as length, varying considerably in size from six to eighteen inches. The number of heads per plant vary also, yet plants that produce only one head are more desirable, having a greater diameter and much larger akenes or seeds. The akenes of the type commonly used are white with brown stripes on each side. They are obovate oblong and somewhat flattened in shape. Several other less common cultivated varieties exist.

Sunflowers have many uses in different parts of the world. Where fuel is scarce in certain plains sections, the heavy stalks form a very important source of fuel. The green plant can be used for ensilage, or it is eaten readily by sheep and cattle if fed green as a soilage crop. The seeds have long been used as one of the most important ingredients of commercial stock feeds and for that purpose alone thousands of tons are used annually in America. The oil compressed from the seed is one of the most useful vegetable oils and comes nearer than any other oil to taking the place of olive oil, having in general the same properties. The oil cake left after the oil is extracted is rich in protein and equal in value to linseed cake. In Russia the akenes are sold and eaten much the same as peanuts are in this country, only more extensively. They are eaten either raw or roasted.

One and one-fourth acres were planted in Giant Russian sunflowers on the college farm during the 1918 season. The soil varies from a stiff clay to a sandy loam. In a few places in the field there were patches of Bermuda and Johnson grass. The field was broken with a lister, irrigated, re-broken and seeded to the Giant Russian sunflowers in furrows at the rate of eight pounds to the acre. The resultant stand was exceptionally good. The sunflowers grew up very thickly and soon shaded the ground. Cultivation and irrigation followed as needed, but due to the rapid growth and the spreading of the branches of the young plants, only two cultivations were necessary. After the plants attained a height of four feet it was impossible for small weeds to get light enough for their development to any appreciablo extent. The sunflowers were cut with a corn binder when they had reached about 80 per cent bloom, weighed and put in the silo. They were more difficult to handle than corn, but cut more easily and make an equal or better appearing ensilage. This feed was readily eaten by cattle and sheep when fresh, as well as after fermenting in the silo. A much larger tonnage of sunflowers can be put in an equal space in a silo than corn. The one and one-fourth acres of college land produced 49,960 pounds of ensilage in 70 days from seeding.

When the silo was opened eight months after filling, very little ensilage was decayed on top. The ensilage was very readily eaten by the college stock. The results produced were very satisfactory, although slightly more sunflower ensilage than corn ensilage had to be fed, due to the greater moisture of this ensilage.

From the results obtained, it appears that sunflowers will make a very satisfactory emergency crop for ensilage and produce much larger yields than any other crop on our best lands. Where water has a tendency to stand the sunflowers will die. The young plants are very tender, but after two or three feet in height is attained few weeds bother them.

Analysis

The following is the analysis of Russian sunflowers, as analyzed by Prof. J. D. Hungerford of the Nutrition department:

Moisture	81.67
Ash	2.30
Protein	1.19
Fat	.81
Fiber	5.85
Nitrogen free extract	8.18

Sunflowers in Canada

At the University of Saskatchewan, sunflowers have been grown in a small way during each of the past eight years. A careful record of the yield of the crop has been kept, but no attempt was made to utilize the crop as a feed until 1918, when a considerable acreage was sown for silage purposes. During the past winter, sunflower silage has been fed to cattle with apparently very satisfactory results. No extensive feeding trials have been made, but the cattle ate the silage very satisfactorily. In a short test of sunflower silage compared with oat silage fed to milking cows, the former produced slightly more milk per pound than the oat silage. This test was carried on for a period of only a few days and should not, therefore, be given undue importance. It was observed that the sunflower silage was more laxative than the oat silage. It seemed, therefore, from this test that rather lighter feedings than is common with oat or corn silage should be given.

With regard to the culture of the crop in Saskatchewan, our records indicate that sunflowers yield twice as much as corn under the soil and climatic conditions that exist at Saskatoon. The variety we have used is the same as that used by the Montana Exerimental station, namely, the Giant Russian. For silage purposes it may be sown any time during the last ten days of May either in hills or in rows. We have always sown ours in rows about three feet apart at the rate of approximately fifteen pounds per acre.

No experiments as to the time of planting or the rate of planting have been conducted. It is quite possible that fifteen pounds per acre is more seed than is necessary. When sown in hills, or under very dry conditions in rows further apart than three feet, as little as five to eight pounds may be found satisfactory. The land should be prepared in the same way as for corn. After the plants are up inter-tillage is necessary to control weeds and lessen evaporation. Ordinarily the crop should be allowed to grow as late as possible and still escape frost. When the seed is in the milk stage it is considered that the crop is in the best stage for harvesting. The cutting can be done satisfactorily by using the corn harvester. The filling of the silo with the sunflowers is carried out in exactly the same manner as if corn were used.

Insufficient work has been done to enable one to estimate with any degree of accuracy, the probable value of sunflowers in western Canadian agriculture. There is however, no doubt of the ability to yield relatively high as compared with corn; its value as a feed promises much, but more data should be acquired before it can be considered to have safely passed the experimental stage; nothing is known of its effect on the soil, whereas it has been shown time and time again that corn leaves the land in much better condition for a cereal crop than any other crop now used.—John Bracken, Professor of Field Husbandry, University of Saskatchewan.

Russian Sunflowers on New Mexico Experiment Station

Certified Seed Stock Bought for Divide Growers

PEDIGREED POTATOES ARE COMING FROM NORTHERN MINNESOTA

FOLLOWING the Tri-County Potato Bake held near Elbert, Colorado, on September 19, orders were received by the Colorado Potato Improvement Committee for nearly half a carload of certified Irish Cobbler and half a carload of certified Triumph potato seed. These orders were sent to Earle G. Reed, agricultural agent for the C. B. & Q. and C. & S. Railroads, who is chairman of the Potato Improvement Committee, and by the way, the instigator of the certified seed producton movement now being conducted in Colorado, particularly in Elbert, El Paso and Douglas counties.

Contracts were signed by the parties desiring to purchase certified seed potatoes, and financial arrangements made at time of signing the contract. The contracts provide for the securing of certified seed this fall, the free treating of the seed next spring (for diseases) by the railroad company serving the above mentioned counties, free inspection, leading to certification next summer by representatives of the Colorado Agricultural College, and the securing of good markets next fall for all potatoes which pass the certification standards.

Mr. Reed made a trip to Wisconsin and Minnesota during October to purchase the certified seed stock to be used in Colorado next year. The potatoes were purchased in the northern part of Minnesota, in the locality of Bemidji. This is recognized as one of the best localities in the country for the growing of strong, vigorous, healthy potatoes. The Triumph stock of 350 bushels was purchased from one man who has been producing the highest type of seed for several years, even before certification was inaugurated in Minnesota. This stock has been grown from seed plots which have been carefully selected for the past four years. The potatoes are of excellent quality and type and as free from disease as potatoes can be.

The Cobbler stock of 350 bushels was also purchased from one party who has had the recognition from the state of Minnesota potato inspectors as having the best Cobbler seed in the state this year, and Minnesota has produced some fine seed. Due to the climate, the short growing season and the favorable soil conditions. Cobblers of the highest qualty are produced in this northern section of Minnesota.

Not only will the potato fields be inspected by the representatives of the Colorado Agricultural College, but arrangements have been made with Mr. A. G. Tolaas, head of the potato seed certification work in Minnesota, to make a special trip to Colorado next summer to inspect the fields of potatoes grown from Minnesota seed. This will not add to the value of the certification conducted by Dr. Sandsten's department, but will be an advertisement for the growers in the Tri-County district and also shows the interest of the Minnesota people in following up their work.

The seed stocks so purchased for the farmers of the Tri-County potato growing district will be stored in Minnesota this winter in good storage houses and delivered for shipment between April 1 and May 1, 1920, subject to final inspection at time of spring delivery. The Triumphs were secured at a cost of $3.00 per cwt. sacked ($1.80 per bushel), f. o. b. Bemidji, Minn., while the Cobblers cost $2.00 per bushel f. o. b. same point. This same seed could not be replaced on the present market for a cent less than $3.00 per bushel, and the prospects for a higher price before spring appear promising.

There is a greater scarcity of good seed potatoes this year than ever before for two reasons: first, localities which usually produced large quantities of good ordinary seed stocks in normal years have produced very little, or what was produced was inferior in quality; second, potato growers all over the country are realizing as never before the value of good seed from which to grow their crops. This naturally is resulting in a greater demand for the high class seed of which there is a limited amount to be had.

During the past year Wisconsin produced only 70,000 bushels (approximately), of certified seed of five different varieties, Minnesota produced only 45,000 bushels (approximately), of six different varieties, and Nebraska produced only 25,000 bushels (approximately), of four different varieties. Not more than three-fifths of the seed stocks thus produced will be sold outside of the communities where they are raised, and probably not over two-fifths will be available outside of the respective states where raised. Un-

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Western Ascalon Breaks State Holstein Record

DELIVERS OVER 2,800 POUNDS OF MILK IN THIRTY DAYS

H. P. BANKS, Colorado Experiment Station

Western Ascalon grand champion female of the Holstein-Friesian breed at the National Western Stock show in 1917, recently finished a thirty-day official test as a senior three-year-old which breaks all state milk records in her age and class, and all state records but one of any age, ranking her among the high-record cows of the breed. She is producing true to form, being a daughter of Sir Colantha Lass, Colorado's greatest show bull of the breed, and Dutchland Hengerveld Ascalon, Colorado's high cow in the yearly test ,producing 26,485 pounds of milk and 1,265 pounds of butter. How Western Ascalon was handled and fed is told in the accompanying article by R. P. Banks of the Colorado Experiment Station, under whose supervision the test was made.

TWO PIONEERS of the Holstein breed in Colorado—Carlos W. and Storrs H. Hall, own the Western Holstein farm and its pure-bred herd. This farm is practicable. profitable and progressive. For over twenty years it has been self-supporting. Its success is due to good breeding and good management. The Western Holstein farm is a direct refutation to any argument that the pure-bred business is a rich man's game.

Colorado's new record butter cow, Dutchland Hengerveld Ascalon, on the 16th of November, 1915, gave birth to a heifer calf. This calf claimed for her sire one of the great show bulls of the Holstein breed, anl grand champion of Colorado for a decade, the late Sir Colantha Lass. Known to the Holstein Fresian registry as Western Ascalon (318203), this well-born heifer calf played in the same lot and thrived on the same feed as the rest of the fall calf crop of this farm, until thirteen months of age. As a senior calf she was placed in the show string and fitted for the Western National Stock show of 1917, where she became grand champion female of her breed.

Two years and a half after her crowning effort in the show ring, and eight days following her third freshening, we begin with Western Ascalon on these thirty days of efficient work.

Western Ascalon, a Record-breaking Milk Producer

Throughout her test, she was fed, cared for and milked four times a day by C. W. Hall, one of her owners. Mr. Hall is a feeder of many years' experience. It is interesting to note and compare the feeding records of such a practical feeder with those of the state experiment stations and agricultural colleges.

Following a continual minking period of twenty-three months, Western Ascalon was carried through thirty dry days in fair flesh on a daily ration of 12 pounds grain and 35 pounds alfalfa roughage. When her milk production began, this 12 pounds grain was increased gradually to 16 pounds. Any effort to crowd her work by increasing the grain allowance of corn chop invariably resulted in decreased milk production. The second time this increase was added, there was a drop in both milk and butter yield.

To balance the grain ration of one and one-half parts corn chops, one part corn and oat feed, one part wheat bran, and one-half part oil meal, the following dry roughage, green roughage and silage was added: 25 pounds third cutting, second grade, alfalfa hay; 18 pounds stock beets; and 20 pounds corn silage. With this was fed 15 pounds of apples daily. The apples Western Ascalon consumed were a good deal like the watermelons the old negro enjoyed so much—when found to have no known food value he wondered why he thrived so well on them.

Wolf and Lehmann's modified feeding standard for dairy cows allows a nutritive ratio of from 1:6.1 to 1:7.2. It is interesting to note that the balanced ration fed Western Ascalon had a nutritive ratio of 1:6.8, the mean between these two limits. The cost of this balanced ration was 87 cents per day. For every 100 pounds of feed units consumed, this young heifer returned $7.15. The profit on Western Ascalon for thirty days was $41.45. Butterfat production was valued at $69.83. Feed consumed cost $26.38; labor was estimated at $3.33⅓, partially offset by a manurial value of $1.33⅓.

Mr. Hall's ration for his cow contained 43.5 pounds of dry matter, 4.3 pounds of crude protein, and 29.5 pounds of combined carbohydrates and fats. The weights set by standard for a 1,400-pound cow, yielding an average of 93 pounds of milk daily, are as follows: 42 pounds of dry matter, 6.8 pounds of crude protein and 33 pounds of carbohydrates and fats. Thus it can be seen that Mr. Hall's feeding, regulated by the work of his cow, does not vary to any marked degree from this standard.

Western Ascalon's first official day's milking, beginning at 2 a. m. on the morning of October 25, netted 73.5 pounds of milk, testing 4.2 per cent. Until the 18th of November, when she reached the height of her daily production, 102.2 lbs., her milk yield was on the incline, with but slight weight fluctuations. However, in the same manner, butter yield was on the decline. After she topped the 100-pound mark, butterfat rose rapidly, until on the 22nd of November, four days later, she reached her record mark of 3.26 pounds. Due to this rise, her official test was continued four days, and was completed on Thanksgiving day. Total milk production for the thirty days reached 2,813.5 pounds, making 97.91 pounds of butter.

This record shows the work of a great heifer, bred right, fed and handled to combine the practical with the scientific.

Duroc Breeders Plan Big Sale of Show Stock

BEST COLORADO HERDS TO BE REPRESENTED IN OFFERINGS

The Colorado Duroc Breeders' sale, which will be held in Denver in the swine judging ring at the National Western Stock Show, January 20th, will offer an unusual opportunity to hog men to purchase foundation stock or replenish blood lines. The plan to be followed is for each breeder to select two or three of his best young Durocs, mostly females, and every animal such as would be suitable to fit for a high class show, and send the pedigrees of these to the secretary of the association, who will catalog them for the sale.

Before these animals are finally admitted to the sale, a culling committee of competent judges is to examine every animal and decide on its eligibility to enter. The idea of the association is to allow nothing offered in this sale that would not be considered of sufficient merit to stand as an example of the correct type of this breed of hogs.

Any material defect in any animal passed on by the committee, will serve to disqualify it from being offered in the sale. The herds from which the different consignments will be selected are the most prominent of the state and a few of the comparatively new herds that have bought the best blood obtainable and are making a record for the development of high class breeding and show hogs.

The breeders represented are Horace G. Squib, Aurora, Colo., owner of Cherry Chief of Edgemoor, the grand champion at Denver and Pueblo, 1918; E. D. Hardman, Pueblo, heaviest winner in the state futurity, 1919, and owner of Brae Side Orion, son of the $10,000.00 Longview boar; The Blue Ribbon Live Stock company, Pueblo, C. F. Burke, manager, owners of Burke's Good E. Nuff Again and Blue Ribbon Sensation, and having to their credit twelve grand champions on animals now in their herd; W. L. Stone & Son, Pueblo, strong winners at Colorado State Fair, 1918 and owners of Stonemoor Sensation, the first prize junior yearling of Colorado; J. W. Brauer, Colorado Springs, owner of the El Paso Herd and winner of grand champion boar, Denver, 1919, on Grand Pathfinder, which he afterwards shipped east at $3,000.00; Caldwell Martin, Denver, winner of both grand champions, Pueblo, 1918 and 1919 and always a high winner in Colorado shows; Geo. E. Morton and sons, Fort Collins, a real breeder and a consistent winner who is also professor of Animal Husbandry at the Colorado Agricultural College; J. Fred Brauer, Colorado Springs, breeder of Pathfinder and Sensation blood lines; Judson Solomon, Olathe, former president of the Colorado Duroc Beeders' Association, and a strong winner in the Western Slope fairs; and last, but not by any means least, the Colorado Agricultural College, Fort Collins.

With the above breeders behind this sale and a good, strong culling committee to make a final "check up" on the offering at Denver, just preceding the sale, and with Col. Fred Ruppert on the block, we have ample assurance that it will be a real high class Duroc sale, and one of the many

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Litter of Duroc Jersey June Pigs, Blue Ribbon Livestock Farm, Pueblo, Colo. Sire, Blue Ribbon Sensation; Dam, Lulu Long E Nuff. Every one of the ten is a Show Pig

Observing Good Roads Day in Mirage Community

FARMER FOLKS SHOW THE PRACTICABILITY OF GROUP ACTION

COMMUNITY co-operation has been developed to the fullest extent in the Mirage section, in the upper part of the San Luis valley of Colorado. When the writer visited that section, in company with County Agent W. O. Sauder of Saguache county last August, he was impressed by the splendid condition of the roads. "How do you manage to keep your roads in such good shape?" was asked of the county agent. His reply was: "Community co-operation through the Farm bureau."

He then gave the details of a plan which might be followed by other communities with equally good effect. Every Thursday during the midsummer is Good Roads day for the Mirage community. On that day the farmers turn out with teams and scrapers and work on a certain section of the road, while the women folks assemble at some farm house near the working place, prepare a community dinner and, incidentally, "do up" all the mending and sewing in that particular farm home. Mr. Sauder in the Saguache County Farm and Livestock Reporter, gives a complete account of the plan as follows:

"If the work at Mirage is any criterion, the day of indivadual haggling with the county commissioners or the road supervisor is over. Mirage showed what results can be gotten by getting together and working as a commun,i,y, rather than by sending a delegation to Saguache to get the other fellow to do something. One of the projects on the Farm bureau program was good roads and Mirage not only carried this project to the greatest success in this county, but equalled any similar endeavor in the state. Below are shown pictures taken during one of the Thursday Good Roads days which prevailed at Mirage throughout the summer. Thursday was a legal holiday at Mirage and all the boosters were working with a will to build roads. The women of the community were not lacking in enterprise—they performed as well as the men, but in a little different way. The road committee selected the piece of road to be built and the women met at the farm home nearest the selected spot and prepared dinners which never fell below the standard of a banquet. While not engaged in the preparation of said banquet, they busied themselves with the sewing that had to be done at the home where the meal was served and in this way all the sewing and mending for that place was done. Thus community effort was manifest in road building, sewing and cooking simultaneously. Exact figures are not at hand, but it is known that at least three miles of road were put in repair, which has not been in shape for forty years. Mud holes, which hindered the farmer from reaching his market, or his postoffice, were put into shape for heavy travel. The school busses in which the rising generation passed to and from school had to cross these roads. The children are united in thanks for the work performed on these roads. Tourists who were frightened away by the bad roads leading to Mirage now pass through this little community, as is attested by the thirty-seven which passed through one Sunday after the work was nearly completed. The county commissioners, in recognition of the efficiency of the work, prior to the engagement of the county road supervisor, gave the Farm bureau committee complete charge of the road work in the community and since the advent of the present road supervisor the committee has worked in harmony with him and caused him less trouble than any other community in the county. This is the day of group action as the Mirage community ably demonstrated."

Upper view: Farmers Working the Roads
Lower view: Group of Community Workers Assembled at a Farm Home

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Beef Cattle
Corn
Dairy
Dry Farming
Editorial
Farm Home
Fruit
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National Western Stock Show

The National Western Stock show at Denver, January 17 to 24, 1920, will be the strongest ever held. This event covers the largest livestock territory in the nation and brings forth a most excellent quality of stock. It is conceded by the breeders that to win at Denver is the best credit they can show for themselves and their stock, which is an indication of the standing of the show.

The Western Stock Show association has just completed an addition to the quarters for the housing of the stock on exhibition and it is even with that now a problem as to how all that want to come can be taken care of with exhibit space. Fred P. Johnson, manager of the show, states that it will be necessary to limit the exhibitors as to number of animals shown. This will insure only the best being shown and will keep out those who have only mediocre animals. With this information at hand we can expect to witness the greatest event of its kind ever held in the west, and it is not at all out of place to say that it will equal the International in nearly every respect. In fact, it will be better in some classes.

One of the things that will be of interest is the fact that there will be practically as many Shorthorns as there are Herefords in the show. This has not been the case heretofore. This is an indication of the rapidly increasing popularity of the Shorthorn breed. With these two breeds leading on the ranges in the West, great things are in store for the western stockmen.

Among the breeders of Herefords who will bring stock will be A. B. Cook of Townsend, Montana, who is said to have one of the strongest exhibit herds in the country; Dr. T. F. Dewitt, L. G. Davis, J. D. Canary & Son of Denver and Geo. Baker of Littleton will be present with exhibits. Mr. Davis has an exceptional bull in his string, one that has been pronounced better than Wyoming.

In the Shorthorn section there will be entries from such herds as D. Warnock & Sons of Loveland, R. G. Maxwell of Fort Collins, and Howell Reese & Sons of Pilger, Nebraska. One of the interesting exhibits in this division will be that of the Elbert County Shorthorn Breeders association. In this exhibit some twelve breeders will be represented. This is a feature that is well worth watching, especially for the smaller breeders who do not care to bear the expense of showing alone.

Both breeds are putting on futurity shows which are always strong classes. There are ninety-seven entires in the Hereford futurity.

There will be several herds of Angus and Galloways.

Entries are just beginning to come in at this writing, so that there is not a great deal of information available as to who the exhibitors will be in the other classes.

The hog department will be especially strong this year. The State Duroc-Jersey association will conduct a sale during the show, in which some exceptional individuals will be offered. Consignments will be received from many of the leading state breeders. The Poland Chinas will be strong with entries from herds in Colorado, Wyoming, Kansas and Nebraska.

There will also be a strong sheep show and an unusually good line of horses.

The dairy cattle division will be up to the usual standard. The Holstein and Jersey entries promise to be strong which is also true of the milking Shorthorns. With the rapid development in dairying over the state there should be an exceptional show in this division. It is difficult for the breeders living at a distance to bring milking animals at this time of the year. However, with the quality of the dairy stock in the immediate vicinity, a good representation is to be expected.

Other features of the week's program include the evening horse show, the poultry division and the boys' and girls' club exhibits.

More than 400 people attended the first market day sale held under the auspices of the Gooding County Farm bureau. The returns from stuff sold totaled $833.34.

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ROMANTIC ADVENTURES OF A PRINCE, A MAID, AND A HIGHWAYMAN

By EDGAR RICE BURROUGHS—Author of Tarzan of the Apes and Other Tarzan Tales

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CHAPTER XII
The Lair of the Wolf

THE Princess Mary stumbled onward and upward through the darkness until it seemed to her that her aching limbs could bear her no further. At last she stopped.

"You are tired, Miss Bass?" asked her captor.

"I cannot take another step," replied the princess. "Kill me if you will; but I cannot go on."

"And you, Mrs. Bass?" turning to Carlotta.

"I am tired," replied the frightened woman; "but I think I can keep up—maybe I can assist her—er—my daughter."

"No, I will see to that," said the bandit, and without even a by-your-leave he lifted the princess into his strong arms and resumed the upward scramble.

The girl struggled for a moment to free herself.

"Put me down, please," she commanded in icy tones. "I prefer to walk."

"But you just said that you couldn't take another step," he reminded her, without the slightest indication of any intention to obey her wish. "We cannot remain out here all night, you know, and anyway we'll soon be at my camp." He very near added that he wished it was many miles further since he had gathered the lithe little form into his arms.

Strands of wavy, soft hair blew now and again against his cheek, to his nostrils came the delicate aroma of a subtle perfume, such as marked the woman of refinement. The girl's beauty together with the close contact of her warm body aroused in her captor a yearning for that which had always seemed to elude him—one within his own, limited class who might command from him such a love as this girl must command from the young American for whom he had stolen her; one, too, who would give back in equal measure a like love.

The Princess Mary felt the broad bosom against which she was held rise in a deep sigh. She thought the man a most remarkable brigand. She had always heard such frightful tales of the atrocities of the Rider that she had rather expected some show of brutality upon his part, though her judgment had satisfied her that he would offer them no real harm or indignities so long as there remained the hope of obtaining a fat ransom for them. Now she found herself wondering why he sighed. Could it be that the fellow had a heart, after all?

"Why," asked the Princess Mary, being as she was rather a creature of impulse, "why do you sigh?"

The brigand laughed. "I fear," he answered, "that I am, after all, a rather sentimental cutthroat. And you really would like to know why I sighed? Well," and he did not wait for her reply, "I will tell you, though I promise you that you will laugh at me. I was sighing because in all the world from which such as I may choose a love there is no girl like you."

The Princess Mary stiffened and turned her face away. "Put me down at once!" she commanded, and the bandit could not but note the regal haughtiness of her tones. "Put me down, fellow, I shall not be insulted. I can die, but I cannot brook your familiarity."

"You asked me," he reminded her patiently, "why I sighed. I told you merely the truth." There was just a faint trace of levity in his voice, as though he endeavored to suppress a laugh, which aroused still further the ire of the spoiled little princess. She struggled to free herself from his arms; but he only held her the more tightly.

"You cannot walk,' you know," he said, "and we cannot sit by the side of the trail forever, so you must let me carry you, and you must not make it difficult. As a matter of fact," he added, as though on second thought, "I can't say that I mind if you do struggle just a little—it makes it necessary for me to hold you just so much tighter."

"You are a beast!" Her exclamation was a veritable explosion.

"What do you expect of a highwayman?" he asked. "If you were a native, now, of either Margoth or Karlova you would be familiar with the reputation of the Rider, and know that you were mighty lucky not to have your ears off by this time."

The Princess Mary almost shuddered, but being a brave little princess she didn't, quite. She knew only too well the sinister reputation of the Rider—for the time she had forgotten it in a strange sensation of security which had dominated her almost from the moment that she had fallen into the hands of the bandit—somehow it didn't seem possible that this man could have it in him to harm a defenseless woman. He inspired, in her at least, most inexplicably, a feeling the precise opposite to that which he should have inspired.

Occasionaly the man halted to turn back with a courteous word to Carlotta, regretting the fact that he could be of no assistance to her, and inquiring most solicitously how she fared. Poor Carlotta was so terror-stricken that she could only mumble incoherent replies, for which the Princess Mary was thankful—the good woman had very nearly divulged their identities already. The princess could not fail to note, though, the courteous deference in the voice of the bandit when he spoke to "Mrs. Bass," and her interest in her captor grew accordingly.

Could this really be the rough, brutal cutthroat who had terrorized two frontiers for years, who had successfully defied both the gendarmerie and soldiery of two nations, and robbed and murdered at his own sweet will? It was incredible. Why, he had the well-modulated voice of a cultured gentleman, and he spoke English with that refined precision which marks the use of that language by the educated European, a fact which her American education revealed to her.

It was well after midnight when they reached their destination—a little high-walled ravine, deep in the mountain fastness of the frontier—and the girl saw before her in the moonlight a rough log shack surrounded by a number of soiled and tattered tents.

A sentry challenged their approach, covering them with his rifle, and at the sound of his voice two score burly ruffians came running from their blankets as though experience had taught them to sleep with their ears wide open and their hands upon their weapons.

"It is I, the Rider," called the man in reply to the challenge.

The sentry lowered his rifle and stepped forward. The others pressed around.

"Get some food for the ladies," commanded the newcomer, and then, turning to one of the brigands: "Did a young man come with a priest?"

The fellow addressed shook his head negatively.

"When he does, bring them to me," said the Rider, "and now some of you prepare beds in the shack for the ladies, they are tired after their long climb."

Within the shack a grimy lantern was lighted which scarce relieved the gloom sufficiently to display the filthy squalor of the interior. As he ushered his guests within the Rider stood in the doorway behind them.

"I am sorry," he said, "that I have no better accommodations to offer you; but by tomorrow I am sure that the very reasonable terms I shall ask for your release will be gladly accepted, and that you will then be able to continue upon your journey to Sovgard. Food will be brought you, after which you may retire with every confidence that you will not be molested, and sleep in as perfect security as though you occupied your own beds at home."

The Rider remained until one of his men had brought some cold meat and a kettle of soup, and lighted a fire in the dilapidated stove which stood precariously upon three legs at one side of the single room of the old building. The light from the lantern gave the Princess Mary her first opportunity to note the features of her captor, and if she had been struck by the suavity of his speech and the courtesy of his manners she was now doubly impressed by the nobility of his countenance and bearing.

To her surprise she saw before her a young and handsome man upon whose fine features lay no trace of brutality or degeneracy. The mask which had hidden half his face at the moment he had confronted them upon the Roman road he had long since discarded as an uncomfortable nuisance, and he now stood before her with bared head waiting silently for the man to be done with the building of the fire and the heating of the soup, as though loath to leave his prisoners alone with his fellow brigand.

A troubled expression clouded his eyes as another bandit entered with an armful of filthy blankets, which he threw down upon the dirty floor in a corner of the room. He took a step toward the two women.

"I am sorry, Miss Bass," he said, "that you and your mother should be compelled to spend the night in so uncouth and repulsive a place; but I assure you that it cannot now be helped. One whom I expected, and whose presence would have made it possible for you to immediately continue your journey to Sovgard is not here, and we must await him. Upon his coming and the amiable concurrence of your mother in my plans depends your prompt release—the terms will not be difficult."

'And what, may I ask," demanded the princess, "is the amount of our ransom?"

The light of the lantern played upon the girl's hair and upon her comely features. It revealed the lines of her trim little figure, and the haughty tilt of her royal head which needed no diadem to distinguish it from the heads of ordinary, mortal maids. The Rider had half glimpsed, half guessed the beauty of his young captive—or at least he had thought that he had—but the revealment of her features in the flickering light of the sordid lantern had left him almost dizzy with the intoxication of the actuality. It was not the beauty of perfection which enthralled him, as it enthralled all who looked upon the Princess Mary of Margoth, for perfection, as measured by the standards of art, was not there.

The little nose was a trifle too short, the upper lip a bit too long, the cheekbones just a hair higher than perfection demands, perhaps; but the whole was so moided, and so animated by that indefinable something which is the essence of beauty that the Rider would have sworn that in all the world there existed no more beautiful woman than this daughter of a plebeian American millionaire, and he sighed because she was promised to another, forgetting for

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Clark's Travel Letter

Thomas Jefferson Putnam,
Salem, Colorado.

Dear Tom: A few weeks ago Charley Smith, county agent of Las Animas county, and I attended a fair at Kim in the eastern part of the county, 80 miles from Trinidad. This is a newly settled country, the oldest settlers having been there only three years. The exhibits of corn, sorghum, milo, fet rita, melons and vegetables of all kinds were eye-openers to me. This is a dry land country but the rains were abundant enough to make bumper crops this year.

Hundreds of people came long distances to visit the fair and among the attractions they had me scheduled for a public talk. The wind blew and filled the air with dust but just the same I told the farmers to keep a good balance and not get too enthusiastic over bumper crops, because drouth was likely to come again. I know it was mean to mention such a thing when everybody was having such a good time, but the time to lock the barn is before the horse is stolen. The main thing I tried to impress upon those people was to keep out of debt. Many times I have seen farmers plunge into debt so deep on the strength of good crops, that they had their noses to the grindstones the rest of their lives. Now is the time for the people at Kim to keep out of debt and the county agent is helping them to do this by furnishing them dairy cows. The terms on these cows are most liberal. The farmers take the cows and care for them under the direction of the county agent and receive all the milk and half the off spring for their trouble. Whenever the farmers get able they can buy these cows at the cost price. It is the best proposition I ever heard of and it should be emulated in every county in the state.

The crowd at Kim represented every type of men in the United States. They come from Georgia, Maine, Oregon Iowa and Missouri. The southern hospitality was strong and you should have been there to help us eat fried chicken. I was sorry Waldo Kidder county agent of Huerfano county, was not there. He likes chicken as well as I do but I have to lead to get him started.

You know, Tom, I have said that the first settlers must try their own ideas and the seed they bring with them before they will change their methods of farming. That is absolutely true, because I saw peanuts on the vine and cotton in the boll at the Kim fair.

The county agent is very enthusiastic about conditions around Kim and well he might be, because it is a coming section. But before the farmers will come into their own they must learn to conserve the moisture, raise drouth resistant crops, get livestock and build silos. I saw better corn near Kim on land that can be bought for $10 an acre, than I saw a few days later on land in Illinois that costs $300 an acre. A great deal of the soil around Kim is of a sandy nature and well suited for dry farming. I am of the opinion that if proper farming methods and good rotation of crops are adopted, crop failures from drouth will be few. In the three years that the country has been settled wonderful improvement has been made. A few trees now will add to the beauty of the landscape and to the comfort of the people.

I returned to Trinidad from Kim with Mayor White and I reached the depot just in time to catch the train for Chicago. I went to Chicago to help form a National Association of Livestock Shipping associations and incidentally I attended the National Dairy show.

This national association has a big work today and before long its influence will be felt in Colorado. Among the things it is going to do are, securing legislation favorable to the livestock producer and shipper, encouraging the formation of shipping associations, holding schools that will help the managers of associations and to bring about a spirit of co-operation among all shippers of livestock. This national organization will work in co-operation with all farmer organizations as Farmers Unions, Equities and Granges.

Several of these organizations sent delegates to the meeting. Some of these delegates did not understand the purpose and spirit of the meeting, but in a short time they came to realize that the work to be done is too large for any one association and that results can be secured only by united efforts. The air should not be for one association to swallow all the others, but all pull together. They are all doing good work and each is doing something that no other association can do. If the representatives of farmers' organizations are a little jealous of other similar organizations this should not be surprising when the past history of such organizations is considered. The strength of the farmer depends upon his working with other people. If he can't do that he will accomplish little or nothing.

I saw a great deal at the dairy show Tom, and wish you and Josephine had been there. The exhibits were all good. The Jersey exhibit attracted wide attention and I have heard that the Jersey cattle sold at the highest prices. Iwas especially pleased with them, although I knew about what to expect. I had supposed that the Ayrshires had made some change in the last ten years, but I could see little or none. The Brown Swiss were there in full force and appeared about the same as usual. Swiss cattle have a place and they will gradually become more popular, but right now they are not in much demand. The Guernseys were excellent and the Holsteins, as usual, were in their best clothes. I spent most of the time looking at the Holsteins and the majority of them were of the distinct dairy type. The grand champion Holstein cow was one of the most extreme, angular, lean dairy cows I ever saw, and the prize winning Holstein heifers were of the same type but carried more flesh. Moscrip, who judged at our state fair last fall, placed the ribbons on the Holsteins and did so as consistently as ever.

The government had fine exhibits in all dairy lines, manufacture as well as production. One feature of an exhibit was a Holstein cow and the amount of feed that she would consume in a year. The amount of feed is as follows: Hay, 2567 lbs.; silage, 7276 lbs.; concentrates, 1198 lbs.; corn stover, 734 lbs.; home grown grains 848 lbs., and pasture, 1.5 acres. The idea of this particular exhibit was to illustrate the cost of milk production.

Well, Tom, I met a lot of my old friends from different parts of the country and it was certainly a great treat to learn how they had got along since I last saw them. Some had prospered well, accumulated considerable wealth and lost all; others had kept all, and some had been only fairly prosperous, but all had lived a good consistent life and had no grudges or regrets.

If we can strike a medium level, enjoy life and help others to do so we should be thankful. I will see you before long. Kind regards to Josephine.

R. W. CLARK.

1909-1919

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There are four sizes of OilPull tractors—12-20, 16-30, 20-40 and 30-60 H. P., with a nation wide service within reach of your telephone anywhere. Catalog on request.

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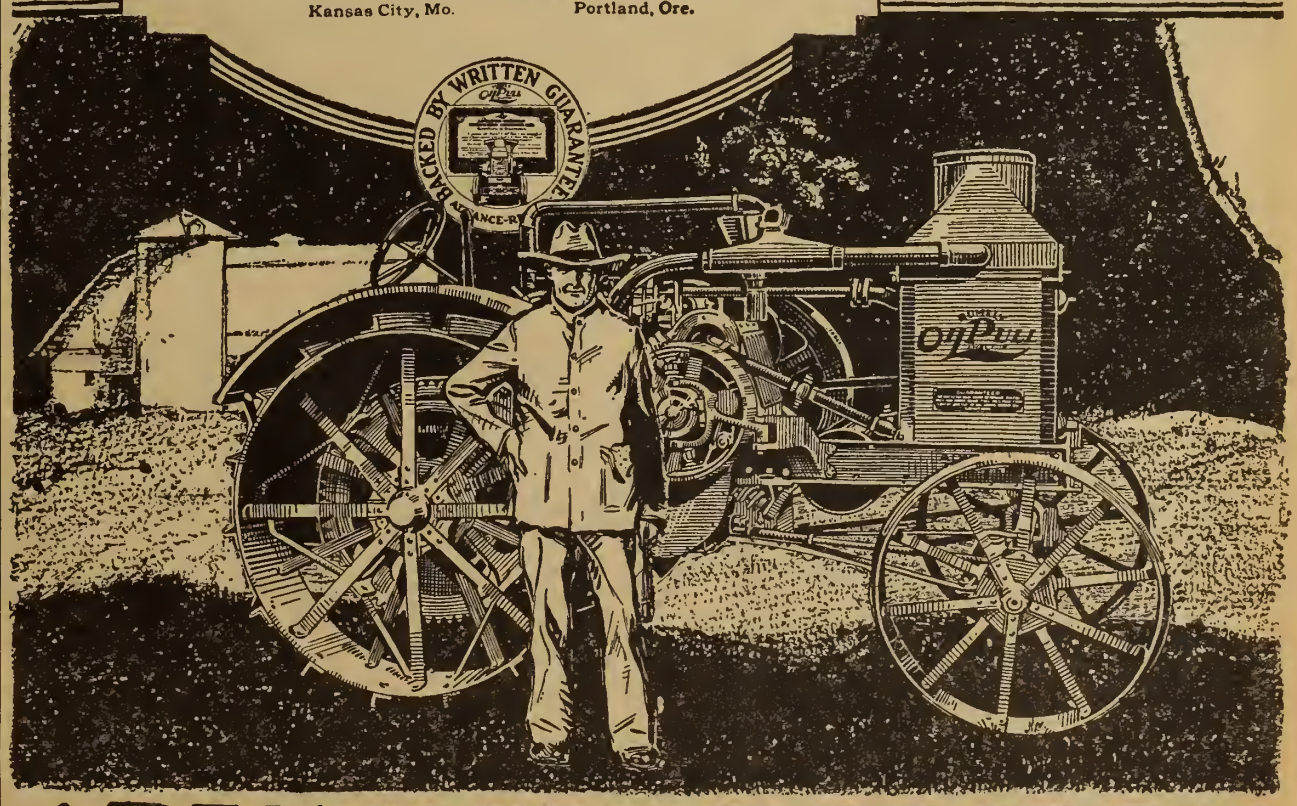

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Protecting the Dairy Farmer

Evidently the Western Slope Purebred Breeder's association will allow no grass to sprout under its feet. Hardly was the organization perfected when its membership got busy urging legislation protecting the interests of the dairy farmers and breeders. Senator Calder, of New York, is fathering a bill that, if it should become a law, would take out of the hands of the states all power to regulate food and drug standards for articles in interstate commerce, substituting for all existing laws the federal regulations. The effect of such a law, as pointed out in bulletin No. 1 of the Western Slope association, would be as follows:

1. Oleomargarine manufacturers could send into any state, regardless of state laws, colored oleomargarine in package form, although some twenty-eight or thirty states have anti-colored oleomargarine laws. Our present Colorado oleomargarine laws are among the best of the Union.

2. "Hebe" would be permitted to come on to our Colorado markets. It is a product made of skim milk with cocoanut oil substituted for the original butterfat or cream. According to investigations made on actual sales of this product, it retails to the consumer as condensed milk and at the same price generally. Our present state laws exclude the sale of this inferior product.

3. This law would take away from the states any initiative for perfecting existing food laws.

4. Establishes a precedent for overriding the privileges and blessings of each state enjoyed in the enactment of laws governing their domestic affairs.

Every consumer, producer and manufacturer should write our State Senators, Lawrence C. Phipps and Chas. S. Thomas, protesting the passage of this Senate Bill No. 3011, in view of the above outstanding bad features.—(Signed) J. J. Tobin, Secretary.

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New Features of Census

Among the new features included in the approaching 1920 census of agriculture will be a series of questions relating to the amount of corn and other crops raised for silage purposes. These statistics on silage, which are to be collected by the Bureau of the Census in accordance with the recommendations made to that bureau and to Congress by the United States Department of Agriculture, are expected to furnish accurate and comprehensive figures on this important phase of farming which have heretofore been lacking. The facts and figures gathered in the census on this subject will be tabulated, so as to show what each county as well as what each state produced in the way of silage during the year 1919.

The Census Bureau also announces the inclusion in the farm schedule of questions to show how many farmers own tractors and automobiles and how many have heating and lighting plants and telephones in their homes. These questions are designed primarily to make known the better living conditions and modern improvements on farms in all sections of the country. The Census Bureau, in including these questions for the 1920 census, was guided by suggestions from leading farm economists as well as by communications from farmers' organizations.

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A Lesson in Citizenship

In these times when the very foundations of our government are threatened, it cannot be amiss to turn our attention to certain principles which are in danger of being forgotten, but which must be kept in memory if America is to retain her proud position among nations.

Let us consider for the first lesson the maxim that every right implies a correlative duty.

The complex society of the present day can exist only upon one condition—that each of its members shall recognize that every right and privilege he asks for himself may be claimed with equal force by every other member; that where he considers it a duty incumbent upon his neighbor to give way to him, the neighbor may demand the same concession on his part.

The circumstances which put one man in possession of a larger share of the world's goods than is enjoyed by others, or which have blessed one with either a higher degree of intellect or physical strength than is given to another, have not changed the relative amount of rights belonging to each nor the relative degree of duty imposed upon each.

It is the duty of every citizen to see to it that his own conduct is calculated to preserve and not to destroy the general peace and good will.

This is the first lesson that each must learn—to see in each instance whether the concession he demands he will be willing to grant. Without this, all the knowledge of constitutions and laws will not avail to produce good citizenship.

From a disregard of the maxim above stated, arise the disturbances in our present social order. He who would climb to power by denying the equal rights of his fellows; he who would gather to himself great possessions at the expense of his neighbor's comfort and well being; he who is willing to make others suffer that he may thrive; each of these is an enemy to society, an element of danger to the State.—Prof. C. F. Davis, Colorado Agricultural College.

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Co-operative Grazing

Just as the need became apparent for livestock shipping associations, there is now a need for grazing associations on the range. Many farmers owning land near the forest reserve, also own a small number of cattle, horses or sheep. They do not own enough to pay to hire a herder to look after them during the summer. In most localities there are men who gather up sufficient numbers of these to pay wages and take them to some private pasture in the spring, returning them in the fall. This plan is very good as far as it goes. As we understand the policy of the Forest Service, it is the aim to take care of these small owners as rapidly as room can be made for them.

In a number of instances in the West, the small owners of livestock have formed grazing associations to handle their stock on the Forest. The owners make application for range right in the usual way. The forestry officials allot range to them in a particular block. When the applications have been passed on the successful permittees form their organization and manage their pooling. Some 350 to 500 head of cattle and 1,000 sheep are usually handled in this way. Sufficient herders or tenders are employed to look after the stock on the range. The management is vested in an executive committee or board of directors, who attends to the details. The expense is pro-rated among the owners on the number of stock they run. This plan has been very satisfactory and is gaining in favor with the small owners.—H. A. L.

The Pair of Dice

A CHRISTMAS STORY

Just as the Meteor was going to press for its Christmas main edition, McGuire, the circulation manager, heard his office door open. He was busy in his own thoughts, and didn't look up to see who had entered. The stock markets had slumped, and with it his entire fortune; then the death of his wife, followed by other minor troubles, caused him to be disheartened. As he fingered the gun in the drawer, he wondered if he really had the nerve to end it all.

"Merry Christmas, Mister McGuire!"

McGuire looked up. Standing before him was a ragged street urchin, of the type who eke an existence for themselves from the papers they sell.

"What do you want?" came the sharp tones of the blunt Irishman.

"Hain't yer got a X-mas dinner ticket fer me?"

"Say ,didn't I tell you once before that only our newsboys received these tickets."

"Mister McGuire, der goin' ter have turkey—an'—ice cream," as Mike said this a tear burned its course down his chapped face.

"No, I can't give you a ticket. Get out." Wheeling in his chair and unaware that the boy had not left, he again began contemplating his troubles when there came a voice:

"Oh, Mister McGuire, I gotta propersition ter make."

"Hell, you still here?"

"Uh, huh, but listen—," as he said this the boy's grimy hands revealed a pair of dice. "Supposin' we shoot ter see wedder I git de ticket."

"Shoot dice, eh?"

McGuire was a gambler by nature, and this not only appealed to his sporting blood, but—just then the thought came—why not shoot dice with the kid and let them decide whether he should take a new lease on life, or—again his hand stole over the automatic in the drawer.

"Go ahead, shoot," he said abruptly.

"Gee, but you're a good sport; let's shoot ter see if you kin throw two seven's before I throw two eight's."

"Roll 'em out."

Mike clicked the dice together and rolled them on the carpet. It was an eight. Beads of perspiration stood out on McGuire's face, as he slowly raked the dice in, then with great deliberation he tossed them on the floor, it was a six-spot. The little fellow shook the dice and with a laugh threw them into the air—the dice bounced on the rug, one of them turned up a four; the other rolled on top of a crease in the rug—balancing itself there as if it were undecided—it rolled off—another four-spot. McGuire had lost!

McGuire arose from his squatting posture on the floor and sank into his chair. Fate had again decided against him.

Mike seemed to sense the tension, and for a moment he waited wonderingly, then touching the circulation manager on the shoulder, said, "Yer ain't fergot me ticket, have yer?"

The man handed the boy the ticket, and Mike started for the door and then paused.

"Oh, Mister McGuire," he called back.

McGuire turned at the call, "Have'nt you gone yet?"

"No; I wanted to tell yer som'thin'."

"What do you want?"

"I mean dat yer didn't have a chance ter throw a seven."

"Why—I—don't understand?"

The boy threw the dice toward McGuire. "Der's de dice; see, der crooked; der ain't no seven on 'em," and opening the door his laugh was drowned by the howling of the blizzard on the outside.—Written for Western Farm Life by Archie Steinel, Kansas City, Mo.

$4,400 Saved on Hen Feeding

Recent poultry culling in Canyon county, Idaho, is estimated to have made possible a saving of $4,400 a year in feeding hens. Eleven hundred nonlaying hens and pullets were culled out of forty-six flocks, in a week's farm bureau campaign. The estimated annual cost of feeding a hen is $4.

The Branding Iron

The hay crop leads all in total value for Colorado. Keep it in the lead, for hay means livestock and livestock spells true prosperity for the farm and the farmer.

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At the recent meeting of the Hereford Breeders Association of America a proposal was discussed to compel the breeders to castrate 30 per cent of the bull calves. Such a plan, if adopted by all breeders associations, would result in a wonderful improvement in the quality of the livestock in the country.

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We are indebted to Hank Bishop, of the Union Printers' Home at Colorado Springs, for the photograph of a pumpkin grown in the garden there, weighing over 100 pounds and measuring six feet and one inch in circumference. That ought to make a fine lot of pi for the printers this winter.

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Some Texas ranchmen are planning to co-operate with a market in Amarillo in suppiying fresh meat to the retail trade. They are to furnish the meat to the market at 9 cents, to be retailed out at 12 to 20 cents. This is about half the prevailing price. This is a mighty good way to assist in lowering the cost of living.

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The Colorado Co-operative Crop Reporting Service estimates the value of the silage put up in the state this year as $4,500,000. Converted into meat and milk this silage acquires a value of at least three times its price as feed. Just another indication of the difference between selling off a cash crop and feeding the crop on the farm.

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The dry land farmer in Las Animas county who has leased cows from the Dairy Cow Development Company is on the right road to success. The business men of that section are farsighted enough to see that the success of their business depends on the prosperity of the farmer. It's a poor rule that doesn't work both ways. This is practical co-operation.

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The National Grange declined the invitation of the American Federation of Labor to send delegates to the conference called for December 12th at Washington, for the purpose of attempting to bring about a coalition between union labor and organized agriculture. The feeling was that the farmers had nothing in common with the present radical aims of union labor.

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A Denver newspaper recently used a photograph of Prof. W. L. Carlyle, the Canadian educator, formerly a leading figure in Colorado livestock circles, as a "close up" of William L. Carlisle the train robber! Fortunately, Dean Carlyle possesses a saving sense of humor. His many friends in the intermountain states were glad for a glimpse at the once familiar features, though they did not like the sensational caption.

Draft Horse Sale

The Colorado State Horse Breeders' association announce a sale of purebred registered Percheron draft horses to be held in connection with the National Western Stock show at Denver in January. The date for the sale is January 22, which is Thursday of show week, the opening of the sale being set for 10 o'clock. About fifty head, including the pick of the best Percheron herds of the state will be offered, the consignors including Zang's Elmwood Stock farm, Broomfield; R. M. Chace, Fort Morgan; Howard M. Jay, Longmont; J. D. Brunton, Aspen; Clarence Bixler, Boulder county, and A. Bach, Yuma.

This sale will offer a rare opportunity for the farmer of the Intermountain region to buy brood mares and stallions and to acquire pulling power and foundation breeding stock.

When the Boys Came Home

Captain Pete Miggies shucked corn for Corporal Newt Jones this week.—News Item.

Comment by Farmer Putnam

OUR MISSOURI FRIEND SCOLDS SOME OF THE COUNTY COMMISSIONERS

THIS here world would be a lot better place to live in if they wasn't no politicians. I'm referring now to county commissioners which is a necessary evil under our system of government. Of course they is good ones and bad ones, but neither of them kind is bein' considered in this here article. I'm speakin' now of the kind of commissioners that ain't neither good nur bad, but just shif'less politicians. What's brought this out is how they're handlin' county agent work in some of them counties in Colorado. I ain't sayin' that all county agents is first class men; they're like everybody else, which is human and apt to make mistakes. We got to allow fur that in all of us. I don't know of one of 'em that I has met and seen doin' his work that ain't got his heart set on doin the best fur the farmers. If a feller does the best he knows how he ought to have credit fur it. Nearly every one of 'em that I know don't have to be apologized for, but is right up to snuff on the job, like a Moses leadin' the Children of Agriculture outen the wilderness of Doubt into the Land of Promise where crops is sure and cash returns reasonable.

When I see a county where they has the best kind of work by a county agent who has spent years in gittin' scientific and practical training fur agriculture, and a board of commissioners from politics or other reasons cuts off the appropriation why it makes me sore. In other counties the commissioners has been careless and they let one or two good men slip away because they wouldn't tell 'em early enough that the work could go on fur another year.

Now I reckon somebody sez: "What business is it of Farmer Putnams if a county board decides to cut off the work?" I reckon it's time fur me to make it my business when anything is done that hurts farmin'. I don't care what anybody else sez. I been observin' county agent work now fur ten years, and I know it's a system that benefits the country and that's why I'm endorsin' it with all my heart. I might tell you folks somethin' about my travels in the South before I come out West. I was goin' around with Prof. Cottrell in Texas, Arkansas and Louisiana, holdin' institutes andsoforth, and I seen what the county agent work done fur that country by gittin' the farmers to produce their own food and feed and not put all their land in cotton. That thar diversified farmin' has saved the South millions of dollars, and the same thing holds good in the West. They is a few sound principles that makes a foundation fur farmin' no matter where it's done, in the Big Horn Basin, or in the Nile delta. One of them foundation stones is fur the farmer to learn to feed hisself offen the farm first; then next, to raise surplus crops that'll both bring in cash and keep up the fertility of the farm. Nobody kin go wrong by stickin' to that kind of a program.

Any farmer that don't try to foller this is not only hurtin' hisself, but is doin' his nation and the world big damage. Jokin' now? Not on your life. When us farmers gits the notion in our head that farms is give to us to hold in trust fur humanity, then we got the right idee. And when county commissioners gits the notion in their heads that the county is a part of the government of the nation, and not a little kingdom of their own, why then we kin make some real progress in agriculture. The trouble with all of us is we don't look at things broad enough. I know, because I'm the same way about our little ranch here at Salem, and about the land back in Missouri that helps keep the coyotes offen our back steps. It's hard fur me to git used to thinkin' that that thar piece of land belongs to humanity and that I'm holdin' it in trust to raise food on, and that when I rob the soil I'm robbin' some child unborn of the right to a full stummick. That ain't no theory; it's downright commonsense, and we all got to come to that point sooner or later, or starvation'll overcome the world.

Now about them county commissioners: I know how it is with tax money. Some people wants more roads and bridges, some wants the school fund made bigger, all wants taxes reduced and more money spent in improvements, so it ain't no snap to be a commissioner. If you do one thing you get roasted and if you do the opposite some other bunch of taxpayers gits in your hair. That's all a part of the job. Now the way to look at county agent work is fur the good of the community. You hain't a-favorin' the farmers by appropriatin' fur that work; you're helpin' everybody in the county by increasin' the money that is paid out fur farm crops. They is mighty few counties in Colorado that has other industries that's bigger than farmin'. I wouldn't be in favor of Hinsdale and Mineral counties gittin' county agents yet, but they ain't no tellin' how soon we'll have farmin' crowdin' the miners offen the high peaks. Everywhere we kin find a streak of dirt that's over a foot deep why we gits to raisin' crops on it. That pays a lot better then tryin' to git rich offen gold and silver, and it lasts longer, if we don't try to rob the soil, but is careful to put back manure and sweet clover noodles.

In them counties that has to depend on farmin' and stock raisin' fur a livin' why a county agent is as necessary as a Ford. Some commissioners has got the wrong idee about that work and thinks it's a political job fur college graduates. Whenever the work gits political then I say let the Lord save us from county agents. Up to now it has been kept free and clear of politics exceptin' where, in some few counties, the commissioners has lissened to the wrong kind of advice. In one county I know of the work hain't never been started because some big cowman has told the commisioners: "Whenever I nod you kin go ahead and hire a county agent; not before."

This cowman hain't nodded yet and he don't intend to. Some day the homesteaders in that county is goin' to rize right up on their hindlegs and give out a holler that'll ring from one end of the prairie to the other, and then it'll be goodbye to free pasters fur the cowman. I got his name and his number and am just a-watchin' developments.

In another county some feller with a brain as big as a hummingbird's got to back-bitin' the county agent till the commissioners thought it would be popular to cut off the work and tell the taxpayers they was tryin' to save the county some money! But it didn't work, because as soon as the farmers found out what was the matter they sez to the commissioners, "We want this work supported right," and they done it.

In another county one of the commissioners is from town and he sez: "The much money fur one class of citizens." much money fur one clas of citizens."

That kind of talk shows a man to be narrer. What is it keeps the banks, mills, factories and railroads a-goin'? Why it's farmin'. If the farmers was to stop raisin' crops the hull thing would go to smash. When a county, or a state, or a nation neglects to take care of upbuildin' its farmin' why she begins to go downhill fast. When county politicians interfere with the wheels of progress they ought to git run over.

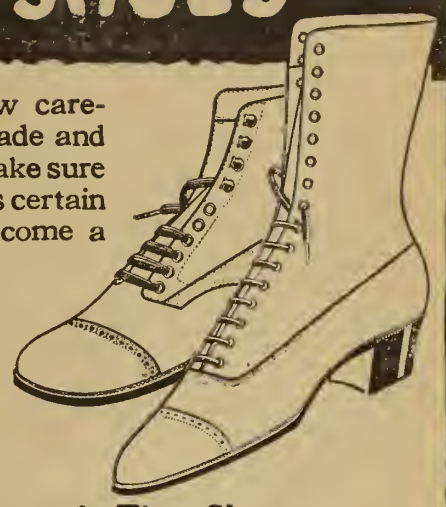
Thos Jefferson Putnam.

Mayer

MILWAUKEE Mayer CUSTOM MADE HONORBILT

HONORBILT SHOES

IF you only knew how carefully every shoe is made and what steps we take to make sure of unvarying quality, it is certain you would promptly become a wearer and booster for Mayer Honorbilt Shoes. Right now it is essential that your shoe dollars should buy the utmost in value. You can always depend on *Honorbilt* values.



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Honorbilt Work Shoe leather is double tanned to resist the alkali in the soil, as well as barnyard juices. They are soft and easy on the feet, yet long wearing and will not get hard when wet. Honorbilt Work Shoes will give double the wear of ordinary shoes.

Children's Shoes

You can't blame the children if they scuff out some shoes in a hurry. But that doesn't happen to shoes that bear the Mayer *Honorbilt* trade-mark. They are made of honest leathers and are sound and solid—School Shoes and Fine Shoes—built for comfort for growing feet. *They wear like iron.*

Buy Honorbilt Shoes for your whole family. Leading dealers sell them. Look for the trademark on the soles.

F. Mayer Boot & Shoe Co.

Milwaukee, Wis.

Winners at Spokane

The Maxwell Miller Cattle company of Steamboat Springs, Colorado, were in the winning at the Western Royal Stock show held recently at Spokane, Washington. Their winnings were as follows:

Aged bull: Second on Princely Stamp.

Junior yearling bull: Third on Broadhooks Pride.

Senior bull calves: Second and third on Victoria Silken and Priscilla's Pride.

Junior bull calves: Fourth on Maxmill Criterion.

Aged cows: Third on Eliza Brookhead 2nd.

Two-year-olds: Second on O. J.'s White Gloster.

Senior yearling: Second on Flora Anoka.

Junior yearling: Third on Clear Spring Mina.

Junior heifer calves: Second and sixth on Maxwell Myrtle and Maxmill Mira.

Duroc Breeders Plan Big Sale at Stock Show

Continued from Page 5

big attractions of the National Western Stock Show.

Catalogues may be had on application to C. F. Burke, Pueblo, who is manager of the sale.

Mr. H. A. Lindgren, of Western Farm Life, will represent this publication at the sale and any mail bids sent to him at Denver in care of Western Farm Life will be handled as well as if the buyer were himself on the grounds.

This sale will, without doubt, stand out as a milestone in Western Duroc history and for those wanting the real things in Durocs, it should prove an attraction that they canot afford to miss.

Let Western Farm Life Service Bureau help solve your farming problems. All questions promptly answered by letter.

If you like this magazine tell your neighbor about it.

Farmers' Service Bureau

Readers are invited to make generous use of this department. Questions regarding any branch of farming, livestock production, animal diseases, legal matters pertaining to the farm, homestead inquiries and the like cheerfully and promptly answered by letter and thru the magazine. Address all communications to SERVICE BUREAU, WESTERN FARM LIFE, Denver, Colorado.

Federal Land Bank Loan

Ans. to T. R., Wyoming:

Yes, you can get a loan of 25 per cent of the appraised value and then later, perhaps, additional money. We think, however, that it would not be possible for you to get up to 50 per cent of the appraised value of the land. The usual course is to make a loan only up to 40 per cent. The law would allow a loan up to 50 per cent, but the Federal Land Bank does not loan up to the limit. It follows the plan usually practiced by private concerns, of only loaning up to 40 per cent of the appraised value of the land.

Concerning Water Rights

I bougbt 80 acres of land and was deeded two water rights, one 40 inches in a ditch and one an equal rigbt in a creek with a neighbor. I tried to assert my right in the ditch but my neighbor each time cut me off claiming the ditch had not been used for years and therefore I had no right to tbe water. The water does not run througb his place but is divided in the road. Has he a right to cut me off or can I prosecute him for same?—C. J., Colorado.

The neighbor has no right to cut you off. He should go into court, if he wishes, and show an abandonment. Before a court decrees an abandonment your nieghbor has no right to interfere with you.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver, Colo.

Question Regarding Foreclosure

A. sells B. a farm the first of March for $5,000. B. pays $1,000 down, $1,000 to be paid the first of January, the balance in five equal yearly payments. The deed, mortgage and notes were made out but were not recorded and were placed in escrow. If B. keeps up bis interest but fails to make his payment of $1,000 in January can A. take possession immediately? Also can A. take any of the proceeds from the sale of produce raised on the farm? If B. fails to pay bis interest, also, can A. collect that? If A. takes possession who has to pay the taxes?—Subscriber, Wyo.

As I do not have the mortgage before me I can answer only in general terms. If the mortgage provides for a foreclosure on default then the foreclosure may be had under the terms. The indebtedness may be satisfied by recourse, first, to the property securing the mortgage, and, second, to the general property of B., which would include the crops or the proceeds, if proper action is taken. I regret my inability to be more explicit, but I cannot answer more definitely without the instruments before me.—Hamlet J. Barry, Attorney, 724 Equitable Bldg., Denver, Colo.

Sow Winter Wheat Early

Ans. to M. A. B., Baca county, Colo.:

As a rule in Colorado it is best to plant winter wheat early. However, there are seasons when the moisture conditions in the early fall are not favorable. Unless you have moisture in the ground don't sow winter wheat at all. If conditions are right it is advisable in your section to sow about the middle of September or up to October 1st. This cannot always be done and sometimes rains come in October and put the ground in good shape, so that sowing even as late as November 1st has been done and a fair crop has resulted. The earlier sowing is, however, much surer, enabling the wheat to get a good start before cold weather sets in. Late sown wheat, if it comes up at all, fails to get a good root growth and easily blows out or dries out, unless covered by snow.

Stock-Share Leases

Ans. to P. T., Adams county, Colo.:

The term of stock-share lease is three to five years; longer if satisfactory. The landlord furnishes all land and buildings and pays all taxes and insurance. He furnishes all new materials needed for repairs of buildings and fences and the tenant makes these repairs. Any improvements made are paid for by the landlord, excepting that the tenant usually hauls the materials and may furnish all unskilled labor required.

Machinery and Tools.—The tenant furnishes all machinery and tools needed to operate the farm efficiently and pays for all repairs on them. An exception to this, often found, is the furnishing of a manure spreader by the landlord. This spreader may be owned jointly by the landlord and tenant.

Livestock.—The livestock is owned equally by landlord and tenant, excepting that in some instances the tenant owns all work stock.

Labor.—The tenant furnishes all labor needed to operate and maintain the farm business.

Division of Expenses.—All expendieures not previously noted are shared equally by landlord and tenant.

Division of Returns.—All farm receipts are shared equally. The tenant usually receives sufficient garden products, fruit, potatoes, poultry, eggs, butter and milk for his own use.

Crops.—The kind of crops to be grown and the areas of each may be stipulated in the contract. Also clauses are sometimes inserted regarding the crops which may be sold and the portion to be received by landlord and tenant, in case they do not share them equally. The landlord often pays for alfalfa seed or seed for permanent pasture.

Manure.—The tenant hauls out and scatters on the field where most needed all manure produced on the farm during the term of the lease, excepting that produced during the two or three months prior to its termination.

Division of Property at Termination of Lease.—At the termination of the lease all property owned in common is divided equally between landlord and tenant in any manner satisfactory to both. In case they cannot agree, each may select a disinterested party, and these two select a third disinterested party. These three make such division of the property as seems fair to them, giving the landlord and the tenant each one-half.—Kansas Bulletin 221.

About Sudan Grass

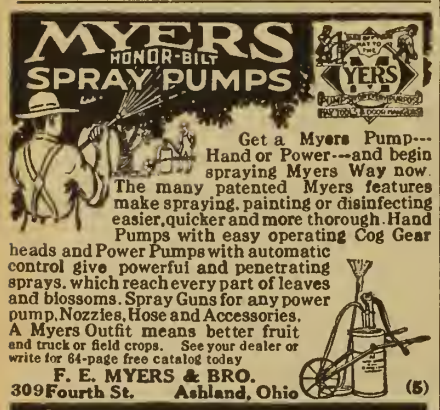
Ans. to G. W. W., Utah:

We would not recommend Sudan grass as a nurse crop for alfalfa. It is a quick-growing plant and grows to a height of five to seven feet in sixty to seventy days, depending on moisture conditions. In fact, under irrigation it often grows as tall as eight to nine feet. Sudan grass is of the sorghum family and is considered dangerous as a stubble pasture, after being frosted down in fall, or after being stunted by drouth. Under such circumstances Prussic acid poison sometimes develops and this proves quickly fatal to stock pastured on it. This plant has its greatest value as a cultivated hay crop. Under dry-farming conditions it is drilled in at the rate of five to 8 pounds to the acre. Under irrigation it is often broadcasted, using 20 to 25 pounds of seed, and it makes a tremendous growth when watered at the right time. Seven to eight tons of hay per acre is not an unusual yield in Oklahoma and Kansas, where the rainfall is around 35 inches a year. The same results, or better, may be expected under irrigation in the West.

Concreting Irrigation Ditch

I have about a quarter of a mile fill in an irrigating ditch which I contemplate cementing, principally to keep pocket gophers from causing leaks in it and also to prevent seepage. The fill has been in use for about ten years, is well settled and but for the gophers would never break. The soil is a clay with more or less volcanic ash and does not honeycomb or heave from frost so far as I have noticed. If lined with a concrete composed of cement, sand and gravel, would there be danger of the frost cracking it to such an extent that it would be worthless? How thick should the concrete lining be and what proportion of sand and cement? —O. H., Idaho.

We believe the plan of lining your canal through the fill is an excellent one and one that will satisfactorily solve the problems of seepage and boring by the gophers. There are a number of canals lined with concrete in your state with which you may be familiar. We are referring particularly to the Ridenbaugh canal. In a little bulletin, "Concrete Linings for Irrigation Canals," we are sending you under separate cover, are shown a number of pictures of this canal while being lined with concrete. On page 8 is shown the placing of the sides, on page 12 the bottom and on page 4 is shown the completed section. We believe there would be no danger of heaving by frost if the soil under the ditch is reasonably well drained. Numerous successful installations will bear out this point. For ditches of reasonable size a lining three to four inches in thickness will be suf-



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ficient. If a joint is placed about thirty feet and later filled with tar there should be no danger of cracking. At the bottom of page 9 you will find some data on this. On page 7 is a paragraph devoted to the proportions of sand, pebbles and cement and on page 6 is a paragraph devoted to precautions necessary in connection with using sand and gravel.—Portland Cement Association.

VETERINARY ADVICE

Questions in this department answered by Dr. George H. Glover, head of the Veterinary Department, Colorado Agricultural College.

Mare Has Kidney Trouble

Ans. to J. D., Montrose, Colo.:

The mare is evidently suffering from some affection of the kidneys, the nature of which cannot be determined without a specific examination of the kidneys and urine. The college will be glad to assist if you will send some of the urine for analysis. However, it should be understood by the citizens of Colorado that the veterinarians of the college are not competing with veterinary practitioners of the state and that in communities where reputable veterinarians are located for practice the college will not suggest specific treatments for animals. In the first place, it would not be fair to veterinarians in the field, many of whom are our own graduates. Secondly, special treatment prescribed in absentia is unscientific and seldom successful. In this case, there may be sugar in the urine (diabetes mellitus), excessive urination with increase of solids (polyuria), or it may be any one of several conditions more or less serious. The treatment, of course, would depend upon the actual condition and this can only be determined by analysis of the urine. In a general way it will be well to wean the colt and let the mare rest. Be sure that the feed is not musty. Musty oats, above all things, will irritate the kidneys and cause excessive urination.—G. H. G.

Sterility in Cows

Sterility in cows is most often caused by contagious abortion. This disease has become so common that we may expect it anywhere. Contrary to what the name might imply, the disease is not always manifested by abortion. Retained placenta, garet, calf scours, sterility and abortion are presumed to be manifestations of the disease. While you may not have any record of abortion in this cow or in your herd, yet sterility in this case may have been caused by the abortion bacillus. Other things may have caused the sterility, such as chronic inflammation of the uterus or vagina, diseased ovaries, or possibly closure of the opening into the womb. Inflammation will be manifested by a chronic vaginal discharge. Some of these cases after treatment will again become breeders. In two cows examined at the college clinic recently the womb in both instances was found to contain more than a quart of pus, yet, strange as it may seem, both cows appeared to be in very good health. Veterinary specialists are having fair success in treating these cases, but little or nothing can be accomplished by a layman. It may be well, in case a competent veterinarian is not available, to wait a few months and then if she fails to conceive, to fatten her for the block.—G. H. G.

Pigs Dying of Thumps

I have been losing several pigs out of each litter. The first that I can notice in the pigs is they breathe in a sort of short, jerky way and seem to have a kind of thump and jerky or shaky, sleepy way for three or four days and die. They do not all seem to get that way at the same time, one or two at a time. This trouble is when the pigs are all the way from ten days eo a month old. I have been feeding the sows cooked feed, barley, potatoes, turnips and carrots mixed together, mostly barley. —W. C., Wyoming.

The pigs are apparently affected with thumps. This is a condition of spasm of the diaphragm and in man is called hiccough or hiccup. The diaphragm is the muscular partition which separates the organs of the abdominal cavity from those of the chest, and commonly known as the midriff or skirt. The cause of the spasm is irritation to the pneumogastric nerve and the seat of this irritation is usually in the stomach and intestines. Thumps should not be confused with palpitation of the heart. The difference can be easily determined by placing one hand over the heart and noting whether the beats synchronize with the spasms. If they do, of course it would mean palpitation of the heart. This, however, does not often happen in hogs and almost never in the absence of overexertion, such as fighting and driving on a hot day. The most common cause of thumps are diseases of the digestive apparatus; hog cholera, lack of exercise and overloading the stomach, ulceration or inflammation of the stomach or intestines, diseases of the brain or heart in rare instances. In little pigs it is most always caused by lack of exercise and where the mother has been fed heavily on concentrated food and no opportunity for exercise. There is not much use in trying to save little pigs after they begin to thump. The thing to do is to prevent it next time. Feed the sow only light laxative food two weeks prior to farrowing and do not keep her confined in close quarters either before or after farrowing. Go slow on the barley until the pigs are at least six weeks old.—G. H. G.

Abortion in Mare

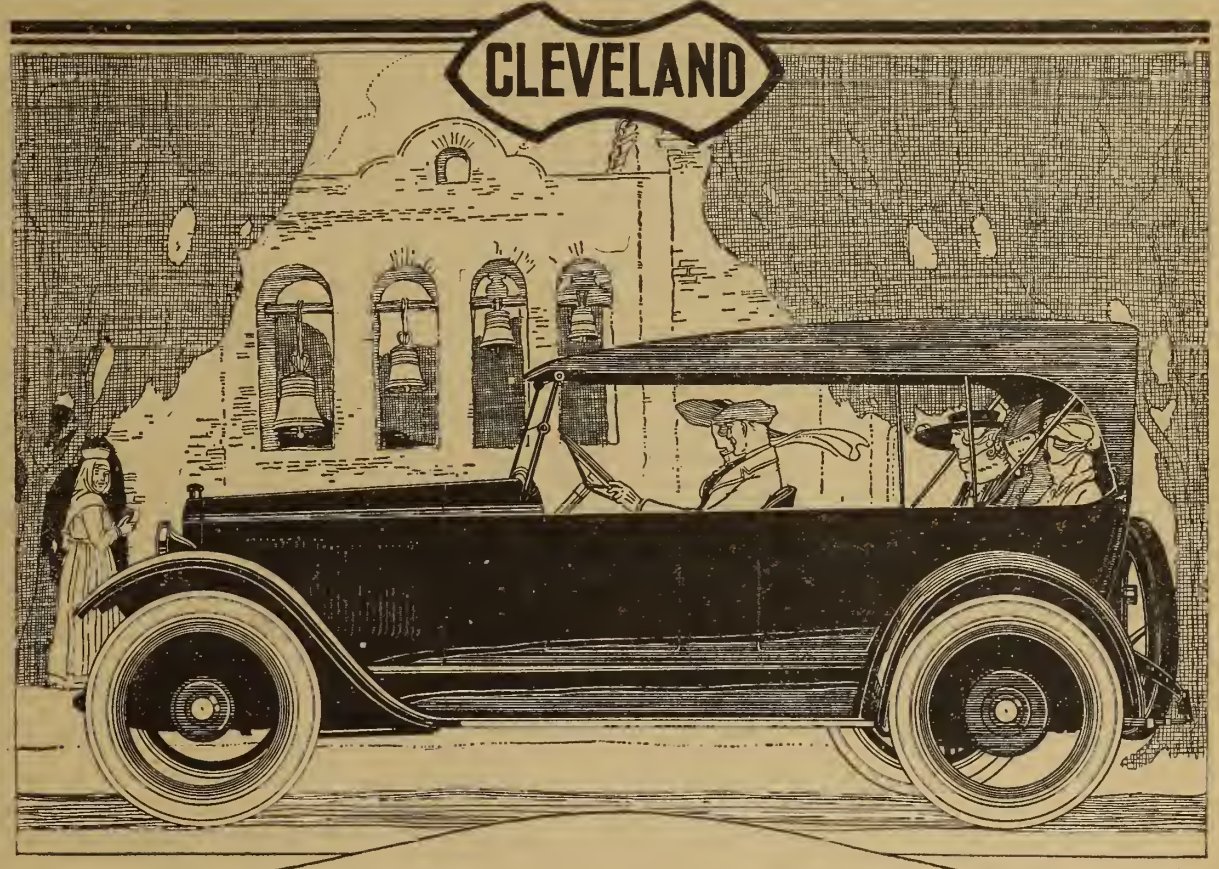
Ans. to A. H., Adams county, Colo.:

By the term abortion we mean the expulsion of the fetus at such a stage of its existence that it is not capable of living after birth. Premature birth is an expression indicating those cases where the fetus is expelled prematurely but is still capable of living. Still-born is where the young are expelled at an age when they are sufficiently developed that they might have lived but have in fact perished prior to their expulsion. Miscarriage is a general term which applies to birth of the fetus while it is yet young. Abortion is classed as accidental, enzootic and infectious. Any disease of the mother may more or less remotely affect the well-being of the fetus and cause its death. Among these are presumed to be colicky conditions, the toxic effect of various drugs, toxins of disease, moulds, ergot, frozen food, drinking cold water, sight of blood, excitement, etc. However, it has recently been quite well established that these things are negligible factors and it is doubtful if they can properly be ascribed as causes of abortion in the absence of infection. Efforts to produce abortion by feeding corn smut and ergotted rye have failed absolutely. Twin pregnancies in the mare generally results in abortion late in the period of gestation. The two fetuses usually die at different periods but are expelled at the same time, one being more developed than the other. No satisfactory explanation is given for the mare failing to produce twins, but there is one thing sure—it seldom happens. In some females there appears to be a weakness or defect somewhere in the animal economy which prevents a fetus from arriving at full maturity and which results in its death and expulsion time after time. This is probably the case with the mare described by the questioner, or it may be caused by infection. Castration of pregnant females usually results in abortion, but not always. Severe hemorrhage of the mother seriously affects the fetus and may cause abortion. For this reason animals that are well advanced in pregnancy should never be submitted to surgical operations if accompanied with much loss of blood. Mechanical injury to cause abortion must result in actual injury to the fetus, and this does not often occur for the reason that the fetus is wonderfully well protected by the fluids surrounding it and from its position in the abdomen. By enzootic abortion is meant the class of abortions that are caused by infectious abortion. All things considered, there can now be no question but that the vast majority of abortions are due to infection. Infectious abortion is most common in the cow and is usually caused by the specific micro-organism, bacillus abortus of Bang. In the mare it is caused by the bacillus abortus equi and it is doubtful if the disease is intercommunicable.—G. H. G.

Blood Test Is Necessary

I have a Holstein cow that has been failing for some time, is very thin and lays down most of the time. Her appetite is good at times and poor at others; has not failed in her milk; urine is bloody. Could you tell me what ails her?—L. R. M., Arapahoe county, Colorado.

A bloody appearance of the urine suggests the possibility of several things. The blood may come from the bladder or the passages leading to or from the bladder, in which case it would come in clots, not well mixed with the urine (hematuria). In hemorrhage from one or both kidneys the urine will most likely appear uniformly red. Again in diseases where the red blood cells are broken down and the coloring matter liberated the urine will be colored. The latter condition is far more serious, since it indicates destruction of the blood by micro-organisms, such as hemorrhagic septicemia, anthrax, Texas fever, etc. Examination of the clinical symptoms, more especially of the blood, is necessary to determine the nature of the disease. A few of these cases have been reported recently. The college veterinarians and the college laboratories are at your service and will be glad to co-operate with any veterinarian you may choose to call on the case. The college veterinarians cannot give personal attention to sporadic cases of disease, this must be left to practicing veterinarians. But the college stands ready at all times to investigate communicable diseases and to assist in diagnosis of difficult cases that appear in the practice of veterinarians. Long distance diagnosis, based upon symptoms given by laymen, is usually unsatisfactory, especially in diseased conditions that are out of the ordinary. First call a veterinarian and if it is desired we will gladly co-operate. In districts where a veterinarian is not available, we will do the best we can at suggesting a general treatment.—G. H. G.



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Rainfall and Cultivation

After reading Mr. E. R. Parsons' recent article, "Does Rain Follow the Plow," I want to raise a question which I have often asked, namely, whether the United States Weather bureau had really taken careful enough note of the apparent increase of rainfall due to the westward march of civilization.

Here in north central Nebraska, Broken Bow has an average rainfall of 24 inches, Ainsworth 25.5, O'Neill about 24.5, Valentine about 25 and across the line to the northwest into South Dakota in Tripp and Gregory counties, the rainfall is about the same as with us here near Ainsworth.

Twenty years ago my father-in-law, Mr. Darlington, lived near Norfolk, Neb., in the sure-crop district with an average rainfall of about 28 inches. He was a student of wide research rather than a successful, practical farmer, and was virtually a pauper by 1900, and was then nearly 55 years old. He knew that western Nebraska was reputed a drought stricken district, but the pioneer spirit led him to seek a free home. Noting on the map the continuous chain of lakes through the southern part of Cherry, Brown and Rock counties extending nearly 150 miles, and knowing the fact concerning this country that a large portion of the territory near the lakes usually had a few inches of water on the surface from early spring until June or July, he figured that, with a 40-inch evaporation of water which we could usually expect here, the southern parching winds passing over these wet meadows could be materially tempered. This led him to file on his homestead here south of Long Pine. In fifteen years after he had passed his prime he gained a competence, because he had either reasoned out the rainfall, or else from a lucky chance.

Remember, Mr. Darlington made his location here before the record of the ten-year average rainfall was available to him, so he went it blind. How can we account for the greater actual precipitation at Ainsworth, and in South Dakota to the northeast of us, than it is south the chain of lakes or just east of them in any other way? It is a fact that Brown, Keya Paha and Boyd counties, Nebraska, and about such a sized territory north the line, now occupy a place on the government weather maps as being above 25 inches precipitation; and this area is nearly surrounded by a drier area.

At any rate we are in nearly a sure-crop district and where more approved dry farming methods prevail, as in the handling of the potato crop, we do not know what failure is. Mr. Darlington was thoroughly persuaded before his death that his theory was sound and I am rather of the notion it was. Just that added inch or so of water coming at the right time would be enough to save even the slipshod pioneer's corn and melons. Further, it is a fact that rains that are our local crop-savers form nearly overhead in the cooler part of the afternoon from 4 p. m. until sundown; and scarcely a season passes without one or more such showers. They will vary in amount from the barest trace to one instance of full three inches.

Now I am well aware that cultivated patches would not furnish anywhere near the water for easy evaporation that our lakes and meadows furnish, but I feel that they have a slight influence and in a small way rainfall does follow cultivation. Perhaps not in the locality where the farming has done, but a few miles beyond in the path of the prevailing winds. In reading Mr. Parsons' works concerning trees or timber tempering arid climate, it seems that we get other evidence along the same line.

Here is the thing reduced to figures that directly appeals to me. During a day of hot winds from a southerly direction, when the mercury stands at 90 degrees or above, a tank or open body of water will lose by evaporation an inch or more of water. This inch of water will amount to almost exactly five pounds, or 35,000 grains weight. It is estimated that 70 degree air is at the point of saturation where it contains above eight grains of water, while 90 degree air is not to the point of saturation until it has passed 15 grains of water; or, in other words that added 20 degrees renders air capable of holding suspended seven additional grains of water. These are fair figures as they well represent our summer temperatures. And carrying the example to its conclusion, we find that one inch of water will furnish this extra seven grains of water to nearly a mile of air depth.

A hot wind may travel 30 miles or more an hour for at least five hours, so if we had a ten-mile strip of solid water south of us the heated air might not receive more than half of a grain of water to each cubic foot that rushed by up to a mile in height. But I have an idea that the benefit derived is not so largely in the matter of additional precipitation as in the fact that the fierce drying winds lifting the moisture from the surface never allow it to get many feet from the ground. And thus, if the south wind started with its nearly eight grains per cubic foot even with the rise in temperature during the afternoons, the local evaporation would create a sort of vaporized screen a few hundred feet in depth over many miles of leeward farm lands. In this I see the true explanation of Mr. Darlington's happy chance, and also in the common notion, held by old-timers, that rain follows migration.

While the rain gauge may not show such to be the case, yet the fact remains that the menace of drouth and hot winds are greatly modified by settlement and cultivation.

A 90 per cent atmosphere with only a trace of moisture in it will absorb large quantities of water from everything on the earth's surface. A 90 degree atmosphere with 15 grains of water to each cubic foot will absorb none, for it already is at the point of saturation; that is, it already contains every trace it can hold, and the least bit more introduced into it, or with the temperature lowered even a degree will result in congealing the moisture into visible vapor.

Thus the benefit may readily be seen in having a moist air pass over any district in case of a long dry spell, without bringing more actual precipitation. It prevents the further depletion of the already scanty supply of moisture.—E. W. Ferguson, Jr., Long Pine, Neb.

Faulty Castration

I have a barrow that did not drain good on being altered sometime ago and a pus bag formed about the size of one's fist. It came to a head about two weeks ago but did not clean good and still remains enlarged. The lump feels hard and grissely. By pressing on it gently the pus still comes out. Would it be safe to use the knife on it or is there something that I can put on it to drak it out?—J. J. G., Douglas County, Colo.

This is what is known as a "schirrous cord," or in other words a tumor growing on the end of the severed cord. The tumor is caused by improper methods used in castration. The cord should be severed at least four inches from the testicle, to prevent the cord from healing fast in the wound of the scrotum. The hands and instruments should be clean even in castrating a hog. It is better to sever the cord with an emasculator, especially in older hogs. The scrotum should first be washed with an antiseptic solution out of one bucket, and the instruments should be kept in another bucket or pan of antiseptic, when not in the hands of the operator. A long incision should be made to secure drainage and to prevent too early healing of the outside of the wound. The only way to save the pig with the schirrous cord is to remove the same as a testicle, by surgical means. This operation is seldom fatal if done before the tumor has grown too large and if proper precautions are taken against sepsis and hemorrhage.—G. H. G.

Ear Ticks in Cattle

Ans. to O. R. A., Bent county, Colo.:

Ear ticks are very troublesome in horses and cattle. The spinose tick (onithodoros Megini) is especially common in the south and middle west. They attach themselves to the skin lining the conchi and invade the auditory canal. A perfectly safe and effective remedy is found in two parts by volume of ordinary commercial pine tar and one part by volume cottonseed oil. One application is usually sufficient.—G. H. G.

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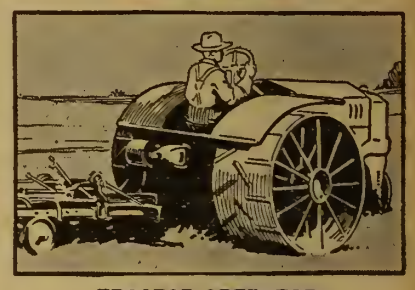

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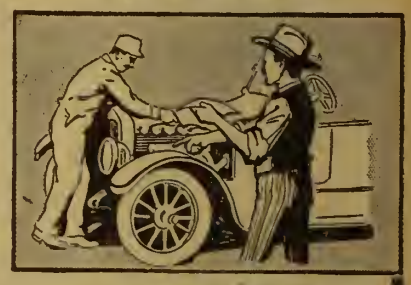

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WESTERN CANADA
Farm Lands at Low Prices
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"H. R. H., The Rider"

Continued from Page 8

the moment that a still more formidable barrier separated them.

So long he stood in silence looking at the girl that she finally repeated her question, quite peremptorily, and with a little stamp of her foot.

"I asked you, fellow," she said, 'the amount of the ransom you demand."

The man who had been working over the stove had cocked an ear when he had heard the girl addressed as Miss Bass, and now he puttered about in an effort to prolong his work in the room that he might learn more of the prisoners and the amount of the ransom. The name was familiar, for the passage of the wife and daughter of Abner J. Bass through almost any civilized country on the globe was heralded broadcast upon the front pages of the newspapers, together with various estimates of the many millions which they represented. The fellow, a stupid lout, could not recall where he had heard the name, yet there was something about it which aroused his attention and held his interest.

The Rider could not repress a smile at the manner in which the girl addressed him, and he hastened to reply, as though always he had been accustomed to obey the haughty commands of an imperious master.

"The ransom," he said, "will not be in money. I know that the wife and daughter of Abner J. Bass could command a fabulous sum should I demand it; but I shall not demand a cent of money."

"What shall you demand, then?" asked the princess.

"Something rather more valuable than all the riches of Abner J. Bass," replied the man, and, after a pause, "the hand of his daughter in marriage.

Both Carlotta and the Princess Mary went white as the full significance of this statement sank into their understandings. The former gave a little scream and moved closer to the princess as though to protect her royal charge from the contaminating touch of the bandit. The princess realized that her plight was a sore one, and that it might be better to conciliate rather than offend her captor.

"You do not understand what you require," she said. "It is absolutely impossible that you and I should wed. Name a ransom that may be paid in money, and it will be paid gladly; but do not lose all by attempting to force such preposterous terms upon us."

"Wait!" said the Rider. "You do not understand. I am not asking your hand for myself; but for another whom I understand you would gladly wed would your mother permit. Your freedom, therefore, depends upon my ability to obtain from her the necessary consent to your immediate marriage to Mr. Hemmington Main, who is on his way here now with a priest who will perform the ceremony."

Then the Rider looked eagerly from one to the other for evidence of the expected effect of his announcement. The girl should have been quite overcome b·· joy; but she was not. She appeared, on the contrary, far from relieved and even a little piqued. Could it be that the Princess Mary of Margoth was, after all, angered to discover that the bandit had not wanted her for himself at all, but for another? Impossible, and yet a princess is, whether she will or no a woman, and Prince Boris of Karlova, even in the guise of a notorious cutthroat, was a most prepossessing figure.

The bandit at the stove gasped as he heard the terms of the ransom and learned the identity of the captives. A cunning expression crossed his stupid face, as, satisfied with what he had heard, he slunk from the building and hastened to the tents of his fellows to communicate his store of intelligence.

"You have made a mistake," said the princess. "I do not wish to marry Mr. Main, and as you say that you have no wish for a money ransom may I ask you to return us to our car and let us go our way?"

The Rider showed his astonishment in the expression of his face.

"But," he insisted, "I have Mr. Main's word for it that you and your father are in favor of the match—that only your mother's wish that you marry a titled European stands in the way." He turned questioningly toward Carlotta.

"Her hi—er—my daughter," stammered the frightened nurse, "can marry only a titled European—it is her wish as well as my own. She does not wish to marry Mr. Main—you have heard her say so herself. Please, oh, please, Mr. Rider, let us go."

The Rider rubbed his chin in puzzled bewilderment. Whatever his reply to Carlotta's appeal might have been it was interrupted by the sound of the approach of several men, the foremost of whom burst into the shack with scant formality. The leader was a burly brute whose gaudy rags were rendered sinister by a bandolier of cartridges across his breast and a formidable looking rifle which he carried in his right hand. He halted just within the doorway and eyed the Rider with a ferocious scowl. The latter's head went up, and a scowl of disapproval darkened his brow.

"What is the meaning of this?" he asked. "I did not send for you."

"No," growled the brigand, "you didn't send for me; but I came. I came to tell you that you don't let these fine birds get away so easy as you think. Why, we could get a million for 'em, an' here you are tellin' 'em they can go if the young one will marry the man you want her to. What do you think we are, to stand around an' let you lose the richest pickin's we've had in years?"

"Get out of here," snapped the Rider.

"Hold on now, my fine bird," cried the brigand. "We've promised not to do you no harm, an' we won't unless you make us; but we're goin' to have these two women, an' we're goin' to take 'em with us right now, so stand aside and you won't get hurt," and the fellow took a step as though to pass Prince Boris.

Carlotta shrank close to Princess Mary, who put her arms about her faithful servant and stood waiting the outcome of the altercation with calm and unruffled demeanor. The girl had heard the words of the brigand with surprise, and though she still had no reason to doubt the identity of him whom she took for the Rider, she wondered not a little at the temerity and the mutinous spirit of his subordinates.

As the ruffian attempted to pass him Prince Boris stook a single step forward, and at the same instant swung his fist to the fellow's jaw, delivering a blow that stretched the man upon his back. Those in the doorway behind now attempted to surge into the room; but Boris drew his revolver and menaced them as they advanced. The man upon the floor, cursing and sputtering in pain and rage, staggered to his feet. In an instant his rifle was leveled.

"I don't care who you are," he shrieked with a horrid oath, "you can't come that on me, and live." But before he could press the trigger there was a spurt of flame from the revolver in the hand of Prince Boris, and the man, dropping his rifle, staggered forward, reeled and fell at the feet of the prince he would have slain.

Some one of the men in the doorway fired a shot into the room, and instantly Boris's revolver spurted a streak of fire and death into the group huddled there. One of the bandits screamed and fell backward into the arms of those behind him. Boris fired again, and the pack fled, carrying their wounded with them.

Leaping to the door the Crown Prince of Karlova closed and barred it, then he turned back to the two women.

"Lie down close behind the chimney," he commanded. "Their bullets are less apt to find you there. Quick, now! They will be back in a minute—you are too rich spoil for them to relinquish without a battle."

He stepped to the smoky lantern and raising it extinguished the flame, leaving the room in utter darkness. Then he went to the side of the dead brigand, removed his bandolier of cartridges, which he buckled about his own shoulders, and appropriated the fellow's revolver and rifle.

"We can give them a fight for a while," he said, with a laugh.

"Why don't you let them take us for ransom?" asked Princess Mary. "They may kill us all."

"They are beasts," replied Boris. "I would rather see you dead than alone in their power. If the ransom were all I might make terms with them, though if 't were not for you I'd rather take a chance with their bullets than give in to them—the hounds."

He had crossed to one of the two windows as he spoke, and an instant later a shot from his rifle crashed through the glass, announcing that he had discovered the enemy sneaking upon their little fortress.

CHAPTER XIII
HER ROYAL HIGHNESS

"I think I got another of them that time," he remarked, and then crossed the room to the window upon the opposite side. Again the report of his rifle crashed through the small room.

"They're coming from both directions," he announced. "I wish Main had come—two of us might stand them off for a while."

As he recrossed the room to the opposite window he felt the touch of a light hand upon his arm.

"Give me a revolver," said a brave little voice at his side. "I can guard upon one side, while you guard upon the other."

A sudden volley of shots from without shattered the glass in one of the windows and thudded against the logs of the walls. A bullet pinged close to the man's head. Involuntarily he threw

Turn to Page 20

Will the livestock producer benefit by the proposed Kenyon and Kendrick bills?

Practical men in the industry at a hearing in Washington, say NO

Down in Washington, as you know, they are considering a plan of licensing the packing industry and putting it under the direction of a government official—

A political appointee with the power to experiment as he chooses with this vital business.

* * *

How will your brother stockmen and feeders like that?

Recently a number of them went to Washington to give their opinions. What follows is a fair sample of their testimony:

Robert J. Kleberg, Livestock Producer, Kingsville, Texas, testified that—

"I contend and believe that the producer of livestock who conducts his business properly has nothing whatever to fear from the packers. He needs the packers to prepare his product for the market and to distribute it. Without the aid of the packers, the production of livestock could not exist as an industry. . . . I do not believe that this licensing system and the taking of the stock yards away from the packers and the taking of the refrigerator cars away from them, the ownership away from these men and the management away from them is going to help."

Dr. J. M. Wilson, General Manager Platte Valley Sheep Co., McKinley, Wyoming, said that—

"The livestock business and its allied interests are so complicated that unless you get a man who is well informed in business it is very liable to do more damage than good. . . . I see nothing but confusion and uncertainty ahead if the present methods are disrupted and the stock yards put under Federal Control and into the hands of an inexperienced manager."

E. M. Ammons, Cattle Grower, Parshall, Colorado, stated that—

"I am opposed to these bills. . . The Western Stock Show Association, including all lines of industry there, went on record unanimously and passed a resolution prepared by two producers and one banker not connected with the yards, *against* the principle of licensing this business or establishing or permitting the business to be controlled by these bureaus, giving the power to make rules and regulations having the effect of law."

Hon. W. A. Drake, Ft. Collins, Colorado, testified that—

"There is no way to reduce the high cost of living but by increased production. You can't increase production if you are continually forming new bureaus and taking on farm help by the thousands to maintain them. If you succeed in licensing the packer our farmers are afraid you will try it on us next. We think this proposed legislation will be the opening wedge to tie the producer hand and foot. Feeders and finishers of a million sheep a year in northern Colorado are opposed to what is known as the Kenyon and Kendrick bills."

Scores of similar statements from the testimony of producers, farmers and feeders all over the country could be quoted if space would permit.

* * *

Do you want the packing industry under an inexperienced political appointee?

The interests of the producer and the packer are mutual. If radical legislation should upset and disorganize this high efficiency of the packing industry, the producer would be hit as hard as the packer.

There is no question but that the cost of conducting the packing business will be materially increased by such legislation. The packer's profit—a fraction of a cent a pound from all sources—could not take care of such increases, which would necessarily be reflected in lower prices to producers or higher prices to retailers.

Swift & Company will be glad to mail a summary of the testimony of the livestock producers at the hearing in Washington. Write for a copy. Address Swift & Company, Union Stock Yards, Chicago

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Activities of the Webworm

Editor Western Farm Life:

Presumably because of the unprecedented dry season, this has been a hard year for gardens and the owners. We seem to have about every kind of bug that came out of the ark and perhaps some that have evolved since. But the last to arrive has proved to be the worst of all, because it is the most destructive, the most persistent, the most impervious to any and all the "cures" one reads about and the most omnivorous, for it seems to thrive on everything in and out of the garden, even greasewood and sagebrush.

Another peculiarity about this latest (to me at any rate) pest is that there seems to be no mention of it in any of the numerous bulletins and articles I have gathered together on the subject of bugs.

After trying every spray and dope I could think of or hear about I was about to give up the struggle when your last issue arrived. Now, thanks to what I read there, my garden is almost free from the pest. Very many thanks.

And yet I think you hardly realized the good you were going to do for the help came from a very modest little item to the effect that the webworm had attacked the Colorado beet fields and, but for a timely rainstorm, would probably have wrought vast destruction.

The name webworm seemed to fit so well that we decided to give the best imitation we could of a "rainstorm." We did it with a watering can. It was a big job for we have quite a large garden, but as I have said it is now almost free from the pest.

Now if you will be kind enough to tell me what you conveniently can about your webworm, its habits and personal appearance, I will do likewise for mine as follows: The first thing you notice on a plant attacked is a rusty and dusty appearance on the leaves. Look closer and you will see that the leaves and stems are covered with a fine "web," which by retaining the dust blown onto the plant, accounts, no doubt for the dusty appearance mentioned. Pretty soon the leaves and stalks attacked dry up and turn white, red, brown or some other unpleasant color. The whole plant becomes unthrifty and eventually dies unless freed in time, in which latter case, it frequently sends out new leaves and starts on a fresh career. The organisms consist of four distinct types. Whether these represent four distinct stages in the life history of one bug, or whether one or more of them are merely allies, accidental or otherwise, I don't know. The largest of them, visible easily to the naked eye, is a small whitish spider, frequently carrying a round bundle, presumably of eggs, on her back. Next in size is a greenish worm like a very small cutworm about an eighth of an inch long. Then there are little spiders in great numbers, at least they are shaped like spiders and of a greenish, watery appearance. One type of these latter has several brownish spots along each side of where his dorsal fin ought to be, the other is without any such markings. In addition, hanging in the web will generally be seen a lot of small bodies like fine drops of water. These I take to be eggs.

The mother spiders are, of course, much less numerous than her eggs or children, while the worms do not seem to be always present. From which I conclude that the worms are accidental and that the young spiders are the really destructive members of the sisterhood.

Arsenical spray or arsenical dust (arsenate of lead) or sulphur dust seems to have no effect whatever. Black Leaf 40 seems to lessen their agility and perhaps sicken or even kills some of them, but it is in no sense a cure. I am in no hurry for a reply to this, for the season is almost over and would suggest a small article in an early issue on this subject. —W. F. Collins, Battle Mountain, Nevada.

Marquis Most Popular

The Marquis variety of wheat has gained on other varieties of spring wheat, year by year, until in 1918 it was more than one-half of the spring wheat crop. As estimated by the Bureau of Crop Estimates, the Marquis variety was 59 per cent of the spring wheat crop in Minnesota, 47 per cent in North Dakota, 58 per cent in South Dakota, and 47 per cent in Montana.

Durum wheat, in demand for regions of low rainfall and with a special market as a material for such products as macaroni, was second in popularity in 1918 in North Dakota, South Dakota and Montana, where it produced 29,20, and 15 per cent, respectively, of the total spring wheat crop. This variety of wheat had the advantage of large productivity per acre, a quality possessed almost in equal degree by the Marquis variety.

The Velvet Chaff variety had second place in Minnesota with 22 per cent of the total, third place in North Dakota with 9 per cent, third in South Dakota with 12 per cent, and fourth in Montana with 2 per cent.

Third place was taken by Blue Stem in Minnesota, and this variety produced 12 per cent of the spring crop; it was of small use in North Dakota, South Dakota, and Montana, as were Fife and other varieties.—U. S. Department of Agriculture.

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Grain Piled in Street

This photograph was taken at Burlington, Colo., October 3d, during the Kit Carson County Fair. It shows two piles of threshed grain, one of barley and the other of wheat, lying in the dirt, without cover, open to the weather. The two elevators in town were full and no cars were obtainable. Excuses for this waste of food material were plentiful, but nobody seemed to know who was responsible. The elevators "passed the buck" to the railroad administration and the railroads said it was impossible to procure cars. This condition was common throughout Eastern Colorado at that time. Over across the Atlantic people are starving; in our own country the cost of living has mounted so that the poor are appalled at the prospect of this winter. And yet we waste food by the carload!

Field Pea Experiments

While the past season was unfavorable for field peas the acre yields were higher than in 1917 or 1918. The average results for the seasons 1917-19 inclusive show that the White Canada gave the highest acre yields but not the highest cash return to the acre. The green seeded peas generally bring the highest market price because of the demand for these peas in eastern markets for human food. Hotels and restaurants use them in the place of green sugar peas as they are cheaper and more easily handled. Those varieties which produce a white or yellow seed cannot be utilized in this manner as the color could be detected in the substitute.

Thus in growing field peas, it is desirable to raise the crop that will return the highest market value provided the yield is sufficient to produce the greatest returns to the acre. The average yields and acre value of six varieties grown at the University Farm for the seasons 1917-1919 are shown in the following table. The green colored peas are taken at a value of 8c and the white or yellow peas at 6c.

Variety	Bushels	Price
Blue Prussian	17.1	$ 61.56
White Colorado	18.6	64.96
White Canada	22.1	79.56
Bluebell	20.9	100.32
McAdoo	21.3	76.68
Alaska	17.2	82.56

All of the garden or sugar peas grown in comparison yielded only a few bushels over one-half as much as the field varieties, so that they are decidedly unprofitable as a field crop. The only advantage the producer has in growing these peas for seed companies, is that the price is assured before the crop is planted. With the market demands for peas as during the past few seasons, a profitable price is secured on the field varieties as well as the garden varieties.

The experiment station has published the results with field peas in north Idaho and a copy of the bulletin will be sent on request.—Idaho University News Letter

"Ton-of-Pork" Club Working

Seven boys and three girls in Higganum and Haddam, Conn., have organized a "ton-of-pork" club. The purpose is to produce 2,000 pounds of pork this winter from ten pigs. Each member in the club owns a small porker. Early in July the weights of the club pigs averaged thirty-seven pounds. By November 1, or in four months, the members of this club, which is supervised by the Extension Division of the State Agricultural College and the United States Department of Agriculture, expected to make their pigs average 200 pounds each, or 2,000 pounds for the ten pigs.

Control of Loco Weed

How many kinds of loco weed are there, and how can I learn to distinguish between them? Are they all poisonous? Is there any cure for loco poisoning? This summarizes questions that are frequently asked by new farmers in the plains and mountain districts. Answers may be found to these questions in Farmer's Bulletin 1045 recently issued by the United States Department of Agriculture, from which the following information is taken.

The purple loco weed is a perennial which grows in patches on adobe soils, attaining a height of 2 feet, and generally occupying a space of about 2 feet in diameter. Its flowers are rather inconspicuous, being deep purple in color. It is sometimes called "wooly" loco, because its leaflets are densely covered with hairs. It occurs as far north as South Dakota, as far south as Mexico, as far west as Arizona, while its eastern limit is central Kansas and Nebraska.

The white loco, familiar in Wyoming, Montana and Colorado, is called the "stemless loco," because it has no true stem. Its habitat is from Alaska to Mexico as far east as central Minnesota, and as far west as central Utah and Arizona. It grows abundantly on sandy soils, and in parts of Colorado, Wyoming and Montana and at this weed's blossoming time, large areas are as white as though covered with snow.

The blue loco of Arizona, New Mexico and parts of Colorado, Utah and California, grows abundantly, appearing in some localities early in February and maturing and drying up early in the summer. This plant is poisonous to cattle and sheep, but is especially injurious to horses. Misconception has confused with the loco weed several leguminous plants which are either harmless or valuable as forage crops. However, there are only three true loco varieties.

The purple loco weed is rarely injurious to cattle, but it is very harmful to horses. However, the horses will not eat this weed unless forced to it to prevent starvation. On the other hand, horses, cattle and sheep will eat white loco weed readily, particularly when grass is scarce. During the spring before the grass starts where the white loco weed is abundant, practically all animals eat some of it. When grass is plentiful later on, most animals taboo the loco, but some of them have acquired a taste for the weed and gradually eat more of it. Finally they become confirmed addicts to the loco habit which ultimately results in their death. Sheep, also, are poisoned in much the same way as horses and cattle, the effect of the drug being particularly noticeable on lambs, as frequently they die within two weeks after they begin to eat the weed, and without any marked loss of flesh. Under similar conditions of short feed the blue loco weed is eaten late in the winter. Because of its great poisonous effect on horses great damage may be done in a very short time, more quickly than in the case of the other loco plants.

As a rule the "native breeds" of livestock are much less likely to be locoed than imported animals not familiar with the plants, and which in many cases do not have the habit of "rustling," so that they are inclined to eat the feed which is most easily obtained. Generally speaking, the finer breeds of cattle and horses are more likely to be locoed than the poorer breeds. The same thing applies to sheep, it being particularly noticeable that the black faces are much more susceptible than are the Merinos.

Loco poisoning in horses is first indicated by a change in the general condition of the animal, a high-spirited horse becoming dull, and later on developing irregularity in its gait and mode of eating. The horse drags its feet and shows signs of loss of normal muscular control. As the disease progresses the animal shuns the company of its mates and seems to lose very largely its nervous sensibility. It is dangerous to ride or drive such a horse as the animal shies at imaginary objects and is not sure on its feet. In the later stages of the disease the animal loses flesh, its coat becomes rough and eventually it ceases to eat and dies.

Similar symptoms obtain in the case of locoed cattle, the same lack of muscular control being evidenced, the animal shaking and trembling and perhaps rearing and jumping backward when suddenly alarmed. A badly locoed steer shows a violently shaking head, particularly after it has become heated, and sometimes becomes frantic and runs into obstructions in an utterly unreasonable way. Locoed cattle gradually lose flesh, having staring eyes, rough coats, go to water less and less frequently and eventually die of starvation.

The symptoms of sheep poisoning are not so marked as those in horses and cattle, the lack of muscular control not being so noticeable. However, locoed sheep soon develop weakness and stumble and fall about and rise again only with great difficulty. There is some confusion between this condition and "grub in the head" and at times it is difficult to distinguish between sheep affected by the grub of the sheep gadfly and those poisoned by loco weeds.

Most locoed animals can be cured, but they should be worth enough to warrant a somewhat extended course of teratment. The first and most important need is to supply them with plenty of nutritious feed, such as alfalfa, grain, oil meal and proper pasturage, so that they will not be obliged to resort to loco weed for food. Medical treatment, such as is outlined fully in Farmer's Bulletin 1054, should also be followed. Rapir recoveries can hardly be expected, as the conlition existing in a case of chronic loco poisoning has been developed by weeks or months of loco feeding, which means that the rate of recovery must necessarily be slow.

Loco poisoning can be largely prevented by proper handling of livestock. As the stock commonly contract the habit of loco feeding in times of short feed, stockmen should provide plenty of good hay at such periods. On some ranges the loco weeds have a definitely limited distribution and in such cases, if the animals are kept away from the infested areas until the grass is started, few become locoed.

It is relatively simple to clear out the loco plant by cutting the roots for two or three inches below the surface. However, as the seeds of loco plants live for years and do not germinate in the season following their growth, it is necessary to continue the extermination work for several seasons after the original plants have been killed. Many stockmen believe it is necessary to remove all of the loco roots in order to control the pest, but this is erroneous. Badly infested tracts of land have been cleared under the direction of the United States Department of Agriculture and in many of these pastures kept under observation for ten years very few loco plants have appeared. One ranchman in New Mexico reports the cleaning up of an 80 acre pasture and later on a pasture of eight sections where previously the weed had covered one-fourth of the total area. Although this work cost $3.00 an acre, it has been money well spent, as practically no trouble from loco weed has since developed.

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Dairying and Hog Raising

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All letters regarding commercial and technical features of dairy farming and hog production promptly answered. Address all communications to Dairy Department, WESTERN FARM LIFE, Denver, Colorado.

Milking Machines Tested

The University of California recently issued a bulletin on "Investigations with Milking Machines." In this test 78 cows were used and the effect of the hand milking and machine milking carefully noted. The suggestions in the summary of the bulletin are extremely valuable to the new operator of the milking machine, as well as to the prospective purchaser. The summary is as follows:

The modern milking machine is a practical and safe labor-saving device. This has been proved by the results of carefully conducted experiments at our own and other experiment stations, and is also borne out by the experience of practical dairy farmers in all parts of the country during the past dozen years or more. At the present time there are eight different makes of milking machines on the market in this state (California), any one of which may be confidently expected to do satisfactory work in the hands of a careful operator. Failures in machine-milking have been rather numerous in the past, from a variety of causes, chief among them being perhaps the fact that the owner did not fully understand operating and keeping them clean, or of following up the machine-milking promptly by careful stripping. Of late years the failures have, however, greatly decreased in number, as the machines have been further improved in simplicity and efficiency, and the conditions for their successful operation are better understood. It is safe to say that a dairyman who introduces machine-milking into his herd with any standard make of machine on the market is now as much on trial himself as is the machine. The best remedy for failures in machine-milking is to become thoroughly familiar with the machine adopted, its adaptation to individual cows, and the requirements for keeping it in a mechanically perfect and sanitary condition.

Milking machines have not, as yet, been as generally adopted in the dairy districts of our country as, for instance, in Australia and New Zealand. According to reliable reports received, there are but few dairies of over thirty cows in these countries that are not milking by mechanical means, and many smaller dairies are likewise using milking machines. With the present scarcity of reliable, efficient milkers, and the high cost of labor, feed and dairy supplies, the necessity of reducing the cost of milk production becomes greater than ever before. It is possible to do this by either or both of the following methods: By increasing the production of the dairy herd through culling, use of good purebred sires and modern methods of feeding and management, or by reducing the operating expenses of the dairy. The milking machine is an important aid in reducing these expenses. The days of hand-skimming of milk are long gone by, and everything points to the fact that we have now entered upon an era of machine-milking. It is the next step in the economical efficient management of fair-sized or large dairies, and the experience of other dairy countries in regard to milking machines will undoubtedly be duplicated in this country.

Milking Machines in Operation

The investigations of this and other experiment stations have shown that milking machines properly operated do not injure the udders of cows, or cause garget or other udder diseases. Udder troubles are often due to causes that are not in any way associated with the method of milking practiced; they will occur at times in machine-milked, as well as in hand-milked herds, although less frequently when ordinary care is taken in operating the machine. The best way to avoid troubles of this kind in case of machine-milking is to remove the machine as soon as no more milk comes down, and to finish the milking by hand without unnecessary delay. Prompt and careful hand-stripping is a most important factor in successful machine-milking, even though the machine used leaves only very small amounts of milk to be stripped.

In the selection of the particular make of machine, a number of points should receive consideration, besides first cost and nearness to service agency, such as cost of upkeep, depreciation, simplicity of mechanism and of cleaning. The various machines on the market differ considerably with regard to these points, and it is evident that no one machine stands out above the others in all respects; also that any farmer with a fair degree of intelligence and resourcefulness need not hesitate to install a milking machine in his dairy if he keeps twenty or more cows. In many cases it may prove advantageous to adopt machine milking also in dairies of twelve to fifteen cows, as it will make the owner less dependent upon or entirely independent of hired help. The actual saving in the cost of milking by machine over hand-milking is, however, greater in the case of large herds than with small ones and will, in general, be in proportion to the size of the herd. It has been shown that with proper care and with careful, prompt hand-stripping, milking machines will have no appreciable effect one way or the other on the dairy production of the cows, or on the general welfare of the herd, but they will not long render satisfactory service with careless handling and lack of cleanliness. For this reason, milking machines are most likely to prove successful when operated by the owner himself, or by help directly interested in their success.

Dairying in Wisconsin

Enroute in Wisconsin, November, 1919.

Dear Editor: Wisconsin dairymen who are milking grade Holsteins are rapidly going into the purebred stock. This fact impresses one in traveling among the farmers and in looking for high-grade stock for western shipment. At the same time these farmers are reluctant to dispose of their good high-grade milkers. Many of the farmers are going into the purebred Holsteins gradually, which is really the only way for the small farmer with limited capital, as he can sell a few grades at a time and replace them with purebreds.

The Wisconsin dairy farmers are feeding better than they have ever fed, realizing that starvation rations cost the most. Silos are the main "feed bank" for Wisconsin dairymen. There are approximately 75,000 silos in the state this winter. Shelter also puts dollars into the milk pail for Wisconsin farmers and lack of it loses many dollars for our dairymen in the west. As early as October 1 most of the herds were being kept in the barns at night and fed some sort of roughage, usually silage. Many of the herds will be kept in the barns day and night before long and it is the general practice to keep the producing cows entirely housed for six to seven months.

With prospects good for milk to reach a level of $4 per cwt. on 3.5 per cent basis delivered at condenseries or cheese factories, most farmers are reluctant to dispose of cows that will milk during the winter, although many well-bred heifers and young cows are offered for sale, especially from herds where the barn accommodations are not sufficient to house the numbers kept through the summer.

Young stock are usually more plentiful in the fall and better bargains can be made for short or long yearlings at this time than at other periods of the year. Calves are usually a good buy in the late fall although it is more

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difficult to ship young calves without danger of loss on account of weather conditions.

Practically every dairying community of any prominence in Wisconsin boasts of at least one cow testing association and in some localities there are two or more with keen interest and competition for high honors in milk and butterfat production. . In such districts, where purebred sires have been used for years, one can expect to secure the best and highest grade cows obtainable of any of the dairy breeds.—EARLE G. REED, Agricultural Agent, C., B. & Q. and C. & S. Railroads.

Colorado Jersey Champion

Colorado boasts of a new Jersey champion, Gray Canoness 295052, owned by Bonvue Farms company of Denver and Golden. She is a granddaughter of the famous show bull and sire of great producers, Raleigh's Fairy Boy. As a four-year-old she has completed an official test, producing 8,622.10 pounds of milk and 465.26 pounds of fat. We are taking the figures given out by the Bonvue Farms company, which differ slightly from those sent out by the American Jersey Cattle club to the press. The record is the best senior four-year-old Jersey record ever made in Colorado and is also the second highest state record, the highest being made by Financial Countess in 1908, which at the time was a world's record for butterfat.

Mr. C. H. Hinman, head of Bonvue Farms, furnishes the following information: "This cow calved in May, 1918, on the farm of H. C. Young at Lincoln, Neb. The summer of 1918 was the hottest and dryest ever experiencel in southern Nebraska. In September of that year she was shipped to Kansas City and placed in a sale where she was bought by us and shipped to our ranch at Golden. She calved again April 31, 1919, just fifteen days after the completion of the yearly test. She completed this test as a four-year-old. In other words, this cow at less than mature age, went through a hot, dry summer, was twice shipped and had to be acclimated here, carried a calf nine months and in spite of these handicaps made the record above given."

Gray Canoness was imported from the Island of Jersey in dam, Fair Lady Sally. Raleigh's Fairy Boy was the sire of Fair Lady Sally. He was grand champion at the National Dairy show in 1910 and is the sire of 49 Register of Merit daughters.

Morny Cannon's Love, a half-sister to the sire of Gray Canoness, is about to complete her year's test and the indications point to another sensational record.

Holmes Shorthorn Sale

W. O. SAUDER, County Agent.

The greatest sale of registered Shorthorn cattle ever staged in the San Luis valley must be credited to J. K. Holmes and Bronaugh & Johnson. A large tent was provided for the sale having ample seating capacity about the arena. The auctioneers were Col. Al Newmyer of Center and Col. Burgess of Oklahoma. A total of 35 cows, calves and bulls were sold which brought $10,545. The J. K. Holmes' offerings, mostly calves from the great herd bull Villager's Prince, brought a total of $6,450, or an average slightly over $400 each. The top of the sale was a clean, smooth dark roan calf born January 26, 1919. She was the grand champion female at the Saguache County fair this year and was the get of Villager's Prince on a Cruickshank imported foundation. She sold for $800. Four others of the Holmes herd sold for $500 or better.

The Bronaugh and Johnson cattle were shipped here from Oklahoma and were, with one exception, all red stuff. These were not in as good flesh as those of Holmes, owing to frequent handling and shipping from a great distance and therefore did not bring the prices they should have. Sixteen of these brought $3,710, or an average of about $232 per head.

The sale indicates what the valley is coming to. This sale was the hardest blow to scrub cattle in the valley ever received. It will do more for the building up of our livestock than all the preaching and teaching that can be done by any individual, association or school. It showed conclusively that good stuff will bring the money and that is the deciding factor with any farmer or stockman. Following is a list of the sales:

J. K. Holmes' Offerings

Lady Gwendoline to Mrs. Dacre Dunn, Center	$800.00
Village Dale 746721 to J. E. D'Avignon, Center	680.00
Villagers Victor to Dr. O. P. Shippey, Saguache	500.00
Royal Admiral 827143 to C. D. Wadsworth, Center	350.00
Lochiel to W. S. Maurice, Center	355.00
Royal Marshall 801710 to W. J. Sproul, Center	600.00
Village Banker to C. D. Wadsworth, Center	460.00
Villager's Robin to Bert Turner, Center	205.00
Clover Blossom 741395 to J. E. D'Avignon, Center	300.00
Fair Queen 2nd 801711 to Newmyer Bros., Center	300.00
Princess Valentine 2nd to Newmyer Bros., Center	370.00
Sweet Clover 606988 to Newmyer Bros., Center	310.00
Blush 2nd 247475 to J. E. D'Avignon, Center	495.00
Scottish Rose 665504 to Mrs. Dacre Dunn, Center	300.00
Rose Robin 247484 to J. L. Hurt, Center (calf at foot)	425.00

Bronaugh & Johnson's Offerings

Harriett 675257 and calf at foot to John Mitchell, Center	$450.00
Julia 3rd 729556 to Col. Burgess, Oklahoma	185.00
Mildred 716710 to J. L. Hurt, Center	210.00
Viola Vinewood 796095 to Dr. O. P. Shippey, Saguache	220.00
Cotton Creek Lady to Dr. O. P. Shippey, Saguache	220.00
June 253899 to Mrs. Dacre Dunn, Center	300.00
Lily 254900 to Mrs. Dacre Dunn, Center	300.00
May Alice 200666 to J. E. D'Avignon, Center	230.00
Dora 757740 to J. L. Hurt, Center	110.00
Lady Florence 692086 to J. L. Hurt, Center	150.00
Lady Cowslip 159129 to Mr. Yoder, Del Norte	335.00
Jewel 253898 to C. D. Wadsworth, Center	260.00
Village Arrow 589681 to Frank Means Saguache	200.00
Diamond 253897 to W. J. Sproul, Center	200.00
Shady Lane 253903 to Clarence Hocker, Center	240.00
Calf of Diamond 253897 to G. E. Newmyer, Center	100.00
No. 39 to J. L. Hurt, Center	210.00
No. 34 to Clarence Hocker, Center	175.00

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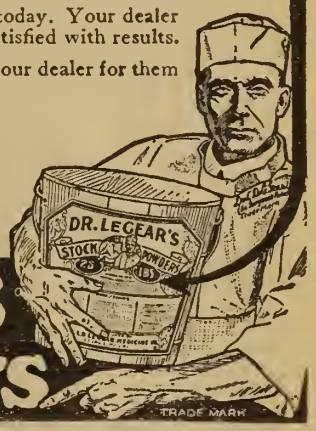

Dr. LeGear's Stock Powders

The Kansas City Royal

The notable prize winnings at the Royal are of interest in that some of the animals have been winners at the Denver show in the past. The Hereford bull, Repeater the Fourth, who will be remembered as the grand champion bull at Denver in 1919, was the winner of senior and grand championship at the recent Royal. He is owned by Harris & Son of Harris, Missouri. The junior champion bull was Beau Blanc Visage 1st, owned by E. S. Moser of Olathe, Kansas.

The senior champion female was Yerba Santa, owned by Robt. H. Hazlett, Eldorado, Kansas. The junior and grand champion was Belle Woodford 28th, owned by Col. E. H. Taylor Jr., Frankfort, Kentucky.

In the Shorthorn classes, the senior champion bull was Violet's Dale, owned by H. Rees & Sons of Pilger, Nebraska. This bull was the grand champion Shorthorn at Denver last January. The junior and grand championship was awarded to Marshall Joffre, owned by J. W. McDermott of Kahoka, Mo.

Senior champion female was Hercules Topsy, owned by Rees & Sons; junior and grand champion female was Lady Supreme, owned by W. A. Forsythe & Sons of Greenwood, Mo.

Among the western breeders exhibiting at the show were the Wyoming Hereford corporation of Cheyenne, J. D. Canary & Son and W. N. W. Blaney of Denver. All of these herds were ribbon winners in many classes.

Victoria and Her Litter on Pasture

A Remarkable Poland China Sow

This is a picture of Victoria 649864, a noted Poland China sow and her litter, photographed on pasture on the owner's farm, Mr. F. L. Toliver, at Fort Collins, Colo. Victoria was farrowed August 8, 1916, and weighed about 600 pounds when this picture was taken. She was bred by R. G. Maxwell of Fort Collins, from whom Mr. Toliver bought her with a litter of ten pigs, of which she saved eight: five sows and three boars. Mr. Toliver sold the boars and one sow pig, keeping four sows, which brought him 30 pigs. In September Victoria brought another litter, and each of the four gilts farrowed, adding 28 pigs to his herd. The picture shows Victoria's litter farrowed last spring, seven pigs being saved, and she will be ready soon to bring forth another litter.

Victoria and the four gilts which came with her are credited with 80 pigs since Mr. Toliver bought her, eighteen months ago.

A portion of her offspring went to the Larimer County Pig club boys, seventeen being sold as weaners in one week at $16 each .

"People who come to the farm to buy greatly admire Victoria," said Mr. Toliver, "and they pick up her offspring, confident that they are getting something good. I have shipped out several of her boar pigs to various parts of the state and several to Wyoming, as a result of my advertising in Western Farm Life. I am always pleased when a farmer writes me that he saw my ad. in Western Farm Life, because it convinces me that it pays a breeder to advertise liberally and constantly."

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H. R. H., The Rider"

Continued from Page 15

his arm about the girl beside him and gently forced her to the floor.

"You mustn't take such chances," he exclaimed. "My God! they might have hit you." His fingers closed tightly upon her arm, and the contact sent a thrill through the man's frame. "Go back to the chimney," he said hoarsely. "May God forgive me for exposing you to this danger, for I can never forgive myself!"

You are a most remarkable brigand," said the girl; "your actions belie your reputation. Are you always as solicitous of the welfare of your victims?"

Prince Boris laughed. "I am rather beginning to believe," he said, "that I am a remarkable brigand"; and then seriously, "I never before captured a goddess."

The Princess Mary rose and shook his hand from her arm.

"I will guard this window," she said; "you take the other. There is no use objecting, we shall all be killed if we do otherwise," and she crossed the room to one of the windows, where she fired out upon the figures creeping through the brush toward the shack.

"Be careful!" he called back to her over his shoulder, and then quite irrelevantly: "Why couldn't you have been a European princess instead of an American queen?"

The bandits had now settled down to a determined siege. The bullets were thudding against the walls or entering the windows with a businesslike regularity which reflected the inflexible purpose of the attackers. It was only occasionally that Boris could find in the flash of a gun even a fair target for a return shot, and he would not waste his precious supply of ammunition without some likelihood of a hit.

The girl, upon her side of the room, fired with equal care and coolness, and as the man beard the report of her revolver from time to time, something stirred in his heart which no other woman ever had stirred before.

"Ah!" he thought, "what a queen she would make!"

And the girl, oblivious alike of his thoughts and his identity, found herself regretting that he was but an unhung outlaw.

Presently there was a luil in the firing, and a voice bellowed out of the darkness, demanding that they surrender and promising freedom for the man and a fair ransom for the two women.

The replies of both the man and the girl were identical and simultaneous. Two shots rang out from the interior of the shack as the voice of the brigand ceased, and immediately the battle recommenced with increased violence. As the bullets shattered the few remaining remnants of splintered glass from the window-panes, the girl crawled across the floor to the man's side.

"Give me some more ammunition," she whispered. "I have used all that was in that belt."

He turned and placed a hand upon hers where it rested on his arm.

"Go over to the chimney and hide," he replied: "I have no more revolver ammunition, and only a few rounds for the rifle."

She made no move to obey him, nor did she remove her hand from beneath his.

"Hurry," he said; "you might be shot here —uselessly."

"You are very brave," said the Princess Mary. "I do not understand why you, the Rider, should risk your life in battle with your own men to protect me."

The man leaned closer to her. From the darkness of the night without came a sullen roar as the brigands, sensing the diminution of the firing from within, rose to rush the shack.

"It can do no harm to tell you now," he said, "for death is very near, for me at least—there was a reason which was based on honor; but had that reason not existed, there is another which would have made it a joy for me to give my life for you—would you like to hear it?"

And though the Princess Mary of Margoth knew the words that he was about to speak, and though she knew him for a brutal robber, for an outcast, for a pariah, she whispered: "Yes."

"Because I love you," he said, and raised her fingers to his lips.

And then a volley rattled loudly about them, he pushed her to the floor in the shelter of the log wall, and, rising, fired upon the charging ruffians without.

On they came, though some fell, until they battered at the door with their gunbutts; smashed at the sturdy timbers that at last splintered and gave, while within the dark interior Prince Boris of Karlova stood with hot rifle pumping his remaining cartridges through the panels into the cursing, screaming mob without.

The door was swinging in upon its broken hinges when, of a sudden, there came a sharp volley from the edge of the ravine, a volley which was followed by the clear, piercing strains of a bugle sounding the charge!

Mary of Margoth leaped to her feet.

"The guard!" she cried. "Stefan carried the word to Demia, and the guard has come!"

A moment later the brigands were fleeing before the shots of the royal troopers, and as an officer stepped into the interior of the little room, a flashlamp in his hand, he saw a tall young man standing in the middle of the floor, an empty rifle dangling in his right hand and blood flowing down the side of his face from a flesh wound across his temple. Behind the young man stood a much disheveled girl, and as the eyes of the captain crossed to her he sprang forward, and going upon one knee raised the girl's fingers to his lips with a fervent: "Thank God that your royal highness is unharmed."

Boris of Karlova turned wide and wondering eyes upon the tableau at his side. "Your royal highness," he muttered to himself, and then other officers and troopers pushed into the room in their midst, a bloody and ragged prisoner.

"There he is!" shouted the prisoner. "There he is! There's the man you're lookin' for—the Rider!" and he pointed a grimy finger at Prince Boris of Karlova. "An' I want the reward that's been upon his head these many years."

The officers pressed forward to seize the renowned bandit, and at the same time Princess Mary of Margoth stepped between them and their prey.

"Wait!" she said. "He is indeed the Rider; but this night he has won the gratitude of Margoth, for at the risk of his life he has fought for me and saved me from these ruffians. Let him go, captain."

"Who are you?" asked Boris of Karlova, turning wondering eyes upon the girl. "I thought that you were Miss Bass, the American."

"I am Mary, Princess of Margoth," she replied, "and—I am your friend, too, no matter what or who you are."

"I am sorry your highness," interrupted Captain Polnik, "but I must place this man under arrest and take him back to Demia. Upon his hands is the blood of many innocent victims. He is a menace to the safety of the roads and to the people of Margoth. His defense of your highness will doubtless win him the clemency of the court before which he must be tried for his crimes, so that instead of expiating those crimes upon the gibbet he may hope for the lesser punishment of imprisonment for life."

Boris of Karlova gave a long whistle. Imprisonment for life! Of course by divulging his identity he could escape all that; but the scandal! No! he dared not tell them who he was—he must wait and find a better way out of his difficulty, and so it was that the Crown Prince of Karlova was led back to the capitol city of Margoth and thrown into prison within sight of the palace where Princess Mary took, with unwonted meekness, a severe lecture from her royal sire.

CHAPTER XIV

As the true Rider dropped to the shot from Hemmington Main's revolver, the terrified priest, seeing in his own presence upon the scene of the crime a sufficient evidence to implicate him in the assassination of the crown prince, slunk from the lodge, mounted his horse and galloped madly toward Sovgrad.

On the floor of the breakfast-room he had just quitted, Mrs. Abner J. Bass and two servants knelt over the prostrate form of the wounded man. Hemmington Main stood where he had when he had fired the shot, and now Gwendolyn Bass crossed the room and took her place at his side, laying a trembling hand upon his arm.

"Oh, Hemmy," she whispered, "what will they do to you? It is awful!"

"I don't care what they do to me," he replied miserably. "They'll probably hang me eventually; but it's worth it to have saved you from such a fate," and he motioned toward the man upon the floor, a grimace of disgust accompanying the gesture.

Mrs. Bass turned toward them. "He lives," she said. "It may not be a fatal wound, after all. Heaven grant that it is not."

As she spoke two men entered the neglected doorway of the royal hunting-lodge, saw the group in the breakfast-room, and entered. One was a low-browed, evil-looking fellow; the other a red-faced, well-fed priest. The former was the first to speak and announced their presence to the tense, preoccupied actors in the little tragedy upon which they had burst.

"Wot's here?" he demanded, crossing to the side of the wounded bandit.

"Prince Boris has been shot," said Mrs. Bass. "It was accidental. Some one must go for a physician at once."

The man looked quickly about at the others in the room as he heard the Rider described as Prince Boris. No one contradicted or corrected Mrs. Bass. Then one of the servants spoke up.

"The priest who was here has, I think, gone for help," he said. "He mounted and rode away in the direction of Sovgrad immediately after the — ah — accident. Doubtless he will inform the palace officials," and he looked meaningly at the low-browed newcomer.

"How bad is he hurt?" asked the fellow.

Mrs. Bass shook her head. "I do not know—he is still unconscious."

The man thought for a moment, then he turned to the priest who had accompanied him. "We've got to get him away from here," he said.

The priest nodded. The servants seemed relieved. The Americans could not but wonder at the heartless apathy of the royal retainers. No word of regret at the shooting of their prince had passed the lips of any of them, nor a single menace for the man who had shot him.

At the command of the priest's companion two of the servants lifted the unconscious man and carried him from the lodge, where they placed him in the arms of the low-browed one, who had preceded them and mounted his horse in readiness to receive the "prince." The priest meanwhile clambered laboriously into his own saddle, and presently the trio were lost to sight in the darkness.

The Americans, who had come to the veranda to watch the departure of the silent, mysterious company, now returned to the interior of the building, the royal servants following them. Mrs. Bass turned toward Hemmington Main.

"Hemmington," she said, "we are in a frightful predicament. At any moment they come from Sovgrad. What are we to do? You have blasted what was, a few moments ago, my dearest ambition. I should feel resentment and anger; but I do not. Something, perhaps the shock of this unexpected tragedy, seems to have awakened me to a realization of the foolishness, yes, and the wickedness of the thing I was attempting to force Gwendolyn into. It has taught me how great your love for my daughter must be, that you would willingly face the consequences of an attack upon a prince in his own country to protect her from him and from me, and save her from an unholy union in which it is impossible that there could have been love upon either side.

"I realize that the fault is all mine, Hemmington, but the thing is done now and cannot be undone. All we can do is to work together to save you from the consequences of my foolishness. There is a motor-car outside, and the Margothian border lies but a few miles to the east."

Hemmington Main could not have been more surprised if the King of Karlova had ridden up and decorated him for shooting the crown prince. But though he felt his astonishment, there was no time now to waste in useless expressions of surprise or thankfulness. He turned toward the servants—would they attempt to detain him? Unquestionably they would. As far as he could discover none of them was armed. Hemmington Main placed himself between the women and the servants, then he drew his revolver and covered the latter.

"Go out to the car," he said to Mrs. Bass and her daughter, and then to the servants: "If you give an alarm or attempt to prevent our escape you'll get precisely what your royal master got. Do you understand?"

The oldest of the servants, a venerable-looking butler, with the mein and dignity of a Roman emperor, permitted his face to relax into as near the semblance of a smile as his atrophied muscles would permit.

"You need have no fear, monsieur," he said, "that we shall attempt to detain you. Nothing would suit us better than to have you safely across he border into Margoth, should it happen that the crazy priest has really gone to the palace with the story of what transpired here tonight. Then, surely, we shall have enough to explain without having to explain you and these two ladies."

The American evidently revealed his incredulity of the man's sincerity in the expression of his face following the butler's words, for the latter hastened to reassure him.

"There is much in this matter which you do not understand, and which I may not divulge; but I give you my word, monsieur, that His Royal Highness Prince Boris of Karlova will reward me well if I succeed in getting you out of Karlova before you fall into the hands of the officers of the king, his father."

"No," said Hemmington Main, "I don't understand; but I'm willing to take your word for it so long as you'll all remain indoors until we are well upon our way."

"Certainly, monsieur," replied the servant. "Good night, monsieur, and good luck!"

"Good night," said Hemmington Main, and waving the two women toward the doorway he backed out of the room and passed forever from the royal hunting-lodge of the Crown Prince of Karlova.

The limousine stood in the driveway; the royal chauffeur was at the wheel. Main helped Mrs. Bass and her daughter into the tonneau, and then took the seat beside the driver.

"To Demia," he said, "and let her out."

"Yes, monsieur," replied the chauffeur.

(To be continued)

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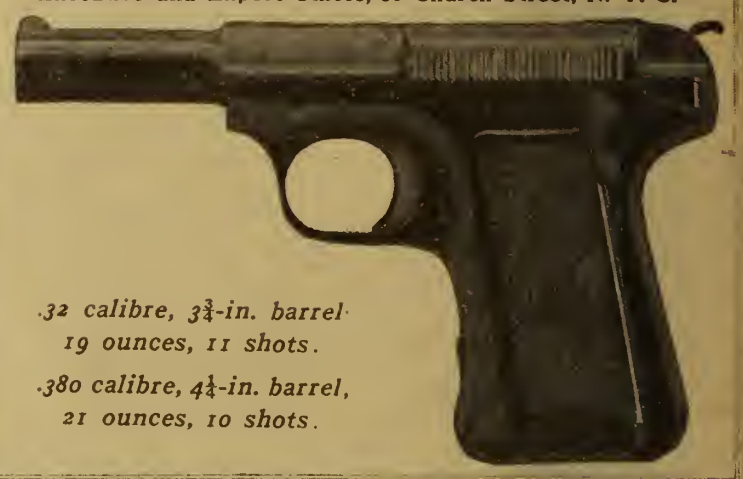

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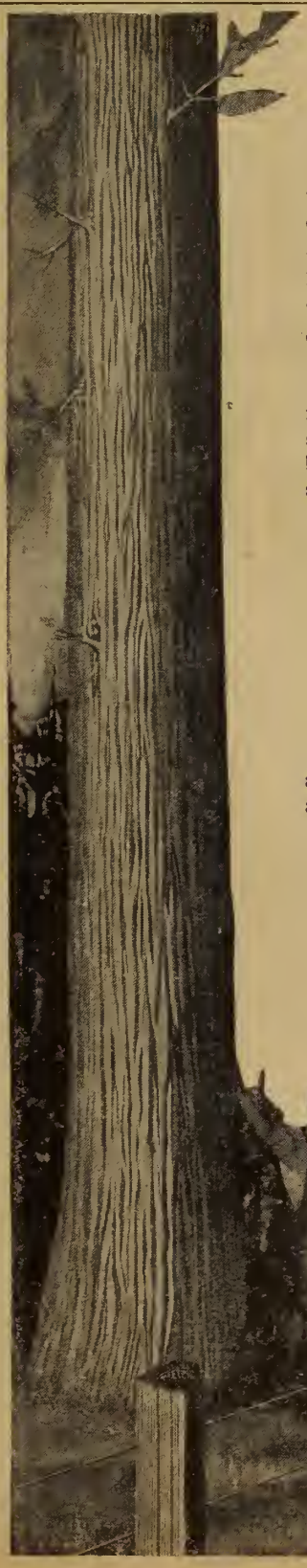

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Skinning has two main divisions—"casing" and taking the pelts off "open."

The following animals should be cased: muskrat, mink, skunk, opossum, coyote, wolf, fox of all kinds, civet, house cat, lynx, lynx cat, ringtail cat, fisher, marten, otten, wolverine and weasel.

In casing, begin at the root of the tail and cut the skin down the back of the hind legs. Rip the skin carefully from the hind legs. Slit the tail part of the way up and remove the tail bone. With a sharp knife cut the skin loose about the eyes and nose.

Then suspend the carcass by the hind legs and with an easy, downward motion work the pelt loose, turning the fur side in as you peel it off.

Cut the tails off opossum and muskrat, as they are worthless, but leave them on all the other animals. The head should never be cut off; always skin and stretch it carefully. The feet may be cut off rats, coon, opossum, skunk, civet, foxes of all kinds, mink, marten, fisher, ermine, but such animals as bears, mountain lions, wolves and wolverines should have the feet skinned out to the ends of the toes. Always remove the bones from the feet and also the tail bones in wolf and red fox. Often when the bone is left in the tail of red fox, the tissue around the bone disintegrates and decomposition sets in. If you use these precautions it will increase the value of your furs.

Skins of raccoon, badger, bear, wildcat and beaver should be taken off open. Cut them down the center of the belly from the mouth to the tail, and slit down the back of the hind legs and the inside of the front legs. Work the skin off gradually and evenly.

After you have removed the skin from the carcass, you should scrape the pelt clean of all excess meat and fat. In scraping do not use a sharp knife and be careful not to cut through the hide. If you scrape too closely it will injure the roots of the furs. Also remove all mud, burrs, dirt, etc., from the fur. When the pelts have been skinned and thoroughly cleaned they are ready for the stretchers. Stretching should follow as soon after skinning as possible.

Carpenter Herd Increased

The Carpenter Cattle Company, of Greeley, Colo., recently received from the blue grass region of Kentucky an importation of pure Bates Shorthorn cows to be added to their extensive herd of this breed. The lot included besides 13 cows also three bulls. The Carpenter herd was already strong in the Barrington, Wildeyes and Kirklevington lines of the Bates breed, while the importation includes mostly members of the Duchess, Oxford and Roguish Eyes lines, and adds an infusion of new blood to the herd. It is said that the addition of these new individuals gives the Carpenter herd the greatest number of pure Bates breeding cows to be found in any herd in America, thereby fulfilling the original design of the founder to build up the foundation herd of the West in this rare strain of cattle.

The Bates Shorthorn cattle were originally developed by Thomas Bates, of Kirklevington, England, in the forepart of the 19th century. His life work was devoted to the development of Shorthorn cattle of pronounced milking qualities as well as excellent conformation. The accomplishment of his design is evidenced by the fact that the Bates Shorthorn cattle have commanded the highest prices of any members of the Shorthorn breed, the high mark having been reached at the famous New York Mills sale. Realizing the excellence and superior qualities of the Bates cattle, the beef breeders began the absorption of the Bates Shorthorns during the 90's, with the result that but few pure Bates herds remain in the world. The Bates Shorthorns are the foundation blood of the milking Shorthorns of both England and America. It is an indisputable fact that over 75% of the milk daily sold in London comes from milking Shorthorn cows, although the neighboring islands of Jersey and Guernsey are British possessions, and the Holstein cattle inhabit the region just across the English Channel. In the competition between breds the Shorthorn predominates more than three to one over all others in the development of milking cattle.

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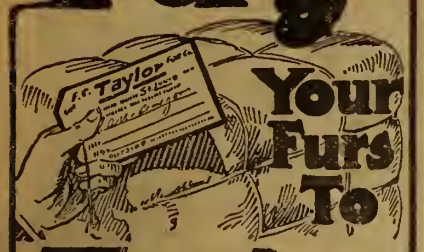

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KANSAS CITY ROBE & TANNING COMPANY
219 Main Street Kansas City, Mo.

family of that breed stand out as distinctly for both milk and beef as do the Scotch Shorthorns for beef principally.

During recent years the farmers of the United States have re-awakened to the extreme value of the dual purpose milking Shorthorn as a profitable farm animal. The high price of beef has called for a cow that will not only give a large supply of milk, but will as well produce calves, 50% of which may be converted into baby beef or developed for heavier export beef trade, and the Milking Shorthorn is the only animal thus far developed which satisfies this demand. In the farming regions of the Rocky Mountan and Great Plains area, there is an ever increasing demand for this class of cattle. The beet tops and field roughage in the irrigated sections demand the production of animals upon the farm which may be utilized to consume this roughage to avoid the necessity of speculation by the farmer in annual purchase, fattening and sale of feeder animals. The farmer must have a cow with milking qualities and capable of producing beef steers in order that he may realize the full value of his agricultural products. In the dry farming regions, with their uncertainties of crop production and climatic changes, the more highly developed dairy breeds frequently prove unsatisfactory and the permanent prosperity of the inhabitants of these regions demands a dual purpose animal physically capable of adapting itself to unfavorable conditions and able to weather periods of crop shortage and general depression.

Corn, primarily for fodder or silage, is probably the surest crop in the dry farming regions, and is the most profitable if consumed upon the property for both milk and beef.

The Carpenter herd of Bates Shorthorns was founded to supply the needs of this section of the country. The primary object has been to supply bulls for farmers' herds, and the cattle have been developed under ordinary farm and short grass conditions in order that the animals sold may not require more than good ordinary care by the purchasers. The first crosses upon cows of any breed bring good results, while the second crosses bring a predominance of Bates Shorthorn characteristics. By this method the farmers are able to build up their herds at small cost, especially where several neighbors combine to purchase a bull for their joint use.

Demand for Rabbit Skins

In recent years several kinds of fur, formerly of so little value as to offer no inducement to the trapper, have been raised in price, and consequently collecting them has been made profitable. Rabbit pelts, which are extensively used by hat makers, are among these products. One Eastern concern has announced that it will need 10,000,000 rabbit skins during 1919 and 1920, and it desires as far as possible to secure them from American sources. This is an indication of a market which should interest many a farmer boy. This fall and winter dried, cased rabbit skins will probably bring a reasonably good return. They are sold by the pound, which will contain seven or eight skins. Many farm boys can readily acquire, in the course of the winter, large numbers of skins which will net them a tidy sum and, in addition, they will have the pleasure of trapping experience.

Pit Silos in Wyoming

Members of the Niobrara County (Wyoming) Farm Bureau are constructing a large number of pit silos. Several successful demonstrations have been held by the county agent. Previous to one of the demonstrations the collar of one silo had been constructed and the pit dug several feet.

The farmers were shown how to plumb the walls by means of a "reamer," how to mix cement and apply the same to the walls, and how to make a hoist. A second silo was then started, the collar being laid out, the pit dug and the collar poured. In this manner all the steps in putting down a pit silo were demonstrated, much to the satisfaction of the farm bureau members present.

$77.50-One Week's Catch

By a 14-Year-Old Boy

Last winter one boy near Greenwood, Nebr., during the week his school was closed, trapped and sent us skins for which we paid him $77.50. At this year's prices, his week's work would have made him over $100.

One Farmer Sold over $3000 of Muskrats

Last season one Nebraska farmer and his boy sold us over $3000 worth of Muskrat Skins from two ponds on his farm. This year the same number would bring him over $4500.

We Pay the Highest Prices and Send the Check by Return Mail

We are the largest hide and fur house in Nebraska and one of the largest in the entire Northwest. We are manufacturers and tanners and can afford to pay the very highest prices. We are within easy reach of any trapper in the West or Northwest and your shipments reach us quickly and in good condition.

We charge no commission, we grade your furs honestly, and we always pay all we quote. Letters from many of our shippers tell us that we often pay at least one-third more than they received from houses farther East or South.

(4) **Big New Lincoln Trapper's Guide Free**

It tells the kind of traps to get, where and how to set them, what kind of bait to use for various animals, how to kill and skin, and how to ship to get the highest prices. With this book anyone can make a success trapping. Get this Book, our Price List and Shipping Tag—and you're ready. Send your name today.

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"If ever there was a time that you should know the facts about raw fur values, it's NOW.

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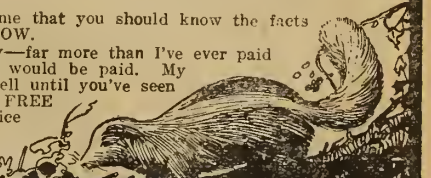

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There's one sure way to get the most for your money. Know what you want before you go to buy.

Read Advertisements! The advertisements you read will tell you what is new and good. They will give you the latest ideas and improvements. They will help you to live better and dress better at less cost.

If you think of it, you'll be surprised at the world of interest and the wealth of new ideas you'll find in reading advertisements.

Advertisements are the record of progress. They are the report to you of the manufacturers who work for you, telling what has been accomplished for your benefit.

The Farm Home

MISS ERMA DOUGLASS

Questions about home problems promptly answered by letter and through the magazine. Address all communications to Editor Home Department, Western Farm Life, Denver, Colorado.

A Christmas Carol

There's a song in the air!
There's a star in the sky!
There's a mother's deep prayer
And a baby's low cry;
And the star rains its fire while the beautiful sing,
For the manger of Bethlehem cradles a King.

There's a tumult of joy
O'er the wonderful birth,
For the virgin's sweet boy
Is the Lord of the earth.
Ay! the star rains its fire while the Beautiful sing,
For the manger of Bethlehem cradles a King.

In the light of that star
Lie the ages impearled;
And that song from afar
Has swept over the world.
Every hearth is aflame, and the Beautiful sing
In the homes of the nations that Jesus is King.

We rejoice in the light,
And we echo the song
That comes down through the night
From the heavenly throng.
Ay! We shout to the lovely evangel they bring,
And we greet in his cradle our Saviour and King.

—Josiah Gilbert Holland.

Attainments and New Year's Day

Along about the twenty-seventh of December some of us begin worrying over all the things we planned on last January first to do this year, and didn't get done; and all of the sins we resolved firmly never to commit again, and yet they seem as much of a habit as ever. It's really sad, but it's true that if we ever finished in one year all the things we planned on doing at its very beginning day, there wouldn't be anything left to do but just fold our hands permanently and expire with a beatific but woebegone smile. There wouldn't be any use left for hope—for we'd know that it could be done again, and life would be reduced to the deadly certainty of perfect ability. As it is, we know we never have done it, but we're always ready with the renewed ardor that perhaps it may be put through next time.

If you know that homely, human little essay of Stevenson's, "El Dorado," you know what I'm trying to say. If you don't, I wish I might quote every word of it right here. But listen to this—

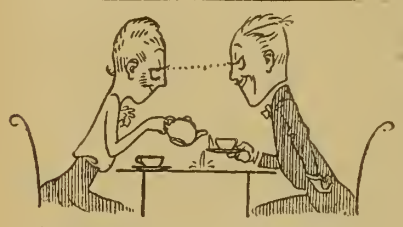
"To be truly happy is a question of how we begin and not of how we end, of what we want and not of what we have. An aspiration is a joy forever, a possession as solid as a landed estate, a fortune which we never can exhaust and which gives us year by year a revenue of pleasurable activity." * * *

"There is only one wish realizable on earth; only one thing that can be perfectly attained: Death. And from a variety of circumstances we have no one to tell us whether it be worth attaining." * * *

"Little do ye know your own blessedness; for to travel hopefully is better than to arrive, and the true success is to labour."

There is a use after all for the resolutions, for they mean hope, and hope means the chance for more work, more joy, and more mistakes perhaps,—but the chance to keep right on living and trying to attain something we call really worth while, and the trying is more than the attainment.

Then here's a Merry Christmas to you to celebrat ethe joys that have come this year,—and a Happy New Year to live the next ones ahead, and many of both of them!—E. D.



When you make your tea, the tea-flavor develops first—and that's what you want: tea-flavor, not tannin. Tannin then comes along and smothers the tea-flavor.

Common tea is older leaves with lots of tannin and very little tea-flavor.

Good tea is young tender leaves with abundance of fine tea-flavor and very little tannin.

That's why a pound of fine tea makes more cups of real tea-flavor than common tea does. And the flavor is infinitely better.

Schilling Tea costs ⅓ cent per cup for rich fine invigorating tea.

There are four flavors of Schilling Tea—Japan, Ceylon-India, Oolong, English Breakfast. All one quality. In parchmyn-lined moisture-proof packages. At grocers everywhere.

A Schilling & Co San Francisco

Letting Christmas Happiness Depend Upon Ourselves

The writer once knew a woman who manufactured her fancy cooky cutters out of tin cans, with the aid of an old pair of shears and some pliers. You may think they wouldn't cut a cooky you could recognize, but they did. The most fascinating animals, and trees, and stars came out of her oven, and there wasn't a Woolworth store nor a real tin shop within fifty miles. Of course, this woman had a "handy man about the house" backed into a corner—utterly helpless—but that's another story.

Now we will admit that fancy cooky cutters haven't a great deal to do with this article. But they do serve to illustrate this one point,—the happiness you get or the joy you give doesn't depend on how much money you spend, nor how many things you buy at a store at Christmas or any other time. They do depend on a certain amount of loving thought you give to the friends about you. That thought can go into a basket of our extra fine cookies that nobody else makes quite as well, or some of our canned fruit, or kodak pictures that only our camera and family can take.

We may think that gifts are impossible from time and money standpoints. But did you ever stop to think that a letter from you to a friend may be made as much a gift as any material thing you could offer? And it certainly takes thought.

We want gifts this year, not to show a particularly aesthetic taste in their choosing, nor that they shall represent a large amount of money or time, but they must depend on us and be part of us.—E. D.

Home-Made Christmas Candies

The youngsters will usually enjoy the Christmas candies more and they will certainly be better for them if they are made at home. These are a few tried and true recipes for the simpler candies which will taste good whether you have one pound or twelve:

Fudge

Heat two cups of sugar and two-thirds of a cup of milk to the boiling point, add two squares of chocolate and stir constantly until the chocolate is melted. Boil eight minutes; add three level tablespoons of butter and boil seven minutes; remove from the fire, add one teaspoonful of vanilla and beat until the mixture is creamy and sugars around the edge of the saucepan. Pour into buttered pans, cool slightly, then mark in squares.

Nut Bar

Put sugar in a perfectly smooth granite saucepan, place on range, and stir constantly until melted to a syrup, taking care to keep sugar from sides of pan. Pour immediately over nut meats which have been prepared and spread over the bottom of a buttered shallow pan. It will take about one and one-third cups of nut meats for this amount of sugar.

Fondant

This candy is the basis for all French creams and may be used in a variety of ways, with chopped nuts or raisins worked into it, or formed into small balls or flat pieces with a nut meat added to the top, or simply flavored and shaped into small pieces.

Take five cups sugar, one and one-half cups hot water, one-quarter teaspoon cream tartar and one-half cup white corn syrup, and place in a smooth saucepan. Stir carefully before placing on hot part of fire to cook, so that sugar is practically all dissolved before it begins to boil. Boil without stirring until a soft ball may be formed that will just keep in shape.

The thing to watch during the boiling process is that the syrup is not jarred, and that the sugar crystals do not form on the sides of the pan. Have a pan of cold water at hand, dip hand in cold water, then quickly wash off a small part of the sugar with tips of fingers, and repeat until all the sugar adhering to sides of saucepan is removed.

When the boiling is completed pour the syrup on to a slightly oiled platter and let stand undisturbed until a dent can be made in the surface. Then work the candy back and forth with a wooden spoon, to a white, smooth paste. While the paste is still soft and warm, gather together and knead with the hands as bread is kneaded, then cover with an oiled paper and let stand twenty-four hours. It is then ready for dipping in chocolate, or forming into creams.

Stuffed Prunes or Dates

Soak large prunes in cold water several hours, steam until the skins are tender and the stones easily removed. Take out the stones and fill the open spaces with nuts or dates and figs chopped with nuts. Press the prunes into symmetrical shape, then roll in fine granulated sugar. Let stand several hours before serving. The dates of course do not need to be cooked.

Sugared Popped Corn

Two quarts popped corn, two tablespoons butter, two cups brown sugar, one-half cup water. Put butter in saucepan, and when melted add sugar and water. Bring to boiling point, and let boil sixteen minutes. Pour over corn and stir until every kernel is well coated with sugar.

A Few Thoughts on Building

Are you going to build a new house or an addition to the old one? If so, make the floors on a level. How many times people build the kitchen a little lower than the rest of the house, making many irregular steps, which are very tiresome for the housewife. I knew a farm wife once whose health failed. A doctor was called and he had occasion to go into the kitchen. Then he discovered the cause of her failing health. It was a little step down from the sitting room to the kitchen floor. The doctor said this was very bad but the damage was done and they quit the farm and moved to town.

Make your walks from the dwelling to the outhouses on a level with the floors. Then put your clothes line, whatever kind you have, where you can reach it from the walk out of the way of the snow in the winter. I would never put a cellar below a dwelling except for a furnace and fuel. I would make a cave for vegetables. The smell of cabbage and onions is unpleasant even when not decayed. Then often something prevents cleaning when it should be done in the spring and when directly under the house it is very unhealthy indeed. Of course, if there is a cellar with a furnace it would be alright to put a few vegetables there to use in the coldest weather, but the bulk should be in a cave or pit.—Mrs Rhoda E. Herron, Rifle, Colorado.

Let Western Farm Life Service Bureau help solve your farming problems. All questions promptly answered by letter.

National Reading Circle

From Colorado Agricultural College News Notes comes the following by way of suggestion for a reading course:

To meet the demand of people who prefer to read under direction the United States Bureau of Education has inaugurated a national reading circle for young and old, and prepared a number of courses for home reading. There are now about 8,000 readers in this circle.

Readers may take one or more courses. All the books in any list must be read within three years of date of enrollment, and the books in Course No. 1 must be read twice within that period. The reader is asked to notify the bureau when each book is begun and completed and to send a brief statement of what the book means to him. When a course is completed, a certificate bearing the seal of the bureau of education and signed by the commissioner of education is issued to each person, giving satisfactory evidence of having read all the books on the list. The books may be purchased or borrowed from libraries, but are not furnished by the bureau.

The following courses are available:

Course 1. Great Literary Bibles (5 books).
Course 2. Great literature, ancient, medieval and modern (14 books).
Course 3. Reading course for parents (26 books).
Course 4. Reading course for boys. (28 books).
Course 5. Reading course for girls (22 books).
Course 6. Thirty books of great fiction.
Course 7. Thirty world heroes.
Course 8. American literature (25 books).
Course 9. Thirty American heroes.

Write to the Home Education Division, Bureau of Education, Washington. D. C., for admission to this great reading circle.—Nellie M. Robertson.

Holsteins from Arizona for Las Animas County

Continued from Page 3

county. Other localities, where there is difficuity in geting money for the purchase of dairy cattle would find this pian worth their while. It is absolutely safe to the stockholder and also to the farmer. The worth of the pian will be even more apparent as time goes on. Dairy cows and the regular cream check, that comes twice each month, have done a great deal to keep the wolf from the door of many farm homes. County Agriculturist Smith and the business men of Las Animas county, deserve a great deal of credit for the way they are handling the matter.

The following farmers drew animals in the recent importation: E. T. Spires, Tobe; O. P. Councii, Dailrose; J. G. Darneli, Kim; C. O. Shaw, Utieyville; N. E. Scholi, Utlyville; W. A. Peck, Kim; J. F. Chamberlain, Kim; W. L. Scholi, Utleyvilie; O. K. Chamberiain, Kim; C. W. Bradiey, Utleyviiie; Marshali P. Scholl, Utleyviiie; W. H. Burrows, Utleyviiie; J. V. Culbertson, Utieyvilie; W. D. Kirpatrick, Kim; F. A. Tailey, Utieyviile; O. M. Councii, Dailrose; F. J. Connaliy, Tobe; J. B. Marcrum, Tobe; W. R. Hough, Tobe; F. R. Bean, Tobe; F. M. Speed, Tobe; J. L. Green, Viiiegreen; J. W. Wells, Tobe; Bat McCauley, Branson.

DEPEND ON IT

Alcoholic tonics, even in moderate doses, eventually cause the organs stimulated to lose independent vigor. Of a dual nature, both food and tonic

Scott's Emulsion

is eminently adapted to nourish and build up the weakened body.

Scott's does not contain alcohol and is a tonic that you may depend on.

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Develops Films. Print Pictures. Mail Orders Solicited. Catalog Free on Request.

PATTERN DEPARTMENT

All patterns 15c each. Address WESTERN FARM LIFE, Pattern Department, Fourteenth and Arapahoe, Denver, Colo.

Take Notice:. Patterns ordered through this magazine are mailed promptly from the factory at Brooklyn, N. Y., and arrive in 10 to 12 days from the time order reaches Western Farm Life. Be sure to specify size and write name and postoffice address plainly and distinctly. Much delay in receiving patterns is occasioned by failure to observe these precautions.

Waist 3038 and Skirt 3040—A stylish costume. For this attractive creation, one could have taffeta in jade green, combined with fine lace in deep ivory tint, crepe meteor and Georgette would also combine nicely for this style. The waist pattern is cut in sizes 34, 36, 38, 40 and 42 inches bust measure. The skirt in sizes 22, 24, 26, 28, 30 and 32 inches waist measure. For the entire dress it will require 8 yards of 42-inch material for a medium size. The skirt measures about 1⅞ yards at the foot. This illustration calls for two separate patterns.

3033—A Smart "Tunic" Dress—Here is a pretty model for serge and satin, duvetyn and crepe, or crepe de chine and chiffon. Bordered or embroidered materials could be used for this

All Patterns, 15c Each

model. Gray blue Georgette crepe could be combined with black satin and have a simple ornamentation of embroidery in self color. Purple and black, or black satin or silk with a touch of copper color would be effective. The pattern is cut in sizes 16, 18 and 20 years. Size 18 requires 5⅝ yards of 44-inch material. Width of skirt at lower edge is 1¾ yards.

2679—A Little One's Simple Dress—This is a good model for gingham, seersucker, chambrey, lawn, voile, batiste, gabardine, flannelette and albatross. It is also nice for silk and crepe. The skirt portions are gathered to shaped waist portions. Cut in sizes 2, 4, 6 and 8 years. Size 4 will require 2⅜ yards of 36-inch material.

3061—A New Set for Dolly—This attractive group comprises a simple dress good for lawn, batiste, silk or dimity; a stylish cape that may be developed in satin, velvet or silk, and a bonnet to match the cape or to be of lawn, velvet or embroidery. Pattern is cut in sizes for dolls: 16. 18. 20. 22 and 24 inches in height. Size 18 will require ⅝ yard of 36-inch material for the dress, ⅝ yard of 40-inch material for the cape and ½ yard of 20-inch material for the bonnet.

3049—Ladies' Cover-All Apron—Here is a smart and attractive apron model in one-piece style, which closes at the front over the sleeve portions. Gingham, percale or seersucker are good for its development. Cut in sizes: Small, 32-34; Medium, 36-38; Large, 40-42; Extra Large, 44-46 inches bust measure. Size Medium requires 4⅝ yards of 36-inch material.

3032—A Pleasing House Dress—This is a good model for gingham, chambray, lawn, percale, gabardine or flannelette. The sleeve in regular style, is roomy and comfortable at the arms and may be finished so that it can be turned up for convenience when working. Cut in sizes 34, 36, 38, 40, 42 and 46 inches bust measure. Size 38 requires 5⅝ yards of 36-inch material. Width of dress at lower edge is about 2 yards.

3043—A Serviceable Model—Here is a splendid style for gingham, drill, gabardine or serge. One could have plaid silk for collar, cuffs and belt, or have these parts of self material, with brald or embroidery for decoration. Cut in sizes 8, 10, 12 and 14 years. Size 10 requires 3⅜ yards of 44-inch material.

3035—A Simple School Dress—This is a model good for serge, gabardine, voile, checked or plaid suiting, and also for all wash fabrics. As here shown, brown serge was used with collar and cuffs of tan poplin. The sleeve may be finished in wrist or elbow length. Cut in sizes 12, 14 and 16 years. Size 14 will require 5⅛ yards of 27-inch material.

Farmers Buy Fair Grounds

The Bingham County Farm Bureau has purchased the entire hoidings of the Southeastern Idaho Fair Association, consisting of 26 acres, iying within the city limits of Blackfoot, and including race track, grandstand, bleachers, exhibit hails, stalis, etc. The plant is valued at approximately $25,000. The purchase was financed by stock subscription. The farmers now will be able to control the dates for their fall exhibits and to keep out outside attractions which they deem undesirable. Plans are being drawn for additional buildings on the grounds, and construction work on a large scale will start with the coming of spring.

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A Sermon On Egg Circles

P. S.—If the people of CENTER are on the SQUARE, I see no reason why they should not be able to form a good CIRCLE.

The above brilliant EFFORT was thrown at me by the editor in a recent letter in which he informed me that he had visited Center and that the poultry folks of that community were going to form an egg circle.

After that, what can anyone say about an egg circle or an egg center, or even an egg flip?

We do know one thing about an egg circle, though, that is true; people just naturally center around an egg circle as flies do around a watermelon, and we anticipate no trouble for the good people of Center or any other community in organizing such a body.

We have discovered another thing about an egg center, or circle, viz., that the success of an egg circle depends, not upon eggs, or a good market, or transportation, or regular shipment, but upon faith, just plain, simple faith.

Probably more egg circles have died of croup or cholera morbus or measles or other infantile disorder through lack of faith than of all other causes. Of course, when a circle gets some growth and maturity and is doing business enough to warrant the employment of a regular go-between or secretary or manager, there is little call for faith among the members.

Maybe confidence is a better word to use. When a few people get together for the purpose of marketing a product which lends itself so readily to camouflage as does an egg, don't you see that these people must trust each other very fully or suspicions and doubts will sooner or later lead to words that eventually lead to disruption?

The new circle will have a limited membership; most of the community is going to wait for an opportunity to say, "I told you so." A limited membership means a small output. With a small output the prevailing prices will be received as only a considerable quantity will command a superior price. These things mean that the circle must depend upon its membership to market its eggs and of course this must be done as cheaply as possible. Either the circle will agree to trust to the honesty of its members and ship all eggs as they are brought, without grading or candling, or a member will be selected to grade, candle and ship, for a small fee.

In either case confidence must be strongly exercised; it goes without saying that the first way will not work well for any length of time. If the second plan is adopted, the shipper must be the censor. If he has the ability to do the work, he must be given the greatest authority and must be sustained; if his knowledge and judgment are not good, remove him, and do it suddenly. Most people think their eggs are fresh and clean, of good size and uniform. If the shipper tells them they are not they must be made to believe it. Many people are not qualified to judge on these points and the members must trust the one they have selected to represent them on the market.

Of course there must be a market paying better than prevailing home prices. To find this market is as easy as forming a circle and as easy to lose as it is easy for a circle to bust up. "The market we have always with us" even as the poor. In the strictly consuming centers the price paid is generally one-fifth to one-third higher than the price received by the producer. This difference is what the producer cannot understand and is the thing that he is after. This difference is the cause of egg circles and other co-operative marketing organizations. He hardly ever considers that he is largely to blame for it but calls it "middleman's graft." It need not be a difficult thing for the egg circle to get this difference for its members by acting as middleman for them.

Only a comparatively few of the consuming public get as good eggs as they would like, and these would often like more they they are able to get. Very many others would willingly pay a premium for an assurance of a steady supply of strictly fresh, good eggs. A few years ago the attempt was made by the Denver P. O. department to get the producer and consumer acquainted with each other and the parcel post was worked overtime. Large quantities of farm products, eggs, chickens, turkeys, cheese, butter, honey, fruits and vegetables were shipped direct and the problem seemed to be solved; now very little is being handled in this way. The reasons for this are, of course, many, and naturally, neither side is altogether to blame.

It is comparatively easy for an individual producer to deal with an individual consumer, but a circle will want to wholesale its products. The logical consumer, then, will be the city dealer, hotel, restaurant, or possibly the employees of a large business house who will divide the shipment among themselves. All of these parties will want a regular supply; they will demand a good quality; unless this can be assured there is no use trying to make a deal. A dealer, especially, cannot be botbered with irregular quantity of quality.

The Cold Storage Problem

What congress should seek much more light on is the real nature of hoarding. We cannot go back to the old primitive methods before the preservation of perishable goods in cold storage was possible. Even the adoption by congress of the recommendation that a four months' limit be put on refrigeration would ruin the poultry industry. Farm eggs bring a satisfactory price in the spring only because they can be preserved until the winter. A four months' limit on storage that would put March eggs on sale in July and force April eggs on the market in August would work immeasurable hardships on the consuming public. A properly preserved spring-laid egg is wholesome winter food. Right now, in their zeal to ferret out profiteering speculators and release foodstuffs believed to be held illegally, the government's officers should be careful not to misbrand supplies that legitimately and properly are held against the needs of the coming winter.

It has taken the packers more than half a century to learn how to store up food products for the consuming public. Their ideas have expanded and their methods have been developed with the growth of the cities. The population has been steadily concentrating in centers. In 1820 we had only 20 per cent of the total population in the cities. Today, more than 57 per cent of the population lives in the cities, and it has been a big problem to store and provide for the winter needs of this ever-increasing consuming population. Interference with the practice of refrigeration is one of the most dangerous things that the government can do.

Of all the producers on earth, the poultryman should be the last to hear the charge of profiteering. Refer to Professor Pearson's chart on the relation between feed costs and the selling prices for poultry and eggs, and the mute pictorial evidence of the poultryman's wartime difficulties will be apparent. When congress put the price of wheat at better than $2, it automatically doubled the price of corn, and since corn is a food for animals, the corn fed cattle, hogs and chickens had to increase in price When stocks of foodstuffs are discussed, neither consumers nor producers should become hysterical and lose their perspective.

It should be remembered that there are 110,000,000 people in this country who are eating three meals a day, 365 days in the year, a total of 120,450,000,000 meals. Do not lose the perspective. Public agitation will be most potent in correcting evils in the retail trade where meats are often vended at prices based on the gullibility of the consuming public.—F. L. Platt in the American Poultry Journal

A Disorder Not a Disease

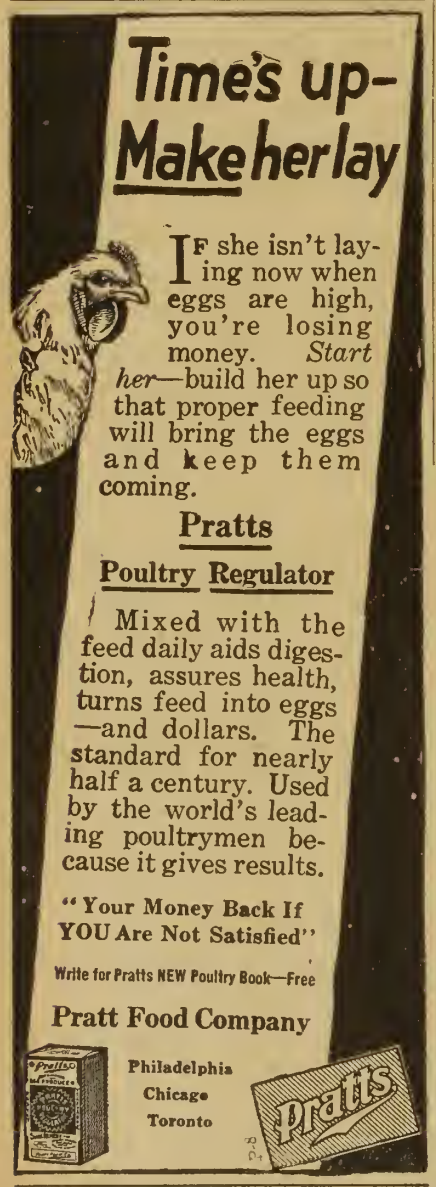
I have killed several hens for table use and upon opening them find the egg bag filled full of all sizes and shapes of eggs. Some are like the hard cooked yolk of an egg and some are almost black. The intestines have grown fast to the egg bag. The hens are fat; beads are red and seem alright before killing them. They are two years old, Rhode Island Reds. Can you tell me just what is the matter with them and are they fit for table use. Is it contagious?—C. N., Weld County, Colorado.

The condition existing in some of the hens you have killed does not spoil them for food and is not contagious. It is a disorder, not a disease. What causes it we do not know, neither the cure, but we do know that it is safe to eat the meat.—W. E. V.

Dual Purpose Breeds

What breed of poultry do you recommend as the most profitable for eggs and meat? Do you ever set hens in the fall months and get good broods from them? If so please tell me what month you set them in. Is the bantam a good layer?—Mrs. H. B. P., Nebraska.

The American breeds, Plymouth Rocks, Wyandottes and R. I. Reds, will come nearest to supplying both eggs and meat in most profitable quantities. The best time for setting hens is in the spring, though sometimes good results are obtained with fall hatches. They should be hatched early enough to be well feathered before cold weather, preferably in August. No reason why the hatches should not be good. Bantams are not heavy layers; they are purely ornamental.—W. E. V.



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Certified Seed Stock Bought for Divide Growers

Continued from Page 4

doubtedly good seed potatoes will be at a premium by planting time.

The potato growers of Elbert, El Paso and Douglas counties are making a great start toward the production of certified potato seed in Colorado. San Luis Valley growers have already started to inquire about the possibilities of obtaining a supply of certified seed from the Tri-County growers next year. Markets will not be hard to find for the growers of good potato seed stocks.

With the assistance of the Bureau of Markets an organization of Certified Potato Seed Growers of the Tri-Counties will be perfected later on. This will benefit the growers in their production problems as well as in the marketing of their seed.

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Out Among the Breeders

F. M. LOCKWOOD, Fieldman

In the following paragraphs Mr. Lockwood continues his account of short calls made on th elivestock breeders of Weld county, from which section he proceeded to Boulder county, where he was given the same cordial welcome on every farm and given an opportunity to inspect the purebred stock.

Fred J. Schick of Greeley has 1,500 cattle, 20 miles southeast of town. He is just starting to raise purebred Herefords. He now has 90 cows, young bulls and heifers. He certainly has a fine herd bull in Repeater 29th from the Harris's Missouri herd. Mr. Schick has one of the largest and most unique water tanks in the country, built along original lines.

We motored over the C. V. Owens noted breeding ranch, five miles east of Eaton. Here is the home of 32 registered Belgian and Percheron horses and 28 head of well conditioned and highly bred Shorthorn cattle. One bull is a model type from the Saunders Iowa herd. The great Vergoine II, winner of eleven grand champion prizes, heads the Percherons, and Prince, Jr., the Belgians. There are a few Warnocks among the Shorthorns. Mr. Owens is a new Shorthorn breeder.

My next call was at the S. L. W. ranch (formerly the Ogilvie ranch) managed by H. E. Witwer, president of the corporation. I found many large, fine cattle pens and up-to-date equipment. There are about 250 hardy registered Herefords and 40 registered Durocs. The herd bulls are Wilber Mischief, Prince Hermos II and Lord Oswald Perfect Donald.

I met the hustling Roy Curtis, cow tester of the Johnstown association, at the Henry ranch, three miles east of Evans, Colo. Mr. Henry has some prize-winning Berkshires, 14 head, also a young King Segis Pontiac Holstein-Friesian bull and a purebred cow and heifer. The remainder of his fine-kept herd are great milk-producing grades. The outstanding feature at Mr. Henry's ranch is the super-cleanliness. He is the young, hustling vice-president of the Weld County Breeders' Association.

Two miles east of Eaton is a new Colorado Holstein breeder, Mr. James Gibson, who was successful in New York. He has some nice grades. His purebreds comprise four cows, two calves and two bulls. A seven months Pontiac Holstein bull is a wonder for size and conformation. Mr. Gibson and this bull will be heard of later.

Another beginner in the breeding of purebreds in Colorado is Floyd Adams, who is located three miles west of

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head of registered Poland China hogs. This is rare news since I found no purebred hog breeders near the Lincoln Highway between Denver and Greeley. Of course, a great many farmers have a purebred boar, but the herd is mixed stock.

On the road to Estes Park, six miles from Greeley, are some fine Belgian horses, Jersey cattle and Berkshire hogs. The hogs belong to the Pig club but the horses and cattle are owned by J. B. Dickey. He has three registered Belgian stallions. Bruno Radise, a perfect roan, won first prize this year at the Greeley Community fair. He has six purebred Jersey cows, three heifers and some calves.

Visitors along the Lincoln highway can see a large herd of clean, fine appearing Holsteins a half mile south of the twin bridges, six miles north of Platteville, Colo. These are the C. H. McNeil & Sons herd. Seventeen head are purebred: 2 bulls, 9 cows, 4 heifers and 2 calves. Balance are grades.

My first call out of Denver on the trip around the "Horn" via Boulder, was at the Holstein ranch owned by J. J. Kalbers, two miles northeast of Broomfield, Colorado. He is new at the business but has a wonderful herd bull in Ormsby Skylark Johanna, half brother of the famous Dutchess Skylark, the only cow in the world to ever produce over 1,500 pounds of butter in one year. His sire is a half brother to Pietertje Main Ormsby. Mr. Kalbers won first prize at the 1918 National Western Stock show; also first in 1919 at same show with this bull. He won grand champion at Boulder, Colorado, 1919 fair. A daughter of this bull on this ranch won grand champion this year at Boulder. Another heifer won second prize at Boulder fair, 1919. Mr. Kalbers has a registered Poland China pig and expects to breed hogs as well as Holsteins.

Elmwood, the breeding farm of Zang's great Percherons, one mile north of Broomfield, was next visited. Here are two aged stallions, 65 mares and 15 colts. Negro stands out. This stallion won first at National Western, 1919, and grand champion at State fair this year. Champagne is the other. Elmwood Dutchess, a notable filly, won champion at Longmont and junior champion at Pueblo this year. Mr. H. Howarth, the manager at Elmwood, states that the Zangs will exhibit thirty head of Percherons at the National Western Stock show in January.

A beginner at the breeding game, Mr. C. A. Rossiter, whose farm is three miles north of Broomfield, has seven purebred Holsteins. He sold 107 grades last year.

Forrest Chapman, next farm west of Rossiter's, purchased two purebred Holstein cows at the Norris sale recently. This is a nucleus. He and Rossiter will probably join in a herd bull, at least for a beginning.

George I. Miller, president of the Boulder County Breeders' association, with his sons, have at their ranch, one mile south of Lafayette, four head of purebred Shire horses, 22 head of Shorthorn cattle, three registered Hereford bulls, four registered Hereford heifers and 15 head of purebred mulefoot hogs. Their Shire stallion, Chief, won first prize and grand champion at the Boulder county 1919 fair. Their mare took first prize at the same fair. They expect to exhibit at the National Western Stock show. Mr. George I. Miller has done a vast good in his section in raising the purebred standard.

Three miles southwest of Boulder a new breeder, William Viele, has six Holsteins and four Shorthorns, including one male.

C. E. Kohler, two miles southeast of Boulder, has in his herd twelve purebred Holsteins, including three calves. He has two good bulls.

E. H. Kingman has recently purchased two registered Holsteins for a starter, one bull and one cow. This ranch is three miles east of Boulder.

Boulder county is probably the banner one in Colorado in having the greatest number of breeders of purebred cattle, hogs and horses, especially new ones, within the past year. J. J. Weber is one of the last, having started with a registered bull from the Howarth herd. He is four miles east of Boulder.

John Hardnagle owns the fifth ranch in a row, with purebreds. His hobby is Shorthorns also. Just new at the business. He has one bull and one cow. The bull, Types Lad, a roan Warnock, won reserve grand championship at Longmont fair, 1919. These five neighboring breeders are nine miles east of Boulder.

Field Notes

Mr. I. L. Mathison, owner of the Jewelfield Farm at Fort Morgan, Colo., has a few choice young boars and gilts for sale. Mr. Mathison has a good line of Big Type Poland Chinas, and this is a good chance to get some good blood. You will find his ad on our Livestock page.

Mr. A. F. Borgmann of Longmont, Colo., has some fine Duroc Jersey boars and gilts for sale. These animals were sired by Joe's Orion King, a world's champion. The dams of these pigs are prize-winners at the Denver National Show. Read his announcement on our Livestock Page.

Gleason & Blazer of Kiowa, Colo., have several choice bull calves for sale, and also a car of cows and heifers. These are all Colorado-grown a nd of breeding age. His herd is headed by Sunnyside Robert, the great Sunnyside Shorthorn bull.

The Carr W. Pritchett ranch at Steamboat Springs, Colo., announces that they have 12 fine bulls for sale. They range in age from 9 to 20 months. They were sired by Loyal Stamp and are great-grandsons of Whitehall Sultan.

Mr. Wm. R. Purvis of Johnstown, Colo., is offering for sale his fine young bull, James Pontiac DeKol Ormsby. This outstanding young animal is from one of Mr. Purvis' producing advanced registry cows. Read his announcement on our Livestock page in this issue.

Mr. Clark E. Kitchen of Rocky Ford, Colo., has announced that he is selling his ranch and will dispose of his entire herd, which consists of purebred Guernseys. He is offering his three-year-old herd bull with the lot. If you want Guernseys, write Mr. Kitchen. Read his announcement on our Livestock Page.

Mr. C. H. Hinman of the Bonvue Farms Co. has some fine Milking Shorthorns for sale. He has some fine individuals in his herd that have made excellent records in milk production. this year. Read his ad on our Livestock Page.

There will be a public sale of registered Herefords and Durhams at the J. H. Neal ranch near Moffat, Colorado, on December 30. Mr. Neal's Hereford herd bulls are Bonnie Lad 7th and Bonnie Lad 8th, from the Weston herd. Count Valentine from the Forsythe and Sons, Missouri, berd is the herd sire of Scotch Shorthorns.

What a Purebred Holstein Sire Will Do When Bred to Scrubs

Resume of eight years' experiment at Iowa Agricultural College:

"The average of all the records made by first generation heifers, sired by a Purebred Holstein sire, shows an increase of 2314.5 lbs. milk or 71 per cent in milk and 67.15 lbs. fat, or 42 per cent in fat, at an average age of 3½ years over the record of their scrub dams at an average of 6 years."

Send for free illustrated booklets.

THE HOLSTEIN-FRIESIAN ASS'N
186 Hudson Street
BRATTLEBORO, VERMONT

BIG-TYPE
REGISTERED
DUROC-JERSEY HOGS
QUALITY STOCK
GREEN ACRE FARM
6TH AND WADSWORTH
DENVER, COLO.
H. W. J. EDBROOKE, Owner

DUROC JERSEY BOARS AND GILTS
of March farrow, sired by Big Bone Wonder, First Prize Junior Yearling at Iowa, 1918. September boars and gilts (weaning) for sale NOW—sired by Joe's Orion King, a World's Champion. Dams are prize winners at Denver National. Well grown and smooth individuals.
AUGUST F. BORGMANN
R. F. D. 1, Box 124 Longmont, Colo.

LA MARIPOSA
The Carr W. Pritchett Ranch,
Steamboat Springs, Routt Co., Colo.,
has for sale at this time 12 fine bulls from 9 to 20 months old. Sired by LOYAL STAMP. Priced right. Great-grandsons of Whitehall Sultan.

Boar Pigs For Sale
High class individuals of January and March farrow—will make exceptionally good Herd Headers. Prices in accordance with stock.
State Fair Winning Blood is mixed thru our entire herd. Inspection invited, or write
THE DEMING RANCH, Oswego, Kan.

BIG TYPE POLAND CHINAS
I am offering a few of my choice herd sows bred for early fall litters. They are real 700 to 800-pound sows. Also March pigs at weaning time, the best I ever raised and good enough to get in the money at any show—$25 up.
GEO. R. GILMORE, Ft. Morgan, Colo.

Have You PUREBRED Stock to Sell?

There are 50,000 subscribers of Western Farm Life in Colorado and immediate adjacent territory. You can find buyers from among these prosperous farmers and stockmen that will purchase every purebred animal that you have to sell.

Just to give you an idea of the sales that are being made, we quote from letters received:

Over 50,000 Circulation in the heart of the greatest livestock territory in the world.

The number of rural homes in each county in the state of Colorado and the number of subscribers that Western Farm Life has in each county.

County	No. of Rural Homes	No. of Subscribers
Adams	2090	981
Alamosa	600	245
Arapahoe	1210	406
Archuleta	140	48
Baca	685	249
Bent	1650	322
Boulder	1870	1374
Chaffee	830	228
Cheyenne	600	130
Clear Creek	140	40
Conejos	490	164
Costilla	275	86
Crowley	1100	311
Custer	260	39
Delta	1125	296
Denver	.....	435
Dolores	85	24
Douglas	500	182
Eagle	190	70
Elbert	1510	359
El Paso	2200	1590
Fremont	800	498
Garfield	1595	753
Gilpin	150	27
Grand	225	53
Gunnison	490	119
Hinsdale	75	10
Huerfano	970	228
Jackson	285	68
Jefferson	1760	995
Kiowa	695	157
Kit Carson	1240	239
Lake	150	111
La Plata	820	221
Larimer	2310	1903
Las Animas	2750	710
Lincoln	1925	284
Logan	2750	708
Mesa	2190	492
Mineral	100	23
Moffat	310	81
Montezuma	385	98
Montrose	1760	392
Morgan	2200	822
Otero	2200	902
Ouray	225	58
Park	220	61
Phillips	1640	361
Pitkin	600	46
Prowers	2750	536
Pueblo	3325	1030
Rio Blanco	280	77
Rio Grande	1570	391
Routt	1400	153
Saguache	675	182
San Juan	145	29
San Miguel	250	59
Sedgwick	600	162
Summitt	140	28
Teller	785	228
Washington	1950	490
Weld	5700	3272
Yuma	1975	618
Total	69,945	25,254

Colorado Circulation	25,254
Wyoming circulation	4,450
Idaho circulation	6,718
Utah circulation	5,698
New Mexico circulation	5,477
Scattered circulation	4,291
Total circulation	51,888

"I have for the past year or so carried a small advertisement in your paper of Edgemoor Farm Duroc Jersey Hogs, and the results of such advertising have been very gratifying. I consider your paper an effective means of reaching livestock breeders and securing quick results." —Caldwell Martin.

"Your paper is getting good results and we want our Poland China Hog advertisement in by the year." —Davis Bros., Lincoln, Neb.

"You will please discontinue my livstock advertisement, as I have sold out of stuff."—Howard M. Jay, Longmont, Colo.

"Please stop my ad at once. I have more orders than I can fill and loads of inquiries still coming."—R. J. Jandebeur, Alma, Neb.

"I have about sold out on Shorthorn bulls and heifers and have to say that your magazine got me more inquiries than I ever had before."—Geo. Lasser, Golden, Colo.

"I want to say that we have secured splendid results from our ad." —O. J. Clark, Vice-Pres., Interstate Trust Co., Denver, Colo.

We want you to try a livestock advertisement in Western Farm Life for the next few issues. Just as sure as these breeders mentioned here secured profitable results, you can do the same.

SEND NO MONEY. Simply write us a letter telling what you have to sell and give us all the good selling points of your animals. Immediately upon the receipt of your letter our advertising writer will fix you up a good advertisement and mail it to you for your approval, at the same time stating to you just what the cost will be to run it in Western Farm Life.

We make a special rate to breeders and the cost will not be unreasonable when you take into consideration the large circulation we have in every county in Colorado and adjacent states.

What you want is results and your advertisement in WESTERN FARM LIFE will get them for you just as sure as the sun rises and sets.

Write us today and try an advertisement in WESTERN FARM LIFE. After you have run your advertisement a few times and begun to get returns and make sales you will be GLAD.

Address Breeders' Department
WESTERN FARM LIFE
1400 Arapahoe, Denver, Colo.

Denver
The Live Stock Market

Denver is the Highest Market **Most of the Time** and the Best Market **All the Time** for Western Cattle and Sheep.

Time and again cattle have sold on the Denver market for higher prices than the same cattle would bring same days at the Missouri River.

Why don't you market your cattle and sheep at Denver, where they will bring you greatest net returns?

Farmers' and Stockmens' Exchange

Advertisements will be inserted in this department for 5c per word; four or more insertions, 4c a word each insertion. Remittances can be made by postoffice money order or personal check. Advertisements are set in uniform style, no display type or illustrations admitted under any circumstances. Every figure and initial counts as one word. Guaranteed circulation over 50,000 copies each issue. WESTERN FARM LIFE is issued semi-monthly the first and fifteenth of each month. Advertising copy for this department must reach us ten days before date of issue. It carries the most classified advertising because it gives you best results. Send us in a trial advertisement. Write for proof showing how these columns pay advertisers.

POULTRY

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

LEGHORNS

KYFFIN'S BUSINESS BUFFS—EGGS BRED S. C. Buff Leghorns. Mrs. J. W. Kyffin, Route 3, La Junta, Colo.

PLYMOUTH ROCKS

FIVE-POINT COMB WHITE ROCK EGGS, $1.50 for 15, $7.00 per hundred; express prepaid first and second zones. C. R. Harrington, Lecompton, Kansas.

BARRED PLYMOUTH ROCKS—BOTH LIGHT and dark, winners at State Fair and National Western, excellent layers, a fine bunch of cockerels, at $4 and $5 and up. A few hens and pullets. Chester Blunt, Route 1, Greeley, Colo.

ORPINGTONS

SHANKS ORPINGTONS, S. C. BUFF. NEW York and Louisville bloodlines. Bred to lay. Farm raised. Write your needs to F. M. Shank, Rt. 2-A, La Junta, Colo.

RHODE ISLAND REDS

ROSE COMB RHODE ISLAND RED COCKerels; prize winning, heavy laying strain. Write your wants. E. A. Miller, Alma, Neb.

BRAHMAS

FOR SALE—THOROUGHBRED LIGHT BRAHma Cockerels, from prize winning stock. Best in the west. Prices reasonable. E. Grosser, 2240 Perry, Denver, Colo.

LANGSHANS

FOR SALE—PUREBRED WHITE LANGSHAN cockerels, $3. T. R. Elliot, Merino, Colo.

BLACK LANGSHANS OF SIZE AND QUALITY. Winter layers, win wherever shown. O. I. Moon, Fort Morgan, Colo., North Star Route.

SEVERAL VARIETIES

BUFF LEGHORNS—R. I. REDS—BEST LAYers on earth; fancy cockerels, Mammoth Pekin drakes. I want your market fresh eggs. Champney, 2057 South Broadway, Denver.

COLUMBIA HATCHERY—ESTABLISHED 1911. Send us your orders for cockerels; 14 different varieties, also Mammoth Bronze Turkeys, White turkeys, Pekin and Indian Runner ducks and drakes. Write for price list. P. O. Box 1102, Denver, Colo.

TURKEYS

IDEAL MAMMOTH BRONZE, GOLD BAND strain. Parent Tom 40 lbs., hens 22 lbs. For sale—18 month toms, $15; May toms, $10; fifteen-pound pullets, $8. Laura Ullom, Lamar, Colo.

LIVE STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

CATTLE

FOR SALE—YEARLING REGISTERED HOLstein bulls. Nels Anderson, Niwot, Colo.

FOR SALE—WELL MARKED, HIGH GRADE heifer calves, $25 each. Satisfaction guaranteed. Art Rasche, Lake Mills, Wis.

FOR SALE—ABERDEEN-ANGUS CATTLE; 13 registered cows and heifers, 4 registered bulls. A. B. Ashton, Arriba, Colo.

FOR SALE—REGISTERED HOLSTEIN BULL calves from advanced registered dams. Excellent breeding. Priced right. Garmesa Farms, Fruita, Colo.

A CARLOAD OF REGISTERED YEARLING Hereford heifers; also this year's heifers; two yearling bulls and some extra good bull calves all good boned, good marked and best anxiety breeding. J. O. D Ranch. Arova, Colo.

HORSES

FOR SALE—PERCHERON STALLION, DULL black, imported 1912, foaled 1908. Has first premium from state fairs. D. Karlen, Route 3. La Junta, Colo.

HOGS

FOR SALE—A FEW BIG TYPE POLAND China spring boars of a 900-lb. sow and a 1100-lb. boar. W. J. Peterson, Seibert, Colo.

FOR SALE—REGISTERED BIG TYPE DUROC Jersey bogs from Prize Winning Stocks. Edgemoor Farm, Route 3, Littleton, Colo.

BIG TYPE POLAND CHINA HOGS—SPRING boars and gilts for sale. Gad Barney, Haswell, Colo.

FOR SALE—PIGS, CHEAP, FROM WEANING size up, big type (registered). Write F. L. Toliver, Fort Collins, Colo.

FOR SALE—TWO PUREBRED DUROC JERsey boars, not registered. W. N. W. Blayney, 1729 Arapahoe Street, Denver, Colo.

WEANER DUROC BOARS AND GILTS FOR sale, $20 and $25. Buy a pair of gilts by the 1,000 pounds. Onamesa's King Defender and a boar by Onamasa's King Orion. Onamesa Farms. Cedaredge, Colo.

STOCK HOGS WANTED—WE WANT TO BUY several hundred head of pigs and hogs weighing from 60 pounds up. Let us know what you have for sale. Write Duroc Farms, 412 Cooper Building, Denver, Colo.

BROWN'S POLAND CHINAS—LEADING BIG type strains. Cholera immune. Big bred sow sale February 14, 1920. Descriptive catalog free. Write me. Boars for sale now. J. H. Brown, Route 5, Selden, Kas.

REGISTERED DUROCS—WE ARE MAKING A specialty of some good registered boars at farmers' prices. Have also some fine show prospects; write us. The Blue Ribbon Live Stock Co., C. F. Burke, Mgr., Pueblo, Colo.

REGISTERED BIG TYPE DUROC JERSEY boars and gilts by Orion Cherry King XV and out of Defender sows. Reasonable prices and money back if not satisfied. J. O. D. Ranch. Aroya, Colo.

DUROC JERSEY PIGS—SEPTEMBER PIGS by Montair Sensation, a son of Great Sensation, and half brother to Great Orion Sensation. Grand Champion at National Swine show. You can get well bred pigs at the price of commoner stuff. Geo. E. Morton & Sons, Fort Collins, Colo.

GET YOUR HERD BOAR NOW—I HAVE SEVeral registered big type yearling Duroc boars, litter mates to Willow Grange Chief, first prize winner at Pueblo State Fair, sired by 1918 Grand Champion, that I will sell at attractive figure. Also younger gilts and boars of prize-winning strain. Write me what you want and I will take care of you. J. N. Caldwell, Willow Grange Farm, Littleton, Colo.

HELP WANTED

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

NEGRO SOLDIERS IN WAR—BOOK CONTAINing many pictures colored troops; everybody buys; agents making $25 day; big hit; send 25c for outfit. Mullikin Company. Marietta, Ohio.

2,000 GOVERNMENT RAILWAY MAIL CLERKS wanted. Men, women, 18 up; $1,300 year to beginners. Write immediately for list positions open. Franklin Institute, Dept. N 171, Rochester, N. Y.

AGENTS MAKING $200 WEEKLY! EVERYone wants it. Formulas for 200 beverages to be made at home. Book form. Send $1 for copy and territory proposition. Act quickly. Buyers Export Agency, Inc., 487 Broadway, New York.

SALESMEN FOR MARCH'S "HISTORY OF THE World War" and "Life of Roosevelt" are earning from $10 to $50 per day in profits. Sales barely begun. Nothing like it in the history of the world. Both outfits free for 20c mailing expenses. Best terms, credit given. Order outfit without delay. Address the S. A. Mullikin Co., Marietta, Ohio.

FARMS AND RANCHES

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

WANTED—TO HEAR FROM OWNER OF good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

TRADE RELINQUISHMENT WITH WATER right, for livestock, grocery, Denver residence. Murray, 1858 Lawrence St., Denver.

WANTED—TO HEAR FROM OWNER OF farm, or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

JOIN CO-OPERATIVE COLONY—GOVERNment land, coming under irrigation, easy cash, work and crop payments; hurry. The Liberty Irrigation Co., 1858 Lawrence St., Denver.

FARM AND CATTLE RANCHES—CHOICE list. If interested call or write F. E. Wrockloff, Merchants Bank, Seventeenth and Curtis streets, Denver, Colo.

I HAVE CASH BUYERS FOR SALABLE farms. Will deal with owners only. Give description, location and cash price. James P. White, New Franklin, Mo.

REAL ESTATE WANTED—SELL YOUR PROPerty quickly for cash, no matter where located. Particulars free. Real Estate Salesman Co., Dept. 11, Lincoln, Neb

320 ACRES IN EL JASO COUNTY, COLO. All improved; 135 acres under cultivation. Price, $25 per acre; buy from owner. Mrs. L. Fitzgibbons, 1904 Logan Street, Apt. 10, Denver, Colo.

FOR SALE—560 ACRES WHEAT AND STOCK farm; 140 acres in summer followed winter wheat; 220 acres in cultivation; 200 acres in pasture. New Bungalow house 24x34; good improvements. All fenced and cross-fenced; also have good cane, millet and sudan grass seed for sale. Almost new Fordson tractor and 14-inch plows. Ray Gotfredson, Buckingham, Colo.

WRITE FOR FREE ILLUSTRATED BOOKLET describing agricultural and business opportunities in northeastern New Mexico. Productive soil, healthful climate, altitude 5,200 feet. Excellent for farming and stockraising. Growing towns. We have no lands for sale, but are interested in the development of this territory. Address Earl G. Reed, Agricultural Agent, Room 713, Railway Exchange Building, Denver, Colo.

FOR RENT—I WILL RENT TO THE RIGHT party, 60 acres on Main Street, one-fourth of a mile from Fort Morgan. Good house, barn and lots of fruit. Ten acres number one farm land, rest woods pasture. I wish to rent the house at $35.00 per month; it is rented for that now. It takes one year's rent on the house in advance, and money to take cows and hogs on half interest. Harold Anderson, Fort Morgan, Colo., Route 3.

BIG LAND SALE—NEAR DENVER—30,000 acres being closed out by trustee at forced sale under order of court; rich soil; good water rights; good title; your chance to select a good farm on small cash payment and ten yearly payments for balance—all within 10 to 40 miles of Denver, and all near good railway towns. Come or write the Trustee immediately for literature. Chicago Title & Trust Co., Trustee, 701 Ideal Bldg., 17th and Champa Streets, Denver, Colo.

200-ACRE MISSOURI FARM, $5,500, WITH pair horses, 9 head stock, complete farming implements, near railroad town, creamery, etc. Productive tillage in rich bottom land, also 40 acres bench or second bottom; good woodland, sawe timber, several acres orchards, 6-room house, barns, corn house, etc. Aged owner to sell at once—sacrifices, $5,500 for all, easy terms. Details page 88 Stout's Fall Catalog Farm Bargains 23 States; copy free. E. A. Strout, Farm Agency, 831 BA, N. Y. Life Bldg., Kansas City, Mo.

ATTENTION STOCKMEN—WE HAVE TWO stock ranch bargains. Just what you are looking for; each ranch comprises 320 acres deeded land with substantial improvements and large acreage under irrigation, and in alfalfa, timothy, clover bay, unlimited outside free range, with 4,000 acres of leased land under fence for fall pasture. These ranches are located three miles apart, 125 miles from Denver. Good shipping point, big money makers. Prices $12,000 and $13,600 on good terms. See us at once for these. Reynolds, Covey & Reynolds, 625 Exchange Bldg., Denver, Colo.

CATTLE RANCH LAND—6,880 ACRES IN solid body; adjoining shipping station on two main line railroads in Arkansas valley, 20 miles east of Pueblo, Colorado; not fenced, not improved; several fine springs, also crossed by large irrigation canal; 500 acres subirrigated and can be irrigated by pumps; high tension power line alongside of land to furnish power. By buying about 300 acres along the river adjoining fine shade and shelter can be had; 2 miles away is a fine irrigated alfalfa district. This is the making of the finest ranch in Colorado. Price, $12.50 per acre, reasonable terms. Cbas. O. Elwood, Owner, 701 Ideal Bldg., Denver, Colo.

PET STOCK

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

COLLIE PUPS SIX WEEKS OLD—MALE, $3; feamle, $2. Canary singers, $6; Buff Orpington hens and cockerels, Rouen ducks. Leslie Christensen, Route A, Akron, Colo.

MISCELLANEOUS

Advertisements under this head will be inserted at 5c a word, four or more insertions 4c a word each insertion. No display type or illustrations admitted.

THE LATEST IDEA IN CANNING FRESH meats, by using an Alexander Home Canner. Address for prices and description, G. W. Alexander & Co., Plattsmouth, Nebraska.

LUMBER

LUMBER, LATH, MILLWORK—GET OUR DIRect to consumer prices before building. Catalog, plan book free. Contractors Lumber Supply Co., 443 Lumber Exchange, Seattle, Wash.

BEE SUPPLIES AND HONEY

BEE SUPPLIES OF BEST QUALITY. SEND for 68-page illustrated catalog. We also sell Comb and Extracted Honey. The Colorado Honey Producers' Association, Denver.

TYPEWRITER

GOOD TYPEWRITER FOR SALE CHEAP—Free trial, easy payments if wanted. Write Bertha Payne, Shawnee, Kansas.

TANNING

LET US TAN YOUR HIDE—COW, HORSE OR calf skins for coat or robe. Catalog on request. The Crosby-Frisian Fur Co., Rochester, N. Y.

INVENTIONS

INVENTIONS WANTED—CASH OR ROYALTY for ideas. Adam Fisher Mfg. Co., 204 ?—St. Louis, Mo.

GROCERIES AND SUPPLIES

SEND FOR OUR WHOLESALE WEEKLY price list, it will save you from 20 to 40 per cent on your supplies. 5-lb. can Calumet baking powder, 90c. Whether you buy from us or not get our list, it will keep you posted and will help you buy your goods right. The Stock Growers Wholesale Supply Co., 1523 Nineteentb St., Denver, Colo. Long distance, Main 7612. P. O. Box 1442.

HOG MOTORS

HOG MOTORS—ENABLE HOGS TO GRIND their own feed. They give satisfaction and save expense. Hundreds are in use. For particulars write to K. B. Porter, 1932 West 2nd St., Durango, Colo.

TRACTORS

TRACTORS AND FARM MACHINERY ON crop payments. Pay when you raise a crop. Write for plan. F. J. Shindler, Deer Trail, Colo.

TOBACCO

LEAF TOBACCO—THE "CREAM OF KENtucky's Best Crops." A "Bully Smoke or Chew." Five pounds, $3.00; 10 pounds, $5.00, postpaid. Kentucky Tobacco Co., Hawesville, Ky.

AUTO AND TRACTOR SCHOOL

DENVER Y. M. C. A. AUTOMOBILE SCHOOL guarantees satisfaction in teaching these trades: Automobile repairing; tractor operation and repair; oxy-acetylene welding; vulcanizing and tire repair; starting, lighting and ignition; machine shop practice. 334 students last year. Tuition fees moderate. Practical work under seven practical instructors. Write today for illustrated booklet. The Y. M. C. A. also conducts splendid preparatory and commercial schools for young men.

BEANS

BEANS DIRECT TO YOU—DIVIDE A BAG with your friends. Write for prices. R. D. Mutz, Fowler, Colo., Route 1.

Glendale Stock Farm

Irvindale Rowdy Grand Champion Belgian Stallion Chicago, 1917, Denver, 1918 and 1919

Breeders of **BELGIAN HORSES** and **POLLED HEREFORD CATTLE**

Young Stock Always for Sale

J. D. BRUNTON, Aspen, Colo.

Registered Hereford Cattle

Prince Domino —499611 Sire of the Champion Futurity Bull BEAU ASTER and Heifer Beau Aster (412145), Sire of the dams of these champions.

Our herd is noted for outstanding uniformity. Those looking for choice Hereford cattle of truly constructive breeding should write us or come and see our cattle.

FULSCHER & KEPLER

Holyoke, Colo.

Milking Shorthorns

Straight Bates Shorthorns are as rare as buffalo, but they are the true foundation of Milking Shorthorns.

We announce recent importation from Kentucky of 13 Straight Bates breeding cows to increase our Bates herd. These cows are not for sale.

We also imported 3 Straight Bates Bulls and have 20 Straight Bates and Bates-topped bulls ready for spring sale. Choice will be given as orders are received.

THE CARPENTER CATTLE COMPANY

GREELEY, COLORADO

Registered Breeding Bulls and Heifers

Herefords

Shorthorns

Young stock of both sexes for sale at all times. Our sales yard is located within two blocks of The Denver Union Stock Yards. We are pleased to show our stock at all times.

THE LOWELL PUREBRED CATTLE CO.

Union Stock Yards, Denver

Send for our new illustrated leaflet on

THE FOREST GLEN SHORTHORNS

THE CORNFORTH LIVESTOCK COMPANY

Elbert, Colorado

HOLSTEIN BULL CALVES

We have for sale some mighty good ones with fine advanced registry backing. Prices from $150 to $500. Write us.

PAHGRE VALLEY RANCH

Montrose, Colo.

COL. H. C. JENNINGS

Pure-bred Livestock

AUCTIONEER

Also conduct Sales of Real Estate

534 17th St. Denver, Colo. Phone M-6870

JEWELFIELD FARM

Big Type Poland Chinas

A few choice young Boars and Gilts for sale.

You will find no better blood lines anywhere.

Priced Right

I. L. MATHISON Ft. Morgan, Colo.

Producing Jerseys

We have milked eleven registered Jersey cows and heifers the past year. All have been on Register of Merit test supervised by the State Agricultural College. They have produced as follows:

NAME	Age	Period	Butter Fat Produced	Butter 85% Fat
Imp. Morny Cannon's Love	8 yrs.	12 mo.	570 lbs.	671 lbs.
Imp. Grey Canoness	4 yrs.	12 mo.	465 lbs.	547 lbs.
Trilby Lass D.	8 yrs.	12 mo.	406 lbs.	478 lbs.
Jolly's F. F. Rowena	7 yrs	12 mo.	389 lbs.	458 lbs.
Helen Hopkins Sultana	4 yrs.	12 mo.	368 lbs.	433 lbs.
Trilby Noble	2 yrs.	12 mo.	325 lbs.	382 lbs.
Alpha's Brown Beauty	5 yrs.	12 mo.	325 lbs.	382 lbs.
Fontaine's Twilight	3 yrs.	9 mo. incom-	355 lbs.	
Eminent's Florence Belle	3 yrs.	11 mo. plete	296 lbs.	
Bosnian's Eminent Belle	2 yrs	11 mo. "	317 lbs.	
Oxford Lad's Lena	2 yrs.	6 mo. "	180 lbs.	
		Average of all completed records	407 lbs.	479 lbs.

WE HAVE:

The only Jersey herd in Colorado in which all cows milked are on test, and all but one have exceeded R. of M. requirements

The highest average records of any Colorado herd.

The highest record living Jersey cow in Colorado.

The second highest record living Jersey cow in Colorado.

These records are produced under practical farm conditions. The cows run with a big herd of Shorthorns, are milked but twice a day, and are not stabled nights.

Show Records

This herd was shown twice. Both years we had all the championships but three being nine out of twelve, and both years had the special prize for the Best Individual Display of Jerseys.

OUR PRODUCERS ARE SHOW CATTLE AND OUR SHOW CATTLE ARE PRODUCERS

We kill at birth all of our bull calves except from our best cows. We have but two on hand. If you want bulls from proved production you can get them of us, and the prices are low.

THE BONVUE FARMS COMPANY
C. H. HINMAN, President
STOCKYARDS DENVER, COLO.

MILKING SHORTHORNS
That Do Milk

OFFICIAL RECORDS: Cows tested under farm condltions. Run out with herd, milked but twlce daily, housed only at milking time. Under these condltions three cows have exceeded 10,000 pounds and one exceeded 8,000 pounds with first calf this year. Eleven have qualified for Record of Merit. Nine now on test.

SERVICE BULLS: Duke Glenrose 410244. Hls six nearest dams, all in the Record of Merlt, average 11,517 pounds, an average not exceeded by any bull in service in the United States today.

Lee Buttercup 316631, son of Charlotte B., 15,401 pounds in one year, and an eight-year average of 10,118.4 pounds—a world's record.

Duke Oxford 583991, son of Oxford Annie, R. of M., 8,313 pounds.

WE MAY HAVE WHAT YOU NEED
SEE OUR EXHIBIT AT THE WESTERN STOCK SHOW

THE BONVUE FARMS COMPANY
C. H. HINMAN, President
Stockyards Denver, Colorado

PUBLIC SALE

Tuesday, December 30th, 1919

Near Moffat, Colorado

50 Head of Registered Bulls and Heifers

20 Head of Herefords and 30 Head Durhams

These are all good animals. Here is your chance to pick something good from which you can reap big returns.

J. H. NEAL, BREEDER

I Am Offering FOR SALE

this fine young bull, James Pontiac DeKol Ormsby.

He is a fine outstanding individual from one of my producing advanced registry cows.

WM. A. PURVIS,
JOHNSTOWN, COLO.

JAMES PONTIAC DEKOL ORMSBY

JERSEYS

Western Home of The Majesties

We have a yearling bull by Majesty's Oxford Combination, out of an Imported cow, in R. M., solid color, a corking good calf, will make an attractive price on for quick sale.

Also a January calf, sired by a 700-pound butter bull, out of a R. M. daughter of Count Majesty, that is hard to beat; very low price to move at once.

A few good Duroc gilts, either bred or open. Write me your wants, please.

A. M. McCLENAHAN **GREELEY, COLORADO**

SPECIAL SALE OF SPRING PIGS

Big Type Poland China

TO BE SHIPPED AT WEANING TIME. WRITE US, OR COME AND INSPECT OUR HERDS AT

THE HOME OF "BIG SENSATION"

The world's largest Hog—Weight 1204 lbs.

A. J. EHRHART & SONS, NESS CITY, KAN.

FOR SALE

ENTIRE HERD OF PUREBRED GUERNSEYS

I am selling my ranch and am offering my Guernsey Herd, consisting of Six Cows, Three Heifers, One Yearling Bull, and Two Bull Calves; also

THREE-YEAR-OLD GUERNSEY HERD BULL

The dam of this herd bull is champion A. R. cow of Colorado, and all of the herd have high-class A. R. backing.

If You Want Guernseys This Is Your Opportunity!

CLARK E. KITCHEN ROCKY FORD, COLO.

William Upp

Breeder of

BIG TYPE POLAND CHINA HOGS—HERD HEADED BY BIG JUMBO, Missouri Prince, Cotton Wood King, and others.

Spring Boars and Gilts for sale.

Deer Trail - - Colorado

Coming to the Denver Show

CRUSADER

The Biggest Spring Boar of the Year—the Boar We Have Refused to Price. Meet us there. Let's get acquainted.

DALY'S DUROCS
Cambridge, Nebraska

Milking Shorthorns
THE OTIS HERD

To Dairymen:

Use a milking Shorthorn bull on your grade dairy cows and produce a good beef animal without loss of milk production.

Prominent winners, Denver Stock Show. Bulls for sale at reasonable prices. Headquarters Willoughby, Ohio.

Write for prices to our branch herd.

S. G. ROSE, Mgr.
Pine Valley Farms
COLORADO SPRINGS, COLO.

BLUE RIBBON HERD

Registered Duroc Hogs and Holstein Cattle

Our Duroc Herd has won over 1500 ribbons including 75 Championships.

Heading this great herd are Burke's Good E. Nuff Again, a Grand Champion in Colorado and heaviest Duroc by official weight at National Swine Show, Omaha, 1917; Big Cherry King, sire of all first prize futurity winners, Pueblo, 1918; and Blue Ribbon Sensation that we paid $1,000 for at nine months old.

Write us for prices on farmers' boars, bred sows and some great show prospects.

The Blue Ribbon Livestock Co.

C. F. Burke, Mgr. Pueblo, Colo.

WYNNEWOOD RANCH

Big Type Poland China Hogs

For Sale—Two young boars, sired by the Sensational Big Bob Wonder. Also some weanling pigs of both sexes, including several of a litter from the Junior Champion Gilt, Denver Stock Show, 1919.

C. E. GORDON, Mgr., Overland, Colo.

LaBELLE RANCH

Home of Cherry Chief

Sire of many of Colorado's Prize-winners, has a nice lot of choice spring and fall pigs by this great boar.

Also some sows bred to Cherry Chief for sale.

H. G. SQUIBB AURORA, COLO.

H. C. DENNIS, Auctioneer

FORT MORGAN, COLORADO

Registered Shorthorn and Jersey Cattle

Real Estate Sales Conducted. I can sell your real estate if it can be sold.

Wire at my expense for dates.

Phone: Res. Morgan 155J; Office Morgan 15

SUNNYSIDE SHORTHORNS

Headed by Sunnyside Robert 665749. We have for sale several choice bull calves, also a car of Colorado raised cows and heifers of breeding age. Will sell in lots to suit purchaser.

GLEASON & BLAZER
Kiowa, Colorado

Western Ascalon
318203

A Grand Champion

She is Colorado's Greatest Dairy Heifer in the Official 30-Day Division, and is now on yearly test.

She is the daughter of a Grand Champion Bull, and a daughter of Colorado's Greatest Dairy Cow.

Western Ascalon freshened October 16, 1919, and commenced her official record 8 days later. She gave in 30 days 2,813 pounds of milk, making 98 pounds of butter.

This is the highest milk and butter record in the State in the 30-Day Division, senior 3-year-old class, for any breed. Her milk yield distances all yields of milk in the 30-day official Division for all breeds except one.

Dozens of times during the past ten years we have demonstrated in the show ring and in the milk and butter record classes that we were the breeders of the Correct Thing in Holstein-Friesian Cattle—and again we have demonstrated this fact.

YOUNG BULLS FOR SALE

WESTERN HOLSTEIN FARM

HALL BROS., Props.

Breeders of the Correct Thing in Holsteins

BOX 2, SOUTH DENVER STATION DENVER, COLO.

A Sale of Real Show Hogs at Denver

The Colorado Duroc Breeders Association will hold a sale of Registered Big Type Show Sows and Boars at the National Western Stock Show, Denver,

TUESDAY, JANUARY 20, 1920

Nothing but show animals will be allowed in the sale. This rule will be rigidly enforced by a committee of competent judges with power to cull out every inferior or common looking Duroc.

SOME COLORADO STATE FAIR WINNERS, AND WINNERS AT DENVER, JANUARY, 1920 WILL SELL

Sale will consist largely of blood from the following families: Sensations, Cherry Kings, Pathfinders, Orions, Defenders, Good E. Nuffs and other leading families.

Every animal sold will be backed by an iron-clad guarantee by the breeders of an entire state. Get your name on our list for a catalog of the sale by writing to the Sale Manager, C. F. Burke, Pueblo, Colorado.

Send mail bids to R. C. Ashby of the Duroc Bulletin, Chicago, or to Harry A. Lindgren, care of Western Farm Life, Denver.

C. F. Burke **Caldwell Martin**

George E. Morton

Managing Committee

COL. FRED REPPERT, AUCTIONEER

Wyoming 4th

L. G. DAVIS HEREFORDS
ANXIETY-BRED

Sires in service:

The great **BEAU CARLOS 2D 352001**, sire of Wyoming and many other winners.

BONNIE WESTON 558495, son of Bonnie Brae 15th.

WYOMING 4TH 603868, champion senior yearling bull of 1919 Denver show; sired by the grand champion Wyoming.

We have a few highclass yearling bulls for sale Ranches at Saratoga, Wyo., and Denver, Colorado.

L. G. DAVIS **SARATOGA, WYOMING**

Choice Offering of

Poland China and Duroc Jersey Sows

Bred and Open

Young Shorthorn, Hereford and Holstein Bulls at attractive prices.
Hampshire Ram Lambs by Imported Ram.
Two-year-old Cotswold Ram. Winner at Denver.

Write for prices and descriptions

ANIMAL HUSBANDRY DEPARTMENT

State Agricultural College, Fort Collins, Colorado

THE PLATTE RIVER CATTLE COMPANY

Denver, Colorado

PURE BRED AND REGISTERED

Hereford

BULLS and HEIFERS

1 car 2-year-old bulls.

130 head yearling registered and pure bred bulls.

Several cars yearling heifers, 2-year-old heifers and cows.

Good Bone, Colors and Markings

Write or phone us for prices

715 E. and C. Bldg. Phone Main 3989

406 New Live Stock Exchange Bldg. Phone Champa 4793

PAINTER HEREFORDS

800 Head of Selected Registered Herefords in Herd

Our cattle have sold in every state from Indiana to California, Texas to the British possessions, also to South America. There is a reason—they always make good. If they don't we will.

We are prepared to fill orders for choice yearling bulls, bull calves and young females at very moderate prices.

Write us your wants, or better still, come and see our cattle.

Be sure and see our show and sale cattle at the Stock Show.

JOHN E. PAINTER & SONS, ROGGEN, COLO.

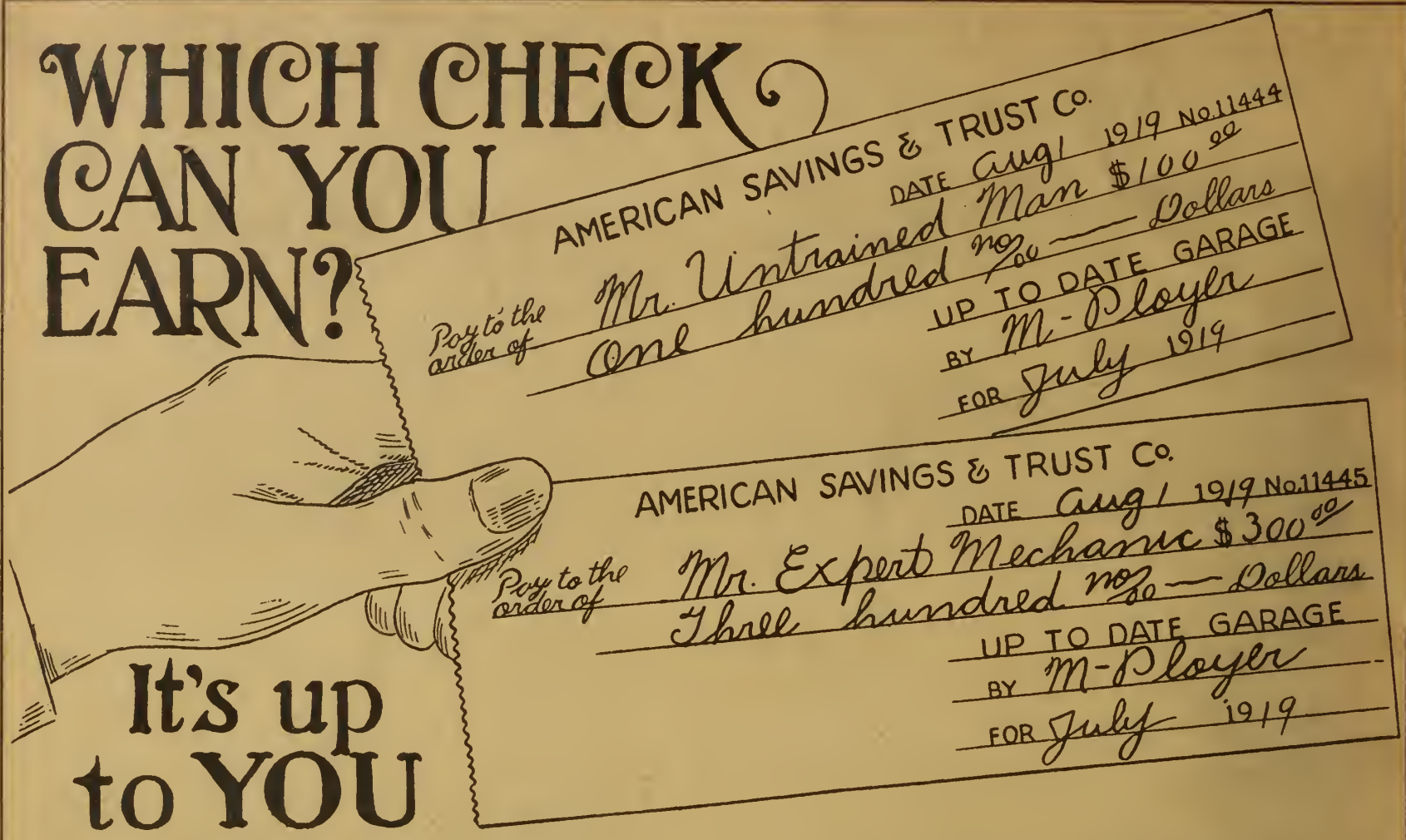
BIG TYPE POLAND-CHINA HOGS

One of the best herds of Poland-Chinas in the west. I have some choice boars and bred gilts sired by "Sampson Over," a son of McSampson, a Grand Champion, and McS. Big Timm, a son of Big Timm, Grand Champion, owned by Wm. Ferguson. Prices right for the quality of stock.

A. D. McGILLVRAY

Rural Route No. 1 **Boulder, Colorado**

WHICH CHECK CAN YOU EARN?



It's up to YOU

AUTO MECHANICS EARN BIG MONEY

DO YOU KNOW—

that there are 10,000,000 automobiles, trucks, tractors, airplanes, motorcycles, marine and gas engines in the U. S. A. today, and that each of them need expert attention daily?

DO YOU KNOW—

that there are not enough expert mechanics to do the necessary work on them—that qualified help is in big demand at high wages, and that no qualified mechanic need be out of work for a day?

DO YOU KNOW—

that a course in our school will qualify you for a position where you can always have work at from $35.00 to $75.00 per week.

DO YOU KNOW—

that our course includes the Construction, Operation and Repairing of Automobiles, Trucks, Tractors, Motorcycles, Airplanes Gas Oil and Marine Engines as well as Acetylene Welding, Blacksmithing Tool-making and Tool-tempering, Lathe Work and Vulcanizing?

DO YOU KNOW—

that a course in our school means the difference between an insecure job at nominal wages and an expert's secure position at top wages—with a prospect of owning your own business and being an employer of labor instead of a laborer.

TEXT-BOOKS AND TOOLS FREE

We furnish all text-books and tools—have every equipment necessary and the only expense is your tuition and board which is very reasonable—and a few weeks' work after you have completed the course will pay all the expense and leave you equipped for life.

THINK IT OVER—THEN ACT—TODAY! DON'T DELAY—it will mean loss of your big opportunity.

If we do not make good as we can and should
We ought to go back to the woods,
For the man who stays, in these modern days
Is the one who delivers the goods.

—WE DO—

TO PARENTS

Do You Know—

that if you give your boy $5,000 that he may spend it or have it taken away from him, leaving him worse off than before?

Do You Know—

that if you give him an education or a technical training that no matter **where he goes or what happens to him** no one can take it away, and that he will **always** be able to earn a good salary anywhere?

Our Course of Study

qualifies a boy or young man in the shortest possible time to take a positon at top wages in an unlimited field, where the demand for qualified help always exceeds the supply, or to save you or himself twice the cost of the course each year in being able to do all the work on your own machinery and vehicles.

Don't make the mistake of DELAYING. Arrange **TODAY** to have him enter our school. We furnish all text-books and tools. Write us about it.

Learn Automobile and Tractor Engineering

Please note carefully our course of study. It includes EVERYTHING to make you a SKILLED mechanic in EVERY BRANCH of the automobile business.

With ten million Autos, Trucks and Tractors now in use in this country there never will be enough QUALIFIED MECHANICS to properly care for them. With our Graduates it is not a suestion of "hunting a job"—THE JOBS HUNT THEM.

Wages are higher than they have ever been and range from $15 to $20 per week for untrained mechanics, to $40 to $75 per week for qualified men.

There is no trade or profession which offers so many opportunities to earn big money right in your own community and in which you can be trained so easily and quickly.

DO NOT DELAY beginning this course. Allow us to emphasize that the SUMMER AND FALL MONTHS are the "harvest season" in this business. By coming for training NOW, you can more than make up the entire expense for your course—JUST FROM YOUR INCREASED EARNINGS within the next few months.

At every crossroad and in every town are opportunities to start prosperous garages and repair shops. It does not require a large capital to start. BUT IT DOES TAKE KNOWLEDGE AND TRAINING. Are you going to be satisfied with your present circumstances when there are real opportunities to be financially independent? Why shouldn't you be the prosperous owner of a business, or making two or three or even four hundred dollars a month? YOU CAN DO IT IF YOU ARE TRAINED.

If it is a lack of money, and not a lack of DETERMINATION that is delaying you, we want you to be sure and let us know, and perhaps we can suggest some way that will help you overcome the difficulty.

We have a great many inquiries asking us if it would not be better to learn in a GARAGE instead of in our school. Our advice to every man who wants to LEARN THE AUTO AND TRACTOR BUSINESS IS TO GO TO SCHOOL. In a garage they haven't the time nor the inclination to teach you. That is not their business. A man who goes into a garage to learn the business will spend years at the hardest kind of labor and then not know Electric Lighting and Starting, Acetylene Welding, Tool-making, Battery work, for in ninety-nine cases out of a hundred the garage man does not know it himself.

OUR SOLE BUSINESS is to teach men the Auto and Tractor business so thoroughly that they will make a success of their own business or as mechanics be in the "Big Wage Class."

When you come to our school you are taught by EXPERIENCED AND EXPERT MECHANICS. They are paid to TEACH YOU. You will have all the opportunity you want to do all kinds of work included in our courses with your own hands and with TOOLS FURNISHED FREE BY US. From the very first day you enter school you put on a pair of overalls, and dig in. You actually take the motors apart piece by piece, rebuild them and make them run, and you do this over and over until YOU KNOW HOW.

If you are as much interested in your own future as we are in the future of all mechanically inclined men, you will let us hear from you at once. We will answer every question you ask and will be glad to tell you anything you want to know about our school or the opportunities in the business.

WRITE US TODAY—DELAY COSTS YOU MONEY

THE DENVER AUTO AND TRACTOR SCHOOL

3740 East Colfax Avenue, Denver, Colorado

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3 0112 033475846